PISA 2009 Results: Students On Line

DIGITAL TECHNOLOGIES AND PERFORMANCE

VOLUME VI

Programme for International Student Assessment

OECD

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Foreword

One of the ultimate goals of policy makers is to enable citizens to take advantage of a globalised world economy. This is leading them to focus on the improvement of education policies, ensuring the quality and sustainability of service provision, a more equitable distribution of learning opportunities and stronger incentives for greater efficiency in schooling.

Such policies all hinge on reliable information on how well education systems prepare students for life. Most countries monitor students' learning and the performance of schools. But in a global economy, the yardstick for success is no longer improvement by national standards alone, but how education systems perform internationally. The OECD has taken that challenge up by developing PISA, the Programme for International Student Assessment, which evaluates the quality, equity and efficiency of school systems in some 70 countries that, together, make up nine-tenths of the world economy. PISA represents a commitment by governments to monitor the outcomes of education systems regularly within an internationally agreed framework and it provides a basis for international collaboration in defining and implementing educational policies.

The results from the PISA 2009 assessment reveal wide differences in education outcomes, both within and across countries. The education systems that have been able to secure strong and equitable learning outcomes, and to mobilise rapid improvements, show others what is possible to achieve. Naturally, GDP per capita influences educational success, but this only explains 6% of the differences between average student performance. The other 94% reflect the potential for public policy to make a difference. The stunning success of Shanghai-China, which tops every league table in this assessment by a clear margin, show what can be achieved with moderate economic resources and in a diverse social context. In mathematics, more than a quarter of Shanghai's 15-year-olds can conceptualise, generalise, and creatively use information based on their own investigations and modelling of complex problem situations. They can apply insight and understanding and develop new approaches and strategies for addressing novel situations. In the OECD area, just 3% of students reach that level of performance.

While better educational outcomes are a strong predictor of economic growth, wealth and spending on education alone are no guarantee for better educational outcomes. Overall, PISA shows that an image of a world divided neatly into rich and well-educated countries and poor and badly-educated countries is out of date.

This finding represents both a warning and an opportunity. It is a warning to advanced economies that they cannot take for granted that they will forever have "human capital" superior to that in other parts of the world. At a time of intensified global competition, they will need to work hard to maintain a knowledge and skill base that keeps up with changing demands.

PISA underlines, in particular, the need for many advanced countries to tackle educational underperformance so that as many members of their future workforces as possible are equipped with at least the baseline competencies and skills that enable them to participate in social and economic development. The high social and economic cost of poor educational performance in advanced economies risks otherwise to become a significant drag on economic development. At the same time, the findings show that poor skills are not an inevitable consequence of low national income – an important outcome for countries that need to achieve more with less.

But PISA also shows that there is no reason for despair. Countries from a variety of starting points have shown the potential to raise the quality of educational outcomes substantially. Korea's average performance was already high in 2000, but Korean policy makers were concerned that only a narrow elite achieved levels of excellence in PISA. Within less than a decade, Korea was able to double the share of students demonstrating excellence in reading literacy.

A major overhaul of Poland's school system helped to dramatically reduce performance variability among schools, reduce the share of poorly performing students and raise overall performance by the equivalent of more than half a school year. Germany was jolted into action when PISA 2000 revealed below-average performance and large social disparities in results, and has been able to make progress on both fronts. Israel, Italy and Portugal have moved closer to the OECD average and Brazil, Chile, Mexico and Turkey are among the countries with impressive gains from very low levels of performance.

But the greatest value of PISA lies in inspiring national efforts to help students to learn better, teachers to teach better, and school systems to become more effective.

A closer look at high-performing and rapidly improving education systems shows that these have much in common that transcends differences in their history, culture and economic evolution.

First, while most nations declare their commitment to education, the test comes when these commitments are weighed against others. How do they reward teachers compared to the way they pay other highly-skilled workers? How are education credentials weighed against other qualifications when people are being considered for jobs? Would you want your child to be a teacher? How much attention do the media pay to schools and schooling? Which matters more, a community's standing in the sports leagues or its standing in the student academic achievement league tables? Are parents more likely to encourage their children to study longer and harder or to want them to spend more time with their friends or playing sports?

In the most successful education systems, the political and social leaders have persuaded their citizens to make the choices needed to show that they value education more than other things. But placing a high value on education will get a country only so far if the teachers, parents and citizens of that country believe that only some subset of the nation's children can or need to achieve world class standards. This report shows clearly that education systems built around the belief that students have different pre-ordained professional destinies to be met with different expectations in different school types tend to be fraught with large social disparities. In contrast, the best-performing education systems embrace the diversity in students' capacities, interests and social background with individualised approaches to learning.

Second, high-performing education systems stand out with clear and ambitious standards that are shared across the system, focus on the acquisition of complex, higher order thinking skills, and are aligned with high stakes gateways and instructional systems. In these education systems, everyone knows what is required to get a given qualification, in terms both of the content studied and the level of performance that has to be demonstrated to earn it. Students cannot go on to the next stage of their life – be it work or further education – unless they show that they are qualified to do so. They know what they have to do to realise their dream and they put in the work that is needed to achieve it.

Third, the quality of an education system cannot exceed the quality of its teachers and principals, since student learning is ultimately the result of what goes on in classrooms. Corporations, professional partnerships and national governments all know that they have to pay attention to how the pool is established from which they recruit; how they recruit; the kind of initial training their recruits get before they present themselves for employment; how they mentor new recruits and induct them into their service; what kind of continuing education they get; how their compensation is structured; how they reward their best-performers and how they improve the performance of those who are struggling; and how they provide opportunities for the best-performers to acquire more status and responsibility. Many of the world's best-performing education systems have moved from bureaucratic "command and control" environments towards school systems in which the people at the frontline have much more control of the way resources are used, people are deployed, the work is organised and the way in which the work gets done. They provide considerable discretion to school heads and school faculties in determining how resources are allocated, a factor which the report shows to be closely related to school performance when combined with effective accountability systems. And they provide an environment in which teachers work together to frame what they believe to be good practice, conduct field-based research to confirm or disprove the approaches they develop, and then assess their colleagues by the degree to which they use practices proven effective in their classrooms.

Last but not least, the most impressive outcome of world class education systems is perhaps that they deliver high-quality learning consistently across the entire education system such that every student benefits from excellent learning opportunity. To achieve this, they invest educational resources where they can make the greatest difference, they attract the most talented teachers into the most challenging classrooms, and they establish effective spending choices that prioritise the quality of teachers.

These are, of course, not independently conceived and executed policies. They need to be aligned across all aspects of the system, they need to be coherent over sustained periods of time, and they need to be consistently implemented. The path of reform can be fraught with political and practical obstacles. Moving away from administrative and bureaucratic control toward professional norms of control can be counterproductive if a nation does not yet have teachers and schools with the capacity to implement these policies and practices. Pushing authority down to lower levels can be as problematic if there is not agreement on what the students need to know and should be able to do. Recruiting high-quality teachers is not of much use if those who are recruited are so frustrated by what they perceive to be a mindless system of initial teacher education that they will not participate in it and turn to another profession. Thus a county's success in making these transitions depends greatly on the degree to which it is successful in creating and executing plans that, at any given time, produce the maximum coherence in the system.

These are daunting challenges and devising effective education policies will become ever more difficult as schools needs to prepare students to deal with more rapid change than ever before, for jobs that have not yet been created, to use technologies that have not yet been invented and to solve economic and social challenges that we do not yet know will arise. But those school systems that do well today, as well as those that have shown rapid improvement, demonstrate that it can be done. The world is indifferent to tradition and past reputations, unforgiving of frailty and complacency and ignorant of custom or practice. Success will go to those individuals and countries that are swift to adapt, slow to complain and open to change. The task of governments will be to ensure that countries rise to this challenge. The OECD will continue to support their efforts.

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The report is the product of a collaborative effort between the countries participating in PISA, the experts and institutions working within the framework of the PISA Consortium, and the OECD Secretariat. This volume of the report was drafted by a team led by Juliette Mendelovits with guidance from the PISA Reading Expert Group and the OECD PISA team, led by Andreas Schleicher. Contributing authors were Alla Berezner, John Cresswell, Miyako Ikeda, Irwin Kirsch, Dominique Lafontaine, Tom Lumley, Christian Monseur, Johannes Naumann, Soojin Park and Jean-François Rouet. Editorial and analytical support were provided by Francesca Borgonovi, Michael Davidson, Maciej Jakubowski, Guillermo Montt, Oscar Valiente, Sophie Vayssettes, Elisabeth Villoutreix and Pablo Zoido of the OECD PISA team. Further advice was provided by Marilyn Achiron, Simone Bloem, Marika Boiron, Simon Breakspear, Henry Braun, Nihad Bunar, Jude Cosgrove, Aletta Grisay, Tim Heemsoth, Donald Hirsch, David Kaplan, Henry Levin, Barry McCrae, Dara Ramalingam, Wolfgang Schnotz, Eduardo Vidal-Abarca and Allan Wigfield. Administrative support was provided by Juliet Evans and Diana Tramontano.

The PISA assessment instruments and the data underlying the report were prepared by the PISA Consortium, under the direction of Raymond Adams at the Australian Council for Educational Research (ACER) and Henk Moelands from the Dutch National Institute for Educational Measurement (CITO). The expert group that guided the preparation of the reading assessment framework and instruments was chaired by Irwin Kirsch.

The development of the report was steered by the PISA Governing Board, which is chaired by Lorna Bertrand (United Kingdom), with Beno Csapo (Hungary), Daniel McGrath (United States) and Ryo Watanabe (Japan) as vice chairs. Annex C of the volumes lists the members of the various PISA bodies, as well as the individual experts and consultants who have contributed to this report and to PISA in general.

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Angel Gurría
OECD Secretary-General

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Executive Summary

PISA defines reading literacy as understanding, using, reflecting on and engaging with written texts in order to achieve one's goals, develop one's knowledge and potential, and participate in society. This definition applies to both print and digital reading.

Some 8% of students in the 16 participating OECD countries reached the highest level of digitial reading performance.
Students proficient at Level 5 or above can evaluate information from several web-based sources, assess the credibility and utility of what they read, and navigate across pages of text autonomously and efficiently. But there is considerable variation across countries: more than 17% of students in Korea, New Zealand and Australia perform at this level, while fewer than 3% in Chile, Poland and Austria do.

At the same time, all participating countries and partner economies, except Korea, have significant numbers of low-performing students. In Chile, Austria, Hungary and Poland, more than one-quarter of students perform below Level 2 on the digital reading scale, and in the partner country Colombia, nearly 70% of students perform below this level. This does not mean that such students have no proficiency in digital reading; many students performing at this level can scroll and navigate across web pages, as long as explicit directions are provided, and can locate simple pieces of information in a short block of hypertext. Nevertheless, these students are performing at levels below those that allow them full access to educational, employment and social opportunities in the 21st century.

Korea is the top-performing country in digital reading by a significant margin, with a mean score of 568.
Korea is followed by New Zealand and Australia, both at 537 score points, Japan (519 score points), the partner economy Hong Kong-China (515 score points), Iceland (512 score points), Sweden (510 score points), Ireland (509 score points) and Belgium (507 score points). The partner country Colombia's mean score (368 score points) is well below those of the other participating countries and economies.

In most countries, student performance in digital and print reading is closely related.
On average, 7.8% of students in the 16 participating OECD countries perform at Level 5 or above on the digital reading scale, while a slightly higher percentage (8.5%) performs at Level 5 or 6 in print reading. On average,16.9% of students perform below Level 2 in digital reading, while a similar percentage (17.4%) perform below the baseline Level 2 on the print reading scale.

However, in Poland, Hungary, Chile, Austria, Denmark, the partner economy Hong Kong-China and the partner country Colombia, students perform significantly better, on average, in print than in digital reading. Conversely, in Korea, Australia, New Zealand, Ireland, Sweden, Iceland and the partner economy Macao-China, students perform significantly better, on average, in digital than in print reading. There is a tendency for the higher-performing countries in both media to do better in digital media, while the lower-performing countries perform more strongly in print media, although Hong Kong-China is an exception.

In all participating countries and economies, the gender gap in performance is narrower in digital reading than in print reading.
Girls outperform boys in digital reading by an average of 24 score points, compared to an average of 39 score points in print reading. The gender gap in digital reading is widest in New Zealand (a difference of 40 score points),

Norway (35), Ireland (31), Iceland (30), Poland (29), Australia (28) and Sweden (26). When comparing boys and girls with similar levels of print reading proficiency and similar characteristics in some student and school aspects, boys achieve higher scores in digital reading than girls in Denmark (22 score point difference), Austria (17), Poland (11), Hungary (11), Sweden (8), Korea (7), Spain (6), Iceland (6), Australia (5) and the partner economies Hong Kong-China (17) and Macao-China (10).

Proficient digital readers tend to know how to navigate effectively and efficiently.

Navigation is a key component of digital reading, as readers "construct" their text through navigation. Thus, navigational choices directly influence what kind of text is eventually processed. Stronger readers tend to choose strategies that are suited to the demands of the individual tasks. Better readers tend to minimise their visits to irrelevant pages and locate necessary pages efficiently. However, PISA results show that even when guidance on navigation is explicit, significant numbers of students still cannot locate crucial pages. The digital reading assessment offers powerful evidence that today's 15-year-olds, the "digital natives", do not automatically know how to operate effectively in the digital environment, as has sometimes been claimed.

Students' attitudes towards reading and their socio-economic backgrounds and immigrant status seem to have similar associations with both print and digital reading proficiency.

In most countries the average difference in digital reading performance between those students who are the most and least enthusiastic about reading is a striking 88 score points. On average, the least enthusiastic students are twice as likely to perform poorly in digital reading as the most enthusiastic readers; and in most countries, this finding holds for both boys and girls.

Engaging in certain online activities also has an impact on digital reading performance. In each of the 19 countries that took part in the digital reading assessment, the more frequently students search for information on line, the better their performance in digital reading. Being unfamiliar with online social practices, such as e-mailing and chatting, seems to be associated with low digital reading proficiency; but students who frequently e-mail and chat on line also perform less well than students who are only moderately involved in these activities.

Access to ICT has grown significantly in recent years and, as a result, fewer than 1% of students across OECD countries reported that they had never used a computer; but a digital divide in the use of ICT is still evident between and within countries.

On average across the OECD countries that took part in the PISA 2000 and 2009 surveys, the percentage of students who reported having at least one computer at home increased from 72% in 2000 to 94% in 2009. The increase in access to a home computer during this period was larger among socio-economically disadvantaged students (37 percentage points) than among advantaged students (7 percentage points). In addition, the proportion of students in OECD countries who reported having access to the Internet at home doubled from 45% to 89% during the same period.

While at least 95% of students in 16 OECD countries, the partner country Liechtenstein, and the partner economies Macao-China and Hong Kong-China reported that they use a computer at home, those proportions are significantly lower in Japan (76%), Chile (73%) and Turkey (60%). In Japan, students often use mobile phones, rather than personal computers, for emailing and accessing the Internet.

In all 27 OECD countries for which data are available for both PISA 2000 and 2009, there was an increase in the computer-student ratio at school during that period – evidence of substantial investment in ICT resources. But the proportion of students who reported using a computer at school varies substantially across countries and economies.

Within countries, the digital divide is often linked to students' socio-economic background. Students from socio-economically advantaged backgrounds have higher levels of computer and Internet access at home; however, in some countries, the inequalities in the level of computer use at home is narrowed when disadvantaged students are given more opportunities to use a computer at school.

Using a computer at home is related to digital reading performance in all 17 participating countries and economies, but that is not always true for computer use at school.

The relationship between the frequency of computer use at home for leisure and for schoolwork and digital reading performance is not linear, but rather mountain-shaped: in other words, moderate users attain higher scores in digital reading than both rare and intensive users. In contrast, the relationship between students' computer use at school and performance in digital reading tends to be negative with a slight curve, which means that more intensive use is

associated with lower scores. Students who use computers intensively at school may require additional assignments to catch up to other students or may need more time to complete their studies.

After accounting for students' academic abilities, the frequency of computer use at home, particularly computer use for leisure, is positively associated with navigation skills and digital reading performance, while the frequency of computer use at school is not. These findings suggest that students are developing digital reading literacy mainly by using computers at home to pursue their interests.

■ Table VI.A ■

AN OVERVIEW OF PERFORMANCE IN DIGITAL READING, NAVIGATION AND COMPUTER USE

Higher quality or equity than OECD average
At OECD average (no statistically significant difference)
Lower quality or equity than OECD average

		Digital reading performance	Gender difference in digital reading scores between boys and girls	Index of number of relevant pages visited (navigation skills)	Computer use at home: Percentage of students who use a computer at home	Computer use at home: Percentage difference between top and bottom quarters of the PISA index of economic, social and cultural status	Computer use at home: Difference in digital reading scores between those students who use and those who do not use a computer at home	Computer use at school: Percentage of students who use a computer at school	Computer use at school: Percentage difference between top and bottom quarters of the PISA index of economic, social and cultural status	Computer use at school: Difference in digital reading scores between those students who use and those who do not use a computer at school
		Mean score	Score dif.	Mean index	%	% dif.	Score dif.	%	% dif.	Score dif.
	OECD average	499	**-24**	46.3	92.3	**16.0**	**80**	74.2	0.3	**9**
OECD	Korea	568	**-18**	52.8	87.5	**19.5**	**49**	62.7	3.5	2.1
	New Zealand	537	**-40**	49.7	92.5	**20.2**	**90**	83.4	**6.4**	**20**
	Australia	537	**-28**	49.6	96.7	**7.8**	**84**	91.6	**5.6**	**42**
	Japan	519	**-23**	50.1	75.9	**38.6**	**48**	59.3	2.6	**14**
	Iceland	512	**-30**	47.5	99.1	**1.2**	**74**	79.5	**5.1**	**22**
	Sweden	510	**-26**	47.8	97.7	**4.7**	**105**	89.1	**4.7**	**28**
	Ireland	509	**-31**	47.4	93.2	**10.9**	**60**	62.9	0.4	-3
	Belgium	507	**-24**	47.7	96.9	**9**	**102**	62.8	-1.1	**9**
	Norway	500	**-35**	46.9	98.7	**2.7**	**77**	93.0	2.5	**25**
	France	494	**-20**	46.1	m	**m**	**m**	m	m	m
	Denmark	489	**-6**	47.2	98.8	**2.8**	**79**	93.0	1.8	6
	Spain	475	**-19**	44.2	92.6	**14.4**	**78**	65.5	-4.0	**11**
	Hungary	468	**-21**	41.6	91.8	**23.6**	**102**	69.3	**-8.9**	**-27**
	Poland	464	**-29**	42.0	92.1	**22.9**	**84**	60.6	**-9.1**	**-8**
	Austria	459	**-22**	43.3	98.2	**3.7**	**94**	84.1	-3.2	-6
	Chile	435	**-19**	37.7	73.2	**60.3**	**69**	56.8	-2.0	2
Partners	Hong Kong-China	515	**-8**	48.1	96.4	**5.2**	**33**	82.6	0.2	3
	Macao-China	492	**-12**	46.5	96.4	**5.2**	**61**	80.1	-1.0	4
	Colombia	368	-3	31.5	m	m	m	m	m	m

Notes: Values that are statistically signficant are indicated in bold (see Annex 3).
Source: OECD, *PISA 2009 Database*, Tables VI.2.4, VI.3.1, VI.5.1, VI.5.10a. VI.6.2 and VI.6.
StatLink http://dx.doi.org/10.1787/888932436670

Introduction to PISA

THE PISA SURVEYS

Are students well prepared to meet the challenges of the future? Can they analyse, reason and communicate their ideas effectively? Have they found the kinds of interests they can pursue throughout their lives as productive members of the economy and society? The OECD Programme for International Student Assessment (PISA) seeks to answer these questions through its triennial surveys of key competencies of 15-year-old students in OECD member countries and partner countries/economies. Together, the group of countries participating in PISA represents nearly 90% of the world economy.[1]

PISA assesses the extent to which students near the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in modern societies, with a focus on reading, mathematics and science.

PISA has now completed its fourth round of surveys. Following the detailed assessment of each of PISA's three main subjects – reading, mathematics and science – in 2000, 2003 and 2006, the 2009 survey marks the beginning of a new round with a return to a focus on reading, but in ways that reflect the extent to which reading has changed since 2000, including the prevalence of digital texts.

PISA 2009 offers the most comprehensive and rigorous international measurement of student reading skills to date. It assesses not only reading knowledge and skills, but also students' attitudes and their learning strategies in reading. PISA 2009 updates the assessment of student performance in mathematics and science as well.

The assessment focuses on young people's ability to use their knowledge and skills to meet real-life challenges. This orientation reflects a change in the goals and objectives of curricula themselves, which are increasingly concerned with what students can do with what they learn at school and not merely with whether they have mastered specific curricular content.

PISA's unique features include its:

- Policy orientation, which connects data on student learning outcomes with data on students' characteristics and on key factors shaping their learning in and out of school in order to draw attention to differences in performance patterns and identify the characteristics of students, schools and education systems that have high performance standards.
- Innovative concept of "literacy", which refers to the capacity of students to apply knowledge and skills in key subject areas and to analyse, reason and communicate effectively as they pose, interpret and solve problems in a variety of situations.
- Relevance to lifelong learning, which does not limit PISA to assessing students' competencies in school subjects, but also asks them to report on their own motivations to learn, their beliefs about themselves and their learning strategies.
- Regularity, which enables countries to monitor their progress in meeting key learning objectives.
- Breadth of geographical coverage and collaborative nature, which, in PISA 2009, encompasses the 34 OECD member countries and 41 partner countries and economies.[2]

The relevance of the knowledge and skills measured by PISA is confirmed by studies tracking young people in the years after they have been assessed by PISA. Longitudinal studies in Australia, Canada and Switzerland display a strong relationship between performance in reading on the PISA assessment at age 15 and future educational attainment and success in the labour-market (see Volume I, Chapter 2).[3]

The frameworks for assessing reading, mathematics and science in 2009 are described in detail in *PISA 2009 Assessment Framework: Key competencies in Reading, Mathematics and Science* (OECD, 2009b).

Decisions about the scope and nature of the PISA assessments and the background information to be collected are made by leading experts in participating countries. Governments guide these decisions based on shared, policy-driven interests. Considerable efforts and resources are devoted to achieving cultural and linguistic breadth and balance in the assessment materials. Stringent quality-assurance mechanisms are applied in designing the test, in translation, sampling and data collection. As a result, PISA findings are valid and highly reliable.

Policy makers around the world use PISA findings to gauge the knowledge and skills of students in their own country in comparison with those in other countries. PISA reveals what is possible in education by showing what students in the highest-performing countries can do in reading, mathematics and science. PISA is also used to gauge the pace of educational progress by allowing policy makers to assess to what extent performance changes observed nationally are in line with performance changes observed elsewhere. In a growing number of countries, PISA is also used to set policy targets against measurable goals achieved by other systems, to initiate research and peer-learning designed to identify policy levers and to reform trajectories for improving education. While PISA cannot identify causal relationships between inputs, processes and educational outcomes, it can highlight key features in which education systems are similar and different, sharing those findings with educators, policy makers and the general public.

THE FIRST REPORT FROM THE 2009 ASSESSMENT

This volume is the last of six volumes that provide the first international report on results from the PISA 2009 assessment. It explains how PISA measures and reports student performance in digital reading and analyses what students in the 19 countries and economies participating in this assessment are able to do.

The other volumes cover the following issues:

- Volume I, *What Students Know and Can Do: Student Performance in Reading, Mathematics and Science*, summarises the performance of students in PISA 2009, starting with a focus on reading, and then reporting on mathematics and science performance. It provides the results in the context of how performance is defined, measured and reported, and then examines what students are able to do in reading. After a summary of reading performance, it examines the ways in which this performance varies on subscales representing three aspects of reading. It then breaks down results by different formats of reading texts and considers gender differences in reading, both generally and for different reading aspects and text formats. Any comparison of the outcomes of education systems needs to take into consideration countries' social and economic circumstances and the resources they devote to education. To address this, the volume also interprets the results within countries' economic and social contexts. The chapter concludes with a description of student results in mathematics and science.
- Volume II, *Overcoming Social Background: Equity in Learning Opportunities and Outcomes,* starts by closely examining the performance variation shown in Volume I, particularly the extent to which the overall variation in student performance relates to differences in results achieved by different schools. The volume then looks at how factors such as socio-economic background and immigrant status affect student and school performance, and the role that education policy can play in moderating the impact of these factors.
- Volume III, *Learning to Learn: Student Engagement, Strategies and Practices*, explores the information gathered on students' levels of engagement in reading activities and attitudes towards reading and learning. It describes 15-year-olds' motivations, engagement and strategies to learn.
- Volume IV, *What Makes a School Successful? Resources, Policies and Practices,* explores the relationships between student-, school- and system-level characteristics, and educational quality and equity. It explores what schools and school policies can do to raise overall student performance and, at the same time, moderate the impact of socio-economic background on student performance, with the aim of promoting a more equitable distribution of learning opportunities.

- Volume V, *Learning Trends: Changes in Student Performance Since 2000,* provides an overview of trends in student performance in reading, mathematics and science from PISA 2000 to PISA 2009. It shows educational outcomes over time and tracks changes in factors related to student and school performance, such as student background and school characteristics and practices.

All data tables referred to in the analysis are included at the end of the respective volume. A Reader's Guide is also provided in each volume to aid in interpreting the tables and figures accompanying the report.

Technical annexes that describe the construction of the questionnaire indices, sampling issues, quality assurance procedures and the process followed for developing the assessment instruments, and information about reliability of coding are posted on the OECD PISA website (*www.pisa.oecd.org*). Many of the issues covered in the technical annexes are elaborated in greater detail in the *PISA 2009 Technical Report* (OECD, forthcoming).

THE PISA STUDENT POPULATION

In order to ensure the comparability of results across countries, PISA devoted a great deal of attention to assessing comparable target populations. Differences between countries in the nature and extent of pre-primary education and care, in the age of entry to formal schooling, and in the structure of the education system do not allow school grade levels to be defined so that they are internationally comparable. Valid international comparisons of educational performance, therefore, need to define their populations with reference to a target age. PISA covers students who are aged between 15 years 3 months and 16 years 2 months at the time of the assessment and who have completed at least 6 years of formal schooling, regardless of the type of institution in which they are enrolled, whether they are in full-time or part-time education, whether they attend academic or vocational programmes, and whether they attend public or private schools or foreign schools within the country. For an operational definition of this target population, see the *PISA 2009 Technical Report* (OECD, forthcoming). The use of this age in PISA, across countries and over time, allows the performance of students to be compared in a consistent manner before they complete compulsory education.

As a result, this report can make statements about the knowledge and skills of individuals born in the same year who are still at school at 15 years of age, despite having had different educational experiences, both in and outside school.

Stringent technical standards were established to define the national target populations and to identify permissible exclusions from this definition (*www.pisa.oecd.org*). The overall exclusion rate within a country was required to be below 5% to ensure that, under reasonable assumptions, any distortions in national mean scores would remain within plus or minus 5 score points, *i.e.* typically within the order of magnitude of two standard errors of sampling (see Annex A2). Exclusion could take place either through schools that participated or students who participated within schools. There are several reasons why a school or a student could be excluded from PISA. Schools might be excluded because they are situated in remote regions and are inaccessible or because they are very small, or because of organisational or operational factors that precluded participation. Students might be excluded because of intellectual disability or limited proficiency in the language of the test.

In 29 out of 65 countries participating in the paper-based PISA 2009 assessment, the percentage of school-level exclusions amounted to less than 1%; it was less than 5% in all countries. When the exclusion of students who met the internationally established exclusion criteria is also taken into account, the exclusion rates increase slightly. However, the overall exclusion rate remains below 2% in 32 participating countries, below 5% in 60 participating countries, and below 7% in all countries except Luxembourg (7.2%) and Denmark (8.6%). In 15 out of 34 OECD countries, the percentage of school-level exclusions amounted to less than 1% and was less than 5% in all countries. When student exclusions within schools are also taken into account, there were 9 OECD countries below 2% and 25 countries below 5%. Restrictions on the level of exclusions in PISA 2009 are described in Volume I.

The specific sample design and size for each country aimed to maximise sampling efficiency for student-level estimates. In OECD countries, sample sizes ranged from 4 410 students in Iceland to 38 250 students in Mexico. Countries with large samples have often implemented PISA both at national and regional/state levels (*e.g.* Australia, Belgium, Canada, Italy, Mexico, Spain, Switzerland and the United Kingdom). This selection of samples was monitored internationally and adhered to rigorous standards for the participation rate, both among schools selected by the international contractor and among students within these schools, to ensure that the PISA results reflect the skills of the 15-year-old students in participating countries. Countries were also required to administer the test to students in identical ways to ensure that students receive the same information prior to and during both the paper-based and the digital reading assessments (for details, see Annex A4). Detailed information about the samples for the digital reading assessment is presented in Annex A2.

Box VI.A **Key features of PISA 2009**

Content

- The main focus of PISA 2009 was reading. The survey also updated performance assessments in mathematics and science. PISA considers students' knowledge in these areas not in isolation, but in relation to their ability to reflect on their knowledge and experience and to apply them to real-world issues. The emphasis is on mastering processes, understanding concepts and functioning in various contexts within each assessment area.
- For the first time, the PISA 2009 survey also assessed 15-year-old students' ability to read, understand and apply digital texts. This part of the survey was optional.

Methods

- Around 470 000 students completed the paper-based assessment in 2009, representing about 26 million 15-year-olds in the schools of the 65 participating countries and economies. Some 50 000 students took part in a second round of this assessment in 2010, representing about 2 million 15-year-olds from 10 additional partner countries and economies.
- Each participating student spent two hours carrying out pencil-and-paper tasks in reading, mathematics and science. In 19 countries, students were given additional questions via computer to assess their capacity to read digital texts.
- The assessment included tasks requiring students to construct their own answers as well as multiple-choice questions. The latter were typically organised in units based on a written passage or graphic, much like the kind of texts or figures that students might encounter in real life.
- Students also answered a questionnaire that took about 30 minutes to complete. This questionnaire focused on their background, learning habits, attitudes towards reading, and their involvement and motivation.
- School principals completed a questionnaire about their school that included demographic characteristics and an assessment of the quality of the learning environment at school.

Outcomes

PISA 2009 results provide:

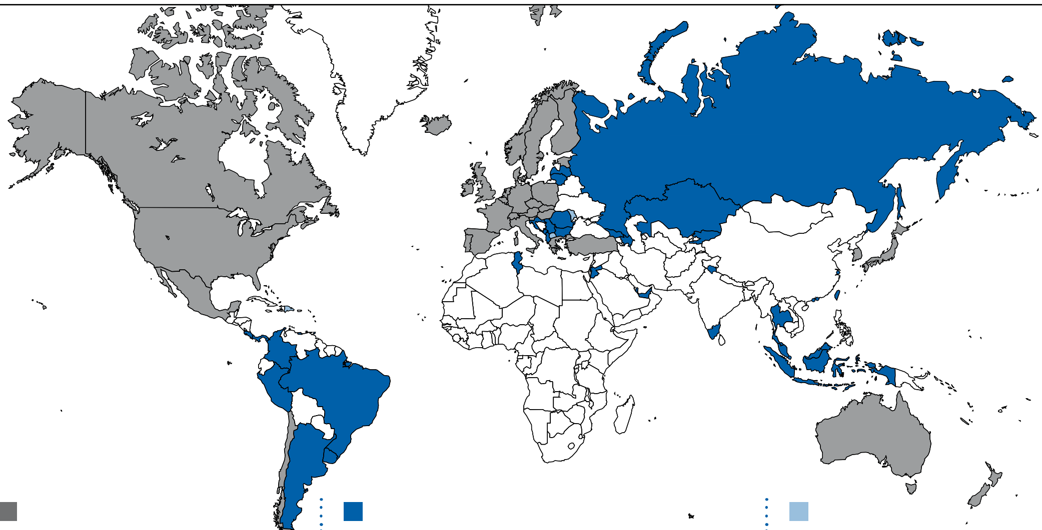
- a profile of knowledge and skills among 15-year-olds in 2009, consisting of a detailed profile for reading and an update for mathematics and science;
- contextual indicators relating performance results to student and school characteristics;
- an assessment of students' engagement in reading activities, and their knowledge and use of different learning strategies;
- a knowledge base for policy research and analysis; and
- trend data on changes in student knowledge and skills in reading, mathematics, science, changes in student attitudes and socio-economic indicators, and in the impact of some indicators on performance results.

Future assessments

- The PISA 2012 survey will return to mathematics as the major assessment area, PISA 2015 will focus on science. Thereafter, PISA will turn to another cycle beginning with reading again.
- Future tests will place greater emphasis on assessing students' capacity to read and understand digital texts and solve problems presented in a digital format, reflecting the importance of information and computer technologies in modern societies.

■ Figure VI.A ■

A map of PISA countries and economies



OECD countries

Australia
Austria
Belgium
Canada
Chile
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea
Luxembourg
Mexico
Netherlands
New Zealand
Norway
Poland
Portugal
Slovak Republic
Slovenia
Spain
Sweden
Switzerland
Turkey
United Kingdom
United States

Partner countries and economies in PISA 2009

Albania
Argentina
Azerbaijan
Brazil
Bulgaria
Colombia
Costa Rica*
Croatia
Georgia*
Himachal Pradesh-India*
Hong Kong-China
Indonesia
Jordan
Kazakhstan
Kyrgyzstan
Latvia
Liechtenstein
Lithuania
Macao-China
Malaysia*
Malta*
Mauritius*
Miranda-Venezuela*
Moldova*
Montenegro
Netherlands-Antilles*
Panama
Peru
Qatar
Romania
Russian Federation
Serbia
Shanghai-China
Singapore
Tamil Nadu-India*
Chinese Taipei
Thailand
Trinidad and Tobago
Tunisia
Uruguay
United Arab Emirates*

Partner country in previous PISA surveys

Macedonia

* These partner countries and economies carried out the assessment in 2010 instead of 2009.

Notes

1. The GDP of countries that participated in PISA 2009 represents 87% of the 2007 world GDP. Some of the entities represented in this report are referred to as partner economies. This is because they are not strictly national entities.

2. Thirty-one partner countries and economies originally participated in the PISA 2009 assessment and ten additional partner countries and economies took part in a second round of the assessment.

3. Marks, G.N (2007); Bertschy, K., M.A. Cattaneo and S.C. Wolter (2009); OECD (2010c).

Reader's Guide

Data underlying the figures

The data referred to in this volume are presented in Annex B and, in greater detail, on the PISA website (*www.pisa.oecd.org*).

Five symbols are used to denote missing data:

a The category does not apply in the country concerned. Data are therefore missing.

c There are too few observations or no observation to provide reliable estimates (*i.e.* there are fewer than 30 students or fewer than five schools with valid data).

m Data are not available. These data were not submitted by the country or were collected but subsequently removed from the publication for technical reasons.

w Data have been withdrawn or have not been collected at the request of the country concerned.

x Data are included in another category or column of the table.

Country coverage

The Programme for International Student Assessment encompasses 65 countries and economies, including all 34 OECD countries and 31 partner countries and economies (see Figure VI.A). The data from another nine partner countries were collected one year later and will be published in 2011. This publication features data on 19 countries and economies for the digital reading assessment, including 16 OECD countries, and 45 countries for the ICT questionnaire, including 29 OECD countries.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Calculating international averages

An OECD average was calculated for most indicators presented in this report. The OECD average corresponds to the arithmetic mean of the respective country estimates. The OECD average is used to compare performance across education systems. In the case of some countries, data may not be available for specific indicators, or specific categories may not apply. Readers should, therefore, keep in mind that the term "OECD average" refers to the OECD countries included in the respective comparisons.

In this volume, different OECD averages have been calculated, depending on the number of OECD countries participating in the digital reading assessment (16 OECD countries), in the ICT questionnaire (29 OECD countries), or in both of them (15 OECD countries). The OECD average in the tables is presented as OECD average-xx, "xx" corresponding to the number of countries taken into account in this average. Some tables include the OECD average without any number of countries. This means that the OECD average does not take into account the same number of countries for the different columns. In this case, the number of countries encompassed in the OECD average is indicated in the title of the corresponding columns.

The OECD average is computed based on available data. However, sometimes there is no data available for certain categories. In these cases, the OECD average difference is not equal to the difference between the OECD averages of the two categories in question.

Rounding figures

Because of rounding, some figures in tables may not exactly add up to the totals. Totals, differences and averages are always calculated on the basis of exact numbers and are rounded only after calculation.

All standard errors in this publication have been rounded to one or two decimal places. Where the value 0.00 is shown, this does not imply that the standard error is zero, but that it is smaller than 0.005.

Reporting student data

The report uses "15-year-olds" as shorthand for the PISA target population. PISA covers students who are aged between 15 years 3 months and 16 years 2 months at the time of assessment and who have completed at least 6 years of formal schooling, regardless of the type of institution in which they are enrolled, whether they are in full-time or part-time education, whether they attend academic or vocational programmes, and whether they attend public or private schools or foreign schools within the country.

Reporting school data

The principals of the schools in which students were assessed provided information on their schools' characteristics by completing a school questionnaire. Where responses from school principals are presented in this publication, they are weighted so that they are proportionate to the number of 15-year-olds enrolled in the school.

Focusing on statistically significant differences

This volume discusses only statistically significant differences or changes. These are denoted in darker colours in figures and in bold font in tables. See Annex A3 for further information.

Categorising student performance

This report uses a shorthand to describe students' levels of proficiency in the subjects assessed by PISA:

Top performers are those students proficient at Levels 5 or 6 of the assessment.

Strong performers are those students proficient at Level 4 of the assessment.

Moderate performers are those students proficient at Level 2 or 3 of the assessment.

Lowest performers are those students proficient below Level 2 of the assessment.

Abbreviations used in this report

Corr.	Correlation
Dif.	Difference
ESCS	PISA index of economic, social and cultural status
GDP	Gross domestic product
ISCED	International Standard Classification of Education
PPP	Purchasing power parity

Further documentation

For further information on the PISA assessment instruments and the methods used in PISA, see the *PISA 2009 Technical Report* (OECD, forthcoming) and the PISA website (*www.pisa.oecd.org*).

This report uses the OECD's StatLinks service. Below each table and chart is a url leading to a corresponding Excel workbook containing the underlying data. These urls are stable and will remain unchanged over time. In addition, readers of the e-books will be able to click directly on these links and the workbook will open in a separate window, if their Internet browser is open and running.

1

Context of the PISA Digital Reading Assessment

Computer use has grown exponentially since the invention of the microcomputer three decades ago; as of mid-2010, almost one-third of the world's population uses the Internet. Digital technologies have changed the ways texts are produced and displayed; and those changes have had an impact on how students read. This chapter focuses on how new kinds of texts have transformed reading.

Since the invention of the microcomputer some 30 years ago, the number of computers in use worldwide has been growing at an exponential rate. By mid-2010, it was estimated that almost two billion people, or 29% of the world population, were using the Internet, with percentages ranging from 77% in North America to about 11% in Africa (Miniwatts Marketing Group, 2010). On average in OECD countries in June 2010, around 25% of the population had a subscription for fixed-line broadband (OECD Broadband Portal : *www.oecd.org/sti/ict/broadband*). The past decade has also seen the explosion of mobile technologies, with laptops, digital pads, smart phones and other portable digital devices being sold in increasingly large numbers. Only around 8% of the global population is connected to fixed-line broadband, but mobile broadband connection is estimated at 14%, pointing to the growing importance of mobile Internet access in non-OECD countries (ITU Statistics: *www.itu.int/ict/statistics*).

Information and communication devices based on digital technologies are used in a wide range of contexts and for many different purposes. Their most important common characteristic is that they all permit the display and perusal of text. Indeed, most applications of computer technologies, including videogames, involve some type of textual information. As a result, whatever their purposes, tasks or goals, users of computers and networked digital technologies are compelled to read digital texts.

Moreover, digital technologies deeply affect the shape, content and life-cycle of texts and, consequently, the very nature of reading. It is important for governments and societies to understand these changes as they have begun to affect, in turn, almost every aspect of life in society, including government, education, work, commerce and civic life. To cite just a few examples: more and more taxpayers fill in online forms; students search the web for information; jobseekers look up ads on employment websites; consumers order goods in online stores; and people build and maintain social communities on line. All these activities, and many others, require the production, dissemination, and reading of some type of text.

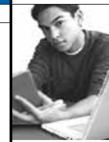
This chapter begins with a review of the impact of digital technologies on the production and display of text. The potential consequences of these changes for defining reading skills and reading literacy are then discussed, stressing a number of features and processes that are characteristic of digital reading, and listing a number of important questions that are addressed in the PISA 2009 digital reading assessment. This chapter is not concerned with an analysis of how digital texts may affect. Instruction, such as lesson-based teaching and learning strategies, or social networking. The focus is on the act of reading and how reading is transformed by new forms of texts and textual devices. For more extended discussions of this and related topics, see Coiro, *et al.*, 2008; Dillon, 2004; Mayer, 2005; and Rouet, 2006.

NEW TECHNOLOGIES FOR TEXT, NEW WAYS OF READING

From the invention of the cathode ray tube to the latest mobile communication devices, the advent of digital technologies has had a profound impact on the design, production, dissemination and uses of text. From a linguistic standpoint, a text is usually defined as a passage forming a "unified whole" (Halliday and Hasan, 1976). Linguists agree that textual "unity" is not conferred through strict criteria of length or grammatical rules, but rather through the communication act that the text fulfils. Texts originate from a source and are intended for an audience. They are meant to perform a specific communicative act, for instance, to tell, describe, explain, persuade, and so forth. The extent to which sets of linguistic utterances can indeed perform those acts depends on their compliance with a set of principles or "standards of textuality" (de Beaugrande and Dressler, 1981). For instance, texts can only communicate effectively to the extent that they are coherent, cohesive, informative, relevant and acceptable.

The general principles that define textuality are arguably similar across media. However, printed and digital technologies each possess some unique features that result in important differences in the way texts are produced, displayed, organised and connected to other texts. Furthermore, whereas printed texts have a relative permanence, digital texts are potentially dynamic and can be constantly completed, edited and updated. These differences have consequences for the access, comprehension and uses of text in a wide variety of situations, ranging from education to work to personal and civic purposes. It is therefore crucial to understand and assess the new forms of reading literacy that come with the practice of reading on digital displays (Coiro, 2009).

Although digital text is often associated with microcomputing, information societies are replete with devices that display digital texts, without the reader having to manipulate a computer. Examples include videoprojected slides used during conferences, electronic advertisements or public communication signs, information booths in railway



stations, shopping centres and airports, but also displays of iPods, mobile phones, digital pads and many more. Throughout the past decade, the list of these new devices has been continually expanded and updated.

The growing practice of displaying text digitally is having a deep impact on the shape and contents of the texts themselves. Digital texts differ from printed texts in readability and usability, and also in the social and economic processes that drive the creation, dissemination and multi-dimensional uses of text.

Differences in the readability and usability of text

Superficially, texts displayed digitally may seem very similar to those that are printed on paper. They use the same basic sign systems (for example, the Roman alphabet or Japanese Kanji, punctuation marks), the same syntax and, to some extent, the same rules for composing passages and signalling structure (margins, paragraphs, headings and so forth). However, a closer examination reveals important differences. One prominent difference is the physical size of the display area or "page". A15-inch computer screen is about the physical size of an A4 or US letter page, which is smaller than printed newspapers, catalogues or supermarket flyers. And in recent years electronic gadgets with much smaller displays, such as digital pads and smartphones, have become increasingly popular.

In addition, the combination of smaller size and poorer quality of digital information means that the reader of digital text must generally cope with reduced readability and piecemeal presentation of information. A simple illustration is provided in Figure VI.1.1, which shows the amount of text featured on a printed and a digital page of a newspaper. The excerpt of the printed page roughly corresponds to the display size of the web page.

■ Figure VI.1.1 ■

Comparison of print and digital texts

Print

THE AGE FRIDAY, MAY 13, 2011 13

THEARTS

Taking the road to gre

The world's most successful streets have more humanity and fewer cars, writes **Megan Backhouse.**

BUSTLING with people but enough room to linger, safe, attractive and with a jumble of uses — we all know what makes great streets, but that doesn't mean we always get them.

When Melbourne City Council recently unveiled its plans for an overhaul of Swanston Street, lord mayor Robert Doyle said he hoped to make the stretch of road "one of the great boulevards of the world".

He is not the first to have such a vision. Mayors everywhere regularly announce their intention to make a particular street "great". Some succeed and some don't. But given that architects and urban designers believe that great streets can be designed, why has it proven so tricky?

American urban designer Allan Jacobs wrote a whole book attempting to pinpoint the physical, designable characteristics that make a street — say the Ramblas in Barcelona or Boulevard Saint-Michel in Paris — great. It's no surprise that these turn out to be a decidedly moveable feast, depending on the road in question.

But what he insisted was a constant was the interplay of people within successful streets.

It was in 1968 that the late, great social critic Jane Jacobs got arrested protesting against an expressway to be built in Lower Manhattan. It would have meant the bulldozing of hundreds of homes and businesses.

While the expressway was never built, Jacobs's call for a community-centred approach in public urban spaces has tended to go unheeded.

She wrote in the early '60s about how vital streets — like the one she lived on at the time in New York's Greenwich Village — had density, diversity and a sense of neighbourhood. But it is precisely this human scale that architects such as Denmark's Jan Gehl and Britain's Christopher Alexander lament has been ignored for 50 years.

Gehl, credited with having turned Copenhagen's Stroget into a success story since it was closed to traffic in 1962, has said that designers have addressed buildings, transport and the ecology of a street, but not the people.

Alexander too has written that positive urban spaces (of which streets are a key component) need to better "provide for people, for their feelings, for their needs and their emotional life".

Gehl, a regular visitor to Australia who has advised many Australian councils, including the City of Melbourne, seeks to make better streets by improving conditions for pedestrians and bicyclists.

He says car
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Elliott says thi
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port "pedestri
can incorporat
lic transport b
He says Swans
originally in th
and partially c
has slowly got
Elliott says
that continue
Swanston Stre
other parts of t
"Melbourn
boulevards, lik
St Kilda Road,

Press clipping of "Taking the road to greatness", by Megan Backhouse/Fairfax Media publication

Digital

11:30AM Friday May 20, 2011 | 2,277 online now | See today's paper | The Age | Domain | Drive | MyCareer

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Taking the road to greatness

Megan Backhouse
May 13, 2011

Strøget, Copenhagen's three kilometre pedestrianised street. *Photo: Wade Laube*

The world's most successful streets have more humanity and fewer cars.

BUSTLING with people but enough room to linger, safe, attractive and with a jumble of uses - we all know what makes great streets, but that doesn't mean we always get them.

Screen grab from *www.theage.com.au* of story "Taking the road to greatness", by Megan Backhouse/Fairfax Media publication

However, digital texts should not be regarded as mere impoverished versions of printed texts. Digital technologies are constantly being improved and may eventually be comparable to high-quality printing technologies. In addition, designers of digital documents have created new publishing standards to cope with the limitations inherent in the digital medium (consider, for instance, the increasingly popular web-based applications tailored to small screens). Digital technologies have also introduced new ways to represent and organise information, some of which result in clear benefits for the reader compared to printed texts.

New features of digital texts

From static pages to dynamic windows and frames

Digital texts provide new ways for the reader to move within and across pages of text. Some of these have to do with the limitations of digital displays reviewed above; others are original inventions that have brought readers new ways of accessing and navigating through texts. In order to fully appreciate the impact of these new devices on digital reading literacy, one must keep in mind a few essential differences between printed and digital text in terms of page composition and arrangement into volumes.

In printed texts, the content is intrinsically connected to the physical artefact. A passage of text exists both as a verbal message and as a concrete artefact: the page, the chapter, or the volume. Printed texts can and must be stored and indexed, like any collections of material objects – hence, since the 16th century at least, the use of numbering systems to order books in libraries and page numbers in books (Platteaux, 2008). In both cases, the number always represents the serial position of the item in the respective set. As a consequence, tables of contents and indexes have emerged as universal cataloguing techniques for printed artefacts.

In digital texts, however, the physical storage of the information is independent of its organisation as it appears to the reader. Pages of digital texts are also independent from the particular display that is used to visualise them. For example, one can view a particular web page using a 21-inch desktop monitor, a 15-inch laptop or a smartphone. Most often, the pages are larger than the actual display screen or window. This is a major difference from printed text in which the text frame is most often equal to the physical page, and sometimes smaller, such as in newspaper pages.

Because of the virtual nature of page contents and formats, designers have had to replace page composing and numbering with other indexing and retrieval techniques. These techniques have been continually revised over the past two decades, and navigation devices are continuously updated in new versions of web browsers. To cite just one example, the "new tab" function appeared after 2000, even though these devices did not require any advanced technology. The reason why older versions of browsers did not include this and other useful features is unclear, but it may be that the excitement raised by multiple-window operating systems in the early 1990s overshadowed for a while the serious usability issues that came along with reading on line.

Digital texts come with devices that let the reader navigate within and across pages of digital texts. In the past decade, common devices used to navigate digital pages were the vertical and horizontal scroll bars, index tabs and expandable menu frames. None of these devices has ever had any meaning in the world of printed text. Their mastery and use is a component of the so-called "new literacies" (Coiro, *et al.,* 2008) typical of the electronic age.

From linear arrangement to networking and hyperlinking

Even more dramatic differences between printed and digital displays can be found at the level of multitext compounds, such as electronic books or websites. Designers of digital documents have created various techniques to represent the contents of those compounds and to let the reader move from page to page.

One of the earliest indexing techniques used in digital documents is the menu, or list of page headings, from which the reader is invited to make a choice. The digital menu resembles a table of contents except that there are usually no page numbers. Instead, the reader selects an option by clicking directly on the item or a symbol that represents it, which results in the display of the selected page instead of or on top of the menu page (that is, in a new window or tab).

Since there are no page numbers, however, once the page is displayed, the reader has no direct clue about its position among the set that makes up the electronic book. Such clues have to be provided indirectly through analogical symbols (for example, a micropage within a series of micropages at the bottom of the screen) or through path-type expressions, such as "Habitats – Marine – Open waters – Mediterranean open waters – Common skate" (example adapted from Nilsson and Mayer, 2002).

Menus can be made hierarchical, which means that selecting a menu item causes another, more specific, menu to be displayed. Alternatively they may be presented as separate pages, or as part of multitext pages. In the context of web pages, menus are more and more frequently presented in a frame at the top or to the left of the display window. The rest of the window can be updated with the menu remaining constant, which can help the reader to keep a sense of his or her location in the document set.

The issue of designing effective menu systems for digital information systems has been revived lately with the advent of mobile devices that can display vast amounts of multimedia information (see, for example, St Amant, *et al.*, 2007). Other active areas of research and development are the design of "hands-free" menu systems guided by eye movements or speech.

One of the most distinctive features of digital texts is the hypertext link, a technique that appeared in the 1980s as a means of connecting pages of information in large electronic documents (Koved and Shneiderman, 1986). The hypertext link or hyperlink is a piece of information (usually a word or a phrase) that is logically connected to another piece of information (usually a page). Clicking a hyperlink results in the display of a new page instead of or on top of the page previously displayed.

Hyperlinks may be presented in separate lists (also called menus) or embedded within content pages. When embedded, hyperlinks are generally marked using a specific colour or typography.

The use of hyperlinks allows for the creation of multipage documents with a networked structure. Unlike lists or hierarchies, the arrangement of pages in a networked structure is not systematic. Rather, it follows the semantic relationships across pages. It is up to the author of a multipage digital document to link a page with another page by inserting a hyperlink.

The hyperlink has contributed to the popularisation of digital documents (hypertexts) whose overall organisation is unlike that of traditional documents. In some early studies, hypertexts were praised as a means to "free" the reader from the supposedly cumbersome constraints of linear texts. But scientific studies of hypertext reading have found that network-like document organisation frequently results in disorientation and cognitive overload (Conklin, 1987; Rouet and Levonen, 1996). Navigation and orientation within nonlinear structures seems to rely on the reader's ability to mentally represent the top-level structure of the hypertext. Global organisers that accurately represent the overall structure of the information space made up by the hypertext document, such as structured menus and content maps, are usually of some help, provided that such organisers use symbols and metaphors that are already familiar to the reader (Rouet and Potelle, 2005).

In summary, skilled reading, navigation and information search in digital texts requires the reader to be familiar with explicit and embedded hyperlinks, nonlinear page structures, and global content representation devices and tools. Empirical evidence so far indicates that navigating digital texts is far from trivial, and may pose some challenges to certain categories of users, such as the elderly (Lin, 2004).

From illustrated text to multimedia and augmented reality

Digital technologies have also introduced new ways of integrating verbal texts with other forms of representation. Online pictures and graphics can be clicked on to reveal descriptions and comments. Text can also be integrated with animated pictures, graphics and even video materials. Augmented reality allows one to integrate an actual environment (say, a Renaissance castle) with explanations and comments presented on a digital device. At the time of writing (January 2011), the use of multimedia presentations on fixed and mobile digital devices was booming, and was assisting individuals in moving around city streets, visiting museums and exhibitions, and learning professional skills in domains ranging from mechanics to surgery.

These innovations were still too marginal to be incorporated in the 2009 edition of the PISA digital reading assessment, but they will progressively be integrated in future PISA assessments.

From authored texts to online discussion and social networks

Another prominent feature of digital texts is the shift from so-called authored texts to message-based discussion forums, social networks and Web 2.0. The spread of the Internet, combined with the interactivity of electronic displays, have made it possible to create new forms of communication that lie between traditional written texts and spoken conversations. Receiving and sending e-mail or short text messages, participating in discussion groups or engaging in social relationships through the web is becoming more and more common (Pew Research Center, 2010a). These activities require a mastery of reading comprehension and written skills, even though the genres and forms of texts that are involved appear relatively new. Research on the impacts of these new forms of textual communication on skill acquisition is warranted. (For a recent review of the state of the art, see Kemp, 2011; Light, 2011 and, in particular, Coe and Oakhill, 2011.)

IMPACT OF DIGITAL TEXTS ON READING LITERACY

This section outlines the new literacy demands and opportunities that are associated with digital texts. (For more extended reviews, see Britt and Gabrys, 2000; Coiro, *et al.,* 2008; Kemp, 2011; Reinking, 1994; Rouet, 2006; Warschauer, 1999.)

Some types of reading are still mostly done using printed materials, while others are specific to the electronic medium. For instance, even experienced computer users read novels and extended informational texts on paper (see study of medical school students printing, Martin and Platt, 2001). On the other hand, the activity of reading search engine lists is almost exclusive to reading on line, as is reading a personal blog (a genre that seems to have been born with the new millennium: Blood, 2000) or the comprehension of an online job-application form. Thus, digital reading cannot always be strictly compared to print reading. This is, in fact, the best evidence in support of the design of a new framework and new assessment procedures for digital reading.

However, a wide range of reading activities can be performed using both types of texts. Popular examples include reading news, informational texts, texts with a practical purpose such as buying goods or getting directions. However, because the digital versions of these texts differ – sometimes dramatically – from their printed counterparts, it is useful to consider how they affect reading skills and reading literacy. A powerful illustration of this is found in the area of literacy-assessment research itself, where so-called test-mode effects have been found with computerised versions of tests, resulting in better or worse performance than when printed versions are used (Clariana and Wallace, 2002).

Which aspects of reading are affected by digital text?

Independent of the particular reading situation or purpose, there is a need to identify those components of reading literacy that are relatively preserved and those that are the most affected by digital texts.

Low-level processes such as word identification or syntactic parsing are presumably very similar in printed and digital reading, aside from the general surface readability issues discussed in the previous section. The processes involved in building a mental representation of the text, such as identifying referents of anaphoric expressions or maintaining coherence locally and globally, would also appear to be relatively unaffected. These processes may simply be hindered in the case of lengthy texts displayed on line, because the reader will have more trouble referring to a previously read section (for a discussion see Foltz, 1996).

Differences between print and digital reading are more apparent when considering macro-aspects of reading, such as accessing texts of interest, integrating information across texts, or evaluating texts for quality and credibility.

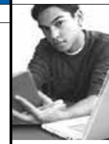
Access to text

Printed texts require the reader to locate a material artefact, and use the categorisation and organisers to locate information of interest within that artefact. Digital texts require the reader to search phrases, scan heterogeneous links, and use navigation devices. The latter procedures call upon the reader's ability to generate vocabulary, assess the relevance of verbal expressions (and disregard distractors), and understand the hierarchical structuring of information in menu trees.

The skilled reader of digital texts must be familiar with the use of navigation devices and tools. He or she must also be able to mentally represent the movement of the window over the text page, so as to be able to move in the correct direction. This includes an ability to overcome apparent discrepancies, for example the fact that the arrow oriented downwards on the scrollbar actually moves the text upwards. As early as 1989, Foss noted that some users tended to get lost in the maze of windows that ended up covering each other on their computer screen; early human-factors experiments often concluded that just two side-by-side windows seemed to be a good compromise for most readers (Wiley, 2001; Wright, 1993). The opening, layout and closing of multiple windows is arguably a skill in itself. There is indeed some evidence that reading complex digital texts relies on visuo-spatial abilities as much as on language-processing abilities (Pazzaglia, *et al.,* 2008; see also Naumann, *et al.,* 2008).

Integration across texts

Integration, defined as comparing and relating different pieces of texts, calls upon similar processes, whatever the medium. However, because digital texts do not follow any stable categorisation scheme, and because the digital medium makes it so easy to cross-reference texts, readers are much more likely to find themselves jumping across



different texts within a single reading episode. Furthermore, the web offers readers the possibility of compiling a large number of different sources on any given topic. Therefore, the accumulation of information across multiple passages is becoming typical of the sustained reading of digital texts. Integration across text requires sophisticated reading skills and strategies, which are not spontaneously mastered by young readers (Britt and Rouet, forthcoming). Even though these skills are not specific to digital reading, they may explain a significant portion of readers' digital reading proficiency.

Evaluation of text

Readers of web-based documents are faced with a wide array of materials, given the open, unregulated nature of web publishing. Current retrieval systems are mostly based on the semantic match between the query and the contents, regardless of any indication of genre, accuracy, authority or trustworthiness. It is up to the reader to find out not just what the text is about, but also who wrote it, who published it, when, for what purpose and with what potential biases. In the printed world, a range of perceptual and contextual cues (what the text looks like and where it is found), as well as the presence of human mediators (for example, the librarian, the bookseller, the critic) often facilitate these attributions. On the web, however, most of these cues and mediations are missing and the reader has to resort to deeper levels of reasoning to evaluate the quality of the text (Britt and Gabrys, 2000). There is mounting evidence that evaluating web information is indeed a difficult aspect of digital reading for most teenagers, even though they rely more and more on the web to acquire new information about subjects of interest (Dinet, *et al.,* 2003; Darroch, *et al.,* 2005; Kuiper, *et al.,* 2005).

SOME ISSUES FOR ASSESSING DIGITAL READING

The PISA digital reading assessment addresses a number of important issues that arise from the differences between print and digital reading outlined above.

First, it considers whether print and digital reading belong to the same construct. The PISA 2009 reading framework (OECD, 2009b) points out that, while many of the skills required for print and digital reading are similar, digital reading demands some new emphases and strategies to be added to the reader's repertoire. "Gathering information on the Internet requires skimming and scanning through large amounts of material and immediately evaluating its credibility. Critical thinking, therefore, has become more important than ever in reading literacy" (Halpern, 1989; Shetzer and Warschauer, 2000; Warschauer, 1999). It is important to find out which specific dimensions of tasks and students' characteristics explain students' proficiency in digital reading, accounting for print reading proficiency.

Data from the digital reading assessment will allow for investigating whether the specific features of digital text, such as nonlinearity, navigation, intertextuality, and uncertainty regarding the quality of information, explain a specific share of the variance in student performance. Some of these issues are beyond the scope of this report, but the characteristics of the tasks and students' navigation behaviour are the subjects of Chapters 2 and 3, respectively, of this volume.

The results of the digital reading assessment also make it possible to explore the extent to which a student's social, cultural and economic background is associated with proficiency in digital reading. These associations are explored in Chapter 4, as is the relationship of digital reading proficiency with malleable characteristics, such as students' engagement in print and digital reading activities and their awareness of reading strategies.

Over the past ten years, there has been a discussion as to whether the people who have been exposed to information technology from a young age, so-called "digital natives", might readily possess the skills and abilities required to make use of digital devices, compared to older people, the so-called "digital immigrants" (Prensky, 2001). There is mounting evidence that mere exposure to technology is not sufficient for becoming a skilled user. As time elapses, the gap in technology use between generations is progressively decreasing. The Pew Research Center (2010b) has found that even though "millenials" (people who were between 5 and 20 years old at the turn of the 21st century) are more likely than older generations to use mobile digital devices and social networks, they are no longer dominant in other types of digital activities, such as looking up government websites or financial information. Of particular interest is an investigation of prior exposure to and familiarity with digital technologies, and the extent to which they explain students' proficiency in digital reading tasks. Results of the information and communication technologies (ICT) familiarity survey, an international option in PISA 2009 implemented in 45 countries, are provided in Chapter 5 of this report. Chapter 6 presents an analysis of the relationship between digital reading proficiency and ICT familiarity and mainly use for the 17 countries that participated in both options in PISA 2009.

Chapter 7 expands this theme by presenting an analysis of the combined influence on digital reading proficiency of a range of variables, including print reading proficiency, gender, online and print reading engagement, reading strategies and selected socio-cultural variables, as well as ICT experience.

Access to technology is necessary but certainly not sufficient in itself to acquire digital reading literacy. As noted by Warschauer (1999), overcoming the "digital divide" is not only a matter of developing access to online technology, but also of enhancing people's abilities to access and make use of information through electronic devices. Indeed, recent studies show a wide range of proficiency levels among groups of "digital natives" (Kennedy, *et al.,* 2008). A growing number of experts call for "a more nuanced understanding of students' technology experiences", to use the words of Bennett and Maton (2010).

CONCLUSIONS

The advent of information and communication technologies has sparked a revolution in the design and dissemination of texts. Online reading is becoming increasingly important in information societies. Even though the core principles of textuality and the core processes of reading and understanding text are similar across media, there are good reasons to believe that the specific features of digital texts call for specific text-processing skills. The PISA 2009 digital reading assessment was designed to investigate students' proficiency at tasks that require the access, comprehension, evaluation and integration of digital texts across a wide range of reading contexts and tasks. The rest of this report presents the results of this first attempt to obtain a large-scale picture of digital reading skills among today's 15-year-olds.

2

Student Performance in Digital and Print Reading

This chapter examines the particular features of digital texts and analyses how well students can read those texts. It also discusses the similarities and differences between print and digital reading, and compares the results of the two reading assessments by merging them into a single scale. Results presented throughout the chapter are also analysed by gender.

What does it mean to be a proficient reader in the digital medium? This chapter examines how well students around the world can read digital texts and whether there are any differences between boys and girls as digital readers. It also discusses the relationship between digital and print reading and presents a comparison of results among the 19 countries that participated in both digital and print reading assessments in PISA 2009. The chapter concludes by presenting countries' results in the two assessments merged into a single reading scale, and analyses these results further by gender.

DIGITAL READING

PISA defines reading literacy as understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, develop one's knowledge and potential, and participate in society.

This broad definition refers to the texts that we read, the processes of reading and the purposes for which we read. It is as applicable to digital reading as it is to print reading. This section describes the main features of the reading framework as it relates to digital reading, and the way in which those features have been operationalised in the 2009 digital reading assessment.

Texts

Digital texts are conceived of as a subset of *written* texts. For the purposes of PISA 2009, digital text is synonymous with hypertext: a text or texts with navigation tools and features that allow the reader to move from one page or site to another. They are texts composed predominantly of language rendered in a graphic form. While non-verbal graphic elements, such as illustrations, photographs, icons and animations can, and typically do, constitute part of a digital text in PISA, oral language, such as audio recording or the soundtrack of a film, is not included in this definition of text.

Many kinds of hypertexts were included in PISA 2009 in order to represent the digital medium as fully as possible. The characteristics of digital texts in PISA are specified in terms of *environment*, *format* and *type,* and *navigation tools and features*.

The *environment* variable comprises two categories: authored and message-based. *Authored* texts are those with which readers are expected to engage receptively. *Message-based* texts are those with which readers are invited to interact. A small number of tasks that require reading both authored and message-based texts with equal attention are categorised as *mixed*. Figure VI.2.1 shows the distribution, by environment, of all tasks in the 2009 digital reading assessment, and examples of each category are provided in the coloured section later in this chapter.

■ Figure VI.2.1 ■
Digital reading tasks by environment

Environment	% of tasks	Sample tasks
Authored	66%	▪ *IWANTTOHELP* – Task 3 ▪ *SMELL* – Tasks 1, 2 and 3 ▪ *JOB SEARCH* – Tasks 1 and 3
Message-based	28%	▪ *IWANTTOHELP* – Tasks 1 and 2 ▪ *JOB SEARCH* – Task 2
Mixed	6%	▪ *IWANTTOHELP* – Task 4

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

In order to approximate the experience of reading message-based texts, some of the tasks based on these texts require the test-takers to respond as if interacting with the text, for example by "replying" to an e-mail message (see the sample IWANTTOHELP Task 4).

The second text characteristic defined for digital reading in PISA is *text format*, which comprises four categories: *continuous*, *non-continuous*, *mixed* and *multiple*. Figure VI.2.2 shows the distribution, by text format, of all tasks in the 2009 digital reading assessment. Examples of each category are provided in the coloured section later in this chapter.

■ Figure VI.2.2 ■
Digital reading tasks by text format

Text format	% of tasks	Sample tasks
Continuous	7%	▪ *IWANTTOHELP* – Task 1
Non-continuous	10%	▪ *JOB SEARCH* – Task 1
Mixed	7%	▪ *JOB SEARCH* – Task 3
Multiple	76%	▪ *IWANTTOHELP* – Tasks 2, 3 and 4 ▪ *SMELL* – Tasks 1, 2 and 3 ▪ *JOB SEARCH* – Task 2

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Given the assessment's intention to represent the experience of navigating across multiple pages and sites that is typical of digital reading, the weighting towards multiple texts is strong, with over three-quarters of the tasks in that category. Only tasks that focus on a single digital page are classified as *continuous*, *non-continuous* or *mixed*. Nevertheless, many of the tasks classified as *multiple* are based on sets of *continuous*, *non-continuous* and *mixed* format material.

The third text classification is *text type*, which has six categories: *argumentation*, *description, exposition, instruction, narration* and *transaction*. Four of the six are represented in the digital assessment: *argumentation, description, exposition* and *transaction*. While narrative texts were sought for the assessment, no suitable material of an appropriate length and quality was found; the test development phase for PISA 2009 pre-dated the rise of e-books. Instructional texts are also absent from the PISA 2009 assessment – a matter of space limitations rather than deliberate exclusion.

Figure VI.2.3 shows the distribution by text type of all tasks in the 2009 digital reading assessment. Examples of tasks representing three of the categories are found in the coloured section later in this chapter.

■ Figure VI.2.3 ■
Digital reading tasks by text type

Text type	% of tasks	Sample tasks
Argumentation	21%	▪ *IWANTTOHELP* – Task 3
Description	31%	▪ *IWANTTOHELP* – Tasks 1 and 2 ▪ *JOB SEARCH* – Tasks 1, 2 and 3
Exposition	31%	▪ *SMELL* – Tasks 1, 2 and 3
Transaction	14%	–
Mixed	3%	▪ *IWANTTOHELP* – Task 4

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

The text type of one of the sample tasks, IWANTTOHELP Task 4, is classified as mixed because, while the end point is a response to a transactional text (an e-mail), the text that the reader needs to consult also includes substantial pieces of both argumentation and description.

Important distinguishing characteristics of digital texts are the *navigation tools and features* that help readers to negotiate their way into, around and across texts. While there are parallels in the print medium, such as tables of contents, headings and page numbers, many navigation tools and features are unique to the digital medium, and they are indeed part of the definition of hypertext.

Some navigation tools and features allow the reader to move the reading window over the text page – using scroll bars, buttons, index tabs and so forth – so that the whole of the digital page can be viewed, even though only part of it is visible at any one time. Other tools and features, such as hyperlinks and menus, allow the reader to move from one page or site to another, or – in the case of pop-ups – to call up additional, superimposed information.

A third type of navigation feature is global organisers, such as structured menus and content maps, which represent the relational structure of pages and links. They are used to help orient the reader to what is available on a site beyond the visible page, allowing readers to gauge the full scope of a text.

Digital reading requires familiarity with explicit and embedded hyperlinks, non-sequential page structures and global content representation devices. Consequently, in the PISA 2009 digital reading assessment a range of navigation tools and structures is included as one important component in measuring proficiency in digital reading. The tools and features include: scroll bars for moving up and down a page; tabs for different websites; lists of hyperlinks displayed in a row, in a column or as a drop-down menu; embedded hyperlinks – that is, hyperlinks included in paragraphs, tables of information or a list of search results; and site maps.

Cognitive processes

Aspects

The definition of reading in PISA includes the words *understanding, using* and *reflecting* (see Chapter 1 of this volume and *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* [Volume I]). These are the cognitive skills involved in processing texts and they are at the heart of both digital and print reading. In the PISA reading framework and in the tasks built to reflect the framework, these terms are further defined in relation to three aspects: *access and retrieve*, *integrate and interpret* and *reflect and evaluate*. A fourth aspect category, *complex*, has been added specifically to accommodate those digital reading tasks that involve multiple demands.

Figure VI.2.4 shows the distribution, by aspect, of all tasks in the 2009 digital reading assessment, and indicates the examples of tasks provided later in this chapter. A little over one-third of all the tasks are categorised as *integrate and interpret*, with the rest spread fairly evenly across the other three categories.

■ Figure VI.2.4 ■

Digital reading tasks by aspect

Aspect	% of tasks	Sample tasks
Access and retrieve	24%	▪ *IWANTTOHELP* – Tasks 1 and 2
Integrate and interpret	35%	▪ *IWANTTOHELP* – Task 3 ▪ *SMELL* – Tasks 1 and 3 ▪ *JOB SEARCH* – Task 2
Reflect and evaluate	21%	▪ *SMELL* – Task 2 ▪ *JOB SEARCH* – Tasks 1 and 3
Complex	21%	▪ *IWANTTOHELP* – Task 4

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Text processing and navigation

In the digital medium, the cognitive processes of accessing, retrieving, interpreting, integrating, reflecting and evaluating are called upon for both *text processing* and *navigation*.

Text processing in the digital medium is in many ways similar to the constellation of skills and strategies typically associated with print reading. Confronted with a chunk of digital text, the reader may need to locate key pieces of information, interpret nuances of language, integrate different elements of the text, draw on prior knowledge of textual and linguistic structures and features, make judgements about the cogency of an argument or the appropriateness of the style, and reflect on the relationship between the content and his or her own experience or knowledge of the world.

Navigation involves moving around the digital medium to access the information that is needed. A set of cognitive skills parallel to those required for text processing is drawn upon – though the structures and features that need to be negotiated are different, and therefore the kinds of mental activities required also vary. Typically in navigating the digital medium there is a strong emphasis on predicting, and on evaluating and integrating information. Accessing and retrieving information may require traversing several pages or sites, predicting the likely content of a series of unseen screens, based on visible text information, in order to efficiently locate the required information.

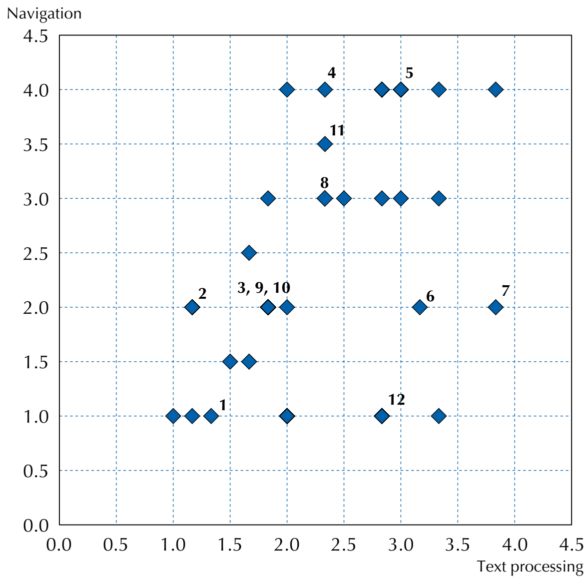
Readers integrating and interpreting in the digital medium use the traditional repertoire of constructing meaning from continuous and non-continuous texts, but their task is often complicated by the fact that the relevant text is not immediately visible in its entirety. Readers need to make decisions about which links and menus to use to access material from different pages within the same website, or they may need to use tabs to view and compare information from different websites. The reader needs to navigate to survey what is available, to compare, contrast and filter the material, and to synthesise information. Predicting what is relevant and appropriate to a search requires the reader to reflect and evaluate, as does deciding on the authority, relevance and utility of a text, once it is accessed.

Navigation as described here is part of the cognitive process of digital reading, not merely a set of technical manoeuvres such as cliking on links or scrolling. However, because navigation is manifested in behaviours like these, in a way that is mostly unobservable during print reading (other than through page-turning or through laboratory techniques, such as eye- or brain-scanning), it offers new opportunities for insights into the cognitive processes of reading. Some of these opportunities are explored in Chapter 3 of this volume.

Both navigation and text-processing skills are required to complete most digital reading tasks. Some tasks place more emphasis on navigation and others on text processing. The relationship between the two skills in the tasks included in the PISA 2009 digital reading assessment, based on the jugdgement of expert raters, is represented in Figure VI.2.5. The horizontal axis represents the cognitive load that comes from processing the text, while the vertical axis represents the cognitive load that comes from the navigation required to successfully complete the task. Each task is represented by one plot (or, in the case of tasks with both full- and partial-credit scoring, by two plots). The position of the plot indicates the relative contribution of text processing and navigation to the task. The data points for the tasks described in the coloured section in this chapter are numbered from 1 to 12.

■ Figure VI.2.5 ■

Relationship between text processing and navigation in digital reading tasks



Number on graph	Task ID
1	*IWANTTOHELP* – Task 1
2	*IWANTTOHELP* – Task 2
3	*IWANTTOHELP* – Task 3
4	*IWANTTOHELP* – Task 4 (partial credit)
5	*IWANTTOHELP* – Task 4 (full credit)
6	*SMELL* – Task 1
7	*SMELL* – Task 2
8	*SMELL* – Task 3
9	*JOB SEARCH* – Task 1
10	*JOB SEARCH* – Task 2 (partial credit)
11	*JOB SEARCH* – Task 2 (full credit)
12	*JOB SEARCH* – Task 3

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Tasks that require low levels of both skills – requiring little or no navigation and minimal text processing – appear at the bottom left corner of the graph, close to the origin. The task closest to this description among the sample tasks is *IWANTTOHELP* Task 1. In this task, the required information is in a prominent position in a short text, and it is explicit. The page on which the information appears is presented to the reader at the beginning of the task; in other words, no navigation is required. Tasks that require high levels of both navigation and text processing appear in the top right corner of the graph: the further from the origin, the more complex the task.

In between the two extreme cases, tasks represent different combinations of the two variables. A digital reading assessment might include tasks that require high levels of navigation, but low levels of text processing. These tasks would be represented in the top left corner of the graph. This kind of task might require the use of multiple strategies to navigate between web pages, such as the use of embedded links or drop-down menus, but involve web pages with little other text on them, therefore requiring a low level of text processing but high levels of navigation. No tasks in the 2009 digital reading text that had low levels of text processing combined with high demand in navigation; the closest to this description among the sample tasks is *IWANTTOHELP* Task 4 (partial credit). To gain even partial credit for this task, readers need to negotiate several web pages, sometimes with explicit direction but also using text-based clues to predict which links will lead to relevant information. While the task demands that the reader traverse several pages of text, no more than superficial processing of any of the encountered texts is required for a partial credit score.

Tasks that require high levels of text processing, but low levels of navigation, appear at the bottom right of the graph. A task of this kind might involve, for example, dealing with a text that is dense or complex, therefore requiring a high level of text processing, but that is immediately visible to the reader in its entirety, thus requiring no navigation. The task closest to this description among the sample tasks is *JOB SEARCH* Task 3. This task requires no navigation apart from scrolling on the presented page. The text itself is not particularly dense or complex; however, the task does require drawing inferences from the text and relating them to knowledge from beyond the text. Therefore it depends more heavily on text processing than on navigation. It was considered necessary to include a small number of tasks of this kind because although they do not require the skills that are unique to digital reading, they do represent one kind of task that might be required in the real-life digital environment. If this kind of task were excluded, the differences between digital and print reading would be artificially inflated.

Ideally, an assessment of digital reading would show tasks distributed fairly evenly across the space defined in Figure VI.2.5. As the mapping shows, the actual distribution of tasks in PISA 2009 approaches this ideal.

Situation

Situation is used in PISA to classify texts and their associated tasks, and refers to the contexts and uses for which the author constructed the text. By sampling texts across a variety of situations the intent is to maximise the diversity of content included in the PISA reading literacy survey. Each set of stimuli is assigned to one of the four identified situations – *educational, occupational, personal* and *public* – according to the likely audience and purpose for which it is intended.

Figure VI.2.6 shows the distribution, by situation, of all tasks in the 2009 digital reading assessment and indicates the situation category of the material provided in the coloured section later in this chapter.

■ Figure VI.2.6 ■

Digital reading tasks by situation

Situation	% of tasks	Sample tasks
Educational	10%	–
Occupational	24%	▪ *IWANTTOHELP* ▪ *JOB SEARCH*
Personal	21%	–
Public	45%	▪ *SMELL*

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

HOW THE PISA 2009 READING RESULTS ARE REPORTED

How the PISA 2009 digital reading tests were designed, analysed and scaled

The development of the PISA 2009 digital reading assessment was co-ordinated by a consortium of educational research institutions under the auspices of the OECD Secretariat, and under the guidance of a group of international reading experts, several of whom were included because of their research interest in digital reading. Consortium test-development centres and some participating countries submitted stimulus material and questions.

The material was refined iteratively over the three years leading up to the administration of the assessment in 2009. The development process included several rounds of commentary from participating countries, as well as piloting with small groups of 15-year-olds, and a formal field trial in which 15-year-olds from all of the countries participating in this international option. The reading expert group recommended the final selection of tasks, which was made based on the technical quality of the tasks, assessed according to how they performed in the field trial, and their cultural appropriateness and interest for 15-year-olds, as judged by the participating countries. The set of tasks also needed to represent the required framework balance, reflecting the various categories of text, aspect and situation. In addition, the selection sought to ensure that tasks varied in their emphasis on text processing and navigation, and that they ranged widely in difficulty, allowing for an accurate assessment of all 15-year-old students, from the least proficient to the most able in digital reading.

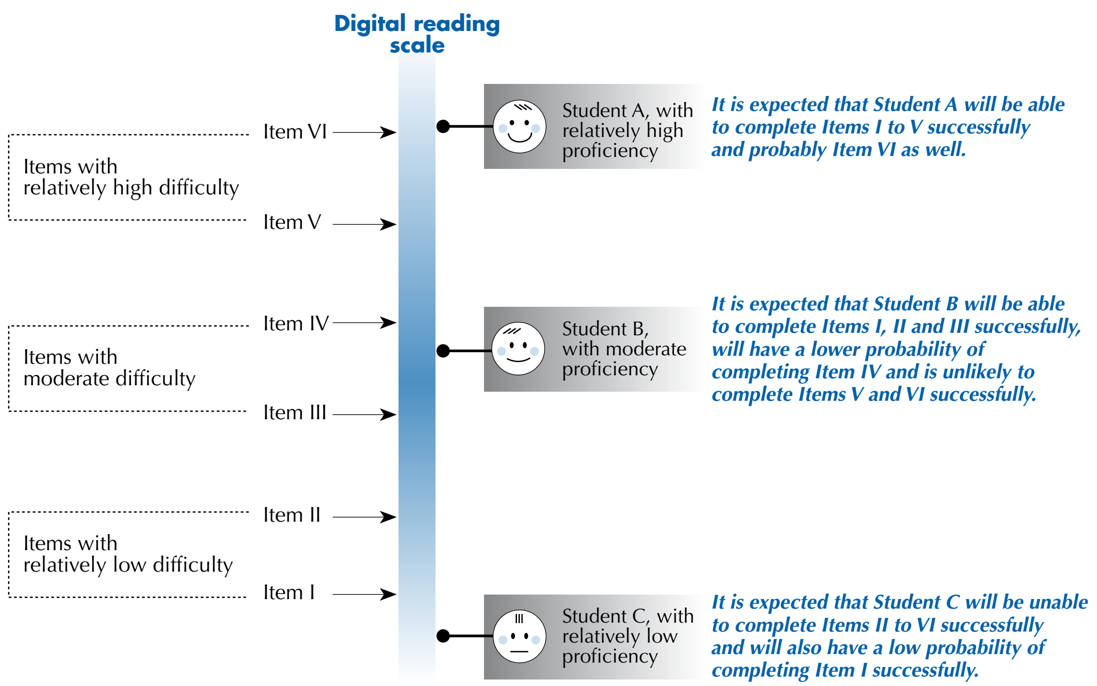
Twenty-nine digital reading tasks yielding 38 score points were used in PISA 2009, but each student in the sample saw only some of these tasks because different sets of tasks were given to different students. The tasks were organised into three 20-minute clusters, with each sampled student administered two of the clusters. Each student was thus given a forty-minute digital reading assessment, with an additional 10 minutes for orientation and practice questions at the beginning of the testing session. The clusters were rotated in six forms so that each cluster was paired with the other two and appeared in both first and second position in the pairing.

This design makes it possible to construct a single scale of digital reading proficiency, in which each question is associated with a particular point on the scale that indicates its difficulty, and each student's performance is associated with a particular point on the same scale that indicates his or her estimated proficiency. A description of the modelling technique used to construct this scale can be found in *PISA 2009 Technical Report* (OECD, forthcoming).

The relative difficulty of tasks in a test is estimated by considering the proportion of test-takers who answer each question correctly. The relative proficiency of students taking a particular test is estimated by considering the proportion of test questions they answer correctly. A single continuous scale shows the relationship between the difficulty of questions and the proficiency of students. By constructing a scale that shows the difficulty of each question, it is possible to locate the level of digital reading literacy that the question represents. By showing the proficiency of each student on the same scale, it is possible to describe the student's level of digital reading literacy.

■ Figure VI.2.7 ■

Relationship between questions and students on a proficiency scale



Estimates of student proficiency reflect the kinds of tasks that students would be expected to perform successfully. This means that students are likely to be able to complete questions successfully at or below the difficulty level associated with their own position on the scale (but they may not always do so). Conversely, they are unlikely to be able to successfully complete questions above the difficulty level associated with their position on the scale (but they may sometimes do so). Figure VI.2.7 illustrates how this probabilistic model works.

How digital reading proficiency levels are defined in PISA 2009

PISA 2009 provides an overall scale drawing on all the questions in the digital reading assessment. The metric for the digital reading scale was set so that the mean and the standard deviation of the 16 equally weighted OECD countries that participated in the digital reading assessment are the same as those for the same group of countries' print reading mean and standard deviation. This mean was 499 score points, with a standard deviation of 90.

To help in interpreting what students' scores mean in substantive terms, the scale is divided into levels, based on a set of statistical principles, and then descriptions are generated, based on the tasks that are located within each level, to describe the kinds of skills and knowledge needed to successfully complete those tasks. Given the relatively small number of items in the pool for PISA 2009, the range of difficulty of digital reading tasks allows for the description of four levels of reading proficiency: Level 2, Level 3, Level 4 and Level 5 or above. Below Level 2 there is a "place-holder" region of the scale, with too few items to support level descriptions. This area is called "Below Level 2". It is anticipated that items reflecting this low level of proficiency will be developed for future PISA surveys. Similarly, tasks may be added to the top of the scale to allow for the description of a Level 6.

Students with a proficiency within the range of Level 2 are likely to be able to successfully complete tasks within that band of difficulty, but are unlikely to be able to complete tasks at higher levels. Students with scores within the range of Level 4 are likely to be able to successfully complete tasks located at that level and at the lower levels.

PISA applies a standard methodology for constructing proficiency scales. Based on a student's performance on the tasks in the test, his or her score is generated and located in a specific part of the scale, thus allowing the score to be associated with a defined proficiency level. The level at which the student's score is located is the highest level for which he or she would be expected to successfully answer most of a random selection of questions within the same level.

■ Figure VI.2.8 ■

Summary descriptions for four levels of proficiency in digital reading

Level	Lower score limit	Percentage of students able to perform tasks at this level or above (OECD average)	Characteristics of tasks
5 or above	626	7.8%	Tasks at this level typically require the reader to locate, analyse and critically evaluate information, related to an unfamiliar context, in the presence of ambiguity. They require generating criteria to evaluate the text. Tasks may require navigation across multiple sites without explicit direction, and detailed interrogation of texts in a variety of formats.
4	553	30.3%	Tasks at this level may require the reader to evaluate information from several sources, navigating across several sites comprising texts in a variety of formats, and generating criteria for evaluation in relation to a familiar, personal or practical context. Other tasks at this level demand that the reader interpret complex information according to well-defined criteria in a scientific or technical context.
3	480	60.7%	Tasks at this level require that the reader integrate information, either by navigating across several sites to find well-defined target information, or by generating simple categories when the task is not explicitly stated. Where evaluation is called for, only the information that is most directly accessible or only part of the available information is required.
2	407	83.1%	Tasks at this level typically require the reader to locate and interpret information that is well-defined, usually relating to familiar contexts. They may require navigation across a limited number of sites and the application of web-based navigation tools such as drop-down menus, where explicit directions are provided or only low-level inference is called for. Tasks may require integrating information presented in different formats, recognising examples that fit clearly defined categories.

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Thus, for example, in an assessment composed of tasks spread uniformly across Level 4, students with a score located within this level would be expected to complete at least 50% of the tasks successfully. Because a level covers a range of difficulties and proficiencies, success rates across the band vary. Students near the bottom of the level would be likely to succeed in just over 50% of the tasks spread uniformly across the level, while students at the top of the level would be likely to succeed in well over 70% of the same tasks.

Figure VI.2.8 provides details of the nature of the skills, knowledge and understanding required at each level of the digital reading scale.

A profile of PISA reading questions

In order to establish reliable trends in PISA, a sufficient number of questions must be retained from year to year. Other questions are publicly released after the survey to illustrate how performance was measured. A selection of the released questions for the 2009 reading assessment is presented in the coloured section of this chapter to illustrate the framework characteristics and the levels of proficiency described above.

Four variables that influence the difficulty of digital reading tasks have been identified:

- *Characteristics of text*. This variable relates to the features of the texts that need to be processed to complete a task. Tasks based on texts with unfamiliar content in formal or technical language will, on average, be more difficult than short texts with familiar, everday content expressed in idiomatic language. The complexity of text structure, the vocabulary and the layout all influence the ease with which a text-based task can be completed. Moreover, the sheer quantity of text influences difficulty. The longer the text, and the more pages of digital text that must be consulted, the more difficult a task is likely to be.
- *Complexity of navigation*. A digital reading task may focus on information that is immediately visible on the starting page of the task, it may require scrolling on that page, or it may require the reader to visit several pages or sites. Tasks become more difficult when the information needed to complete the task is not immediately visible. Complexity of navigation also depends on the quantity, prominence, consistency and familiarity of navigation tools and structures on the available pages. When moving between pages is required, if there are many hyperlinks or menu items to choose from, the reader is likely to find the task more difficult than if there are only one or two hyperlinks to choose from. A task is made easier if there are prominently placed links in a conventional location on the screen; a task is more difficult if links are embedded in the text or are in an otherwise unconventional or inconspicuous location. Finally, the degree of direction in navigating influences task difficulty. Even when the reader needs to consult several pages, explicit directions about the pages that must be visited and the navigation structures to use can make the task relatively easy.
- *Explicitness of task demands*. This variable relates to the specificity of direction in completing the task: how much the reader needs to infer the scope and substance of what is required for the response. Difficulty is influenced by the relationship between the task and the text that must be processed. If the question uses the same or similar terminology to that used in the text, the task will be easier than if the terms used are different. When the criteria for responding are not explicitly stated in the task, so that readers have to generate their own criteria, difficulty increases. In this context, task formats in which the student selects a response from a limited list, such as multiple-choice items, tend to be easier than those for which the student needs to construct the response. (This variable does not reflect the specificity of guidance for navigation, which is accounted for in the *complexity of navigation* variable.)
- *Nature of response*. This variable relates to the kind of mental processing that the reader has to undertake to complete the task. Where the reader needs to generate concepts from within the text, rather than having them supplied, the task is likely to be more demanding. Where the reader needs to make a series of inferences, to evaluate and reflect, to construct relationships, such as causation or contrast among elements of the text, the task is typically more difficult than one in which processing the text only requires a simple transfer or basic identification of material. Further, a task that focuses on abstract concepts will be more difficult than one in which concrete information is the focus.

The difficulty of the digital reading tasks is varied by manipulating these four variables. Figure VI.2.9 shows an item map of the digital reading tasks that are presented later in this chapter. The 12 locations on the map represent the 10 tasks, with two of the tasks yielding two locations because they have full-credit and partial-credit scoring. The item map shows the score for each location, with a brief general description of the nature of the task. It also shows, for each location, difficulty ratings made by expert judges in relation to each of the four variables described above on a scale of 1 to 4, with 1 designating the least demand and 4 the greatest.

■ Figure VI.2.9 ■

Map of selected digital reading questions in PISA 2009, illustrating the proficiency levels

Level	Lower score limit	Task (and score)	Nature of task	Quality of text	Complexity of navigation	Explicitness of task demand	Nature of response
5 or above	626	*SMELL* Task 2 (657)	Evaluate a web page in terms of credibility/ trustworthiness of information after following an explicitly directed link from search results, generating own criteria for evaluation. Scroll to read the full text, which includes some specialised (scientific) language.	4	2	3.5	4
4	553	*JOB SEARCH* Task 2.2 full credit (624)	Analyse a list of options in a descriptive text related to employment, using predefined criteria. Follow two links using explicit instructions, and scroll. Select four options from drop-down menus, combining prior knowledge with information integrated from a seond page. (Full Credit)	2	3.5	2	3
		SMELL Task 1 (572)	Distinguish between the main idea and subsidiary ideas in an expository scientific text, in the presence of strong distracting information. Follow a link from search results to a web page using a literal match, scrolling to read the full text.	3.5	2	3	3
		IWANTTOHELP Task 4.2 full credit (567)	Integrate and reflect upon information from several web pages by comparing short texts on multiple pages of a website about community work with criteria referred to on a personal blog; explain a choice based on this comparison. Follow a series of at least four links, using explicit instructions. (Full Credit)	3	4	3	3
		JOB SEARCH Task 3 (558)	Hypothesise about the reason for including a condition in a job advertisement. Support explanation using prior knowledge and information from the text. No navigation required.	1.5	1	4	3
3	480	*IWANTTOHELP* Task 4.1 partial credit (525)	Integrate information by comparing a short text on one website about community work with criteria referred to on a personal blog. Follow a series of at least four links, using explicit instructions. (Partial Credit)	3	4	2	2
		SMELL Task 3 (485)	Synthesise information from two websites, following links from search results guided by explicit directions. Identify a generalisation common to information on the two sites using low-level inference.	3	3	2	2
2	407	*JOB SEARCH* Task 1 (463)	Select a job suitable for a student from a list of four search results comprising short descriptions of jobs.	1.5	2	2	2
		IWANTTOHELP Task 3 (462)	Recognise the main purpose of a website dealing with a community activity from a short description on its Home page. Follow a single link with explicit directions.	1.5	2	2	2
		JOB SEARCH Task 2.1 partial credit (462)	Analyse a list of options in a descriptive text related to employment, using predefined criteria. Follow two links using explicit instructions. Select three suitable options from drop-down menus. (Partial Credit)	2	2	2	1.5
		IWANTTOHELP Task 2 (417)	Locate explicitly stated personal information on a page of a personal blog, following one explicitly directed link and using two literal matches between task and text.	1	2	1	1.5
Below 2		*IWANTTOHELP* Task 1 (362)	Locate explicitly stated information in a personal blog. Find a synonymous match between the task and the text. No navigation required.	1	1	1.5	1.5

StatLink http://dx.doi.org/10.1787/888932435378

WHAT STUDENTS CAN DO IN DIGITAL READING

PISA summarises student performance on a scale that provides an overall picture of students' accumulated digital reading skills, knowledge and understanding at age 15. Results for this overall digital reading performance measure are presented in the following part of the chapter, covering both the average level of reading performance in each country and the distribution of reading proficiency.

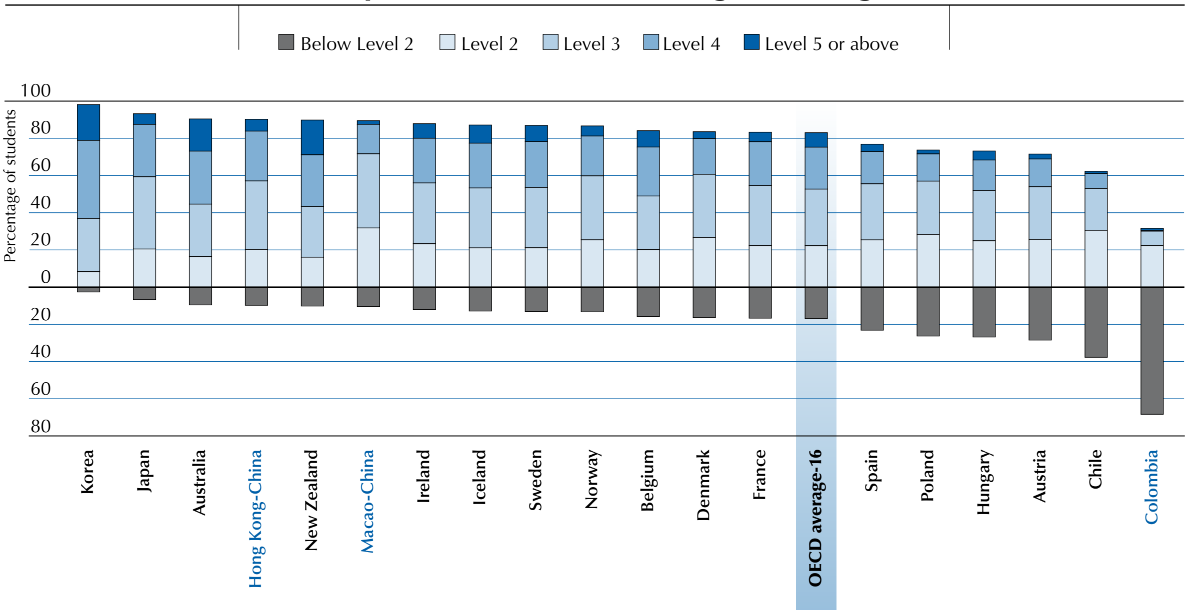
Students reading the different levels of proficiency on the digital reading scale

This section describes performance in terms of the four levels of proficiency that have been constructed for reporting digital reading in PISA 2009. Figure VI.2.8 shows the cumulative percentage of students in all participating OECD countries who are proficient at each of the four levels. The distribution of student performance across these proficiency levels in each participating country is shown in Figure VI.2.10.

Table VI.2.1 shows the percentage of students at each proficiency level on the digital reading scale, with standard errors.

■ Figure VI.2.10 ■

How proficient are students in digital reading?



Countries are ranked in descending order of the percentage of students at Levels 2, 3, 4, 5 or above.
Source: OECD, *PISA 2009 Database*, Table VI.2.1.
StatLink http://dx.doi.org/10.1787/888932435378

Proficiency at Level 5 or above (scores higher than 626)

Students proficient at Level 5 on the digital reading scale are skilled readers in this medium. They are able to evaluate information from several web-based sources, assessing the credibility and utility of what they read using criteria that they have generated themselves. They are also able to work out a pathway across multiple sites to find information without explicit direction: that is, they are able to navigate autonomously and efficiently. These two capabilities – critical evaluation and expertise in locating relevant information – are key skills in a medium in which there is virtually unlimited material available, and in which the integrity of the sources is often dubious. Dealing with semi-technical material as well as with more popular and idiomatic texts, students performing at Level 5 or above assimilate the broad sense of the material they encounter and also notice fine distinctions in the detail of the texts, allowing them to draw inferences and form plausible hypotheses. Those performing at Level 5 or above can be regarded as "top performers" in digital reading. Across the 16 OECD countries that participated in the digital reading assessment in 2009, 8% of students performed at this level. But there is considerable variation across the countries, from over 17% in Korea, New Zealand and Australia to fewer than 3% in Chile, Poland and Austria. The partner country Colombia and partner economy Macao-China also had very small percentages of students at Level 5 or above.

Proficiency at Level 4 (scores higher than 553 but lower than or equal to 626)

Students at this level can perform challenging reading tasks in the digital medium. They evaluate the authority and relevance of sources of information when provided with support, and can explain the criteria on which their judgements are based. They can locate and synthesise information across several sites when navigation between the sites requires the exercise of low-level inference. Dealing with a range of text formats and text types, including those in more formal registers and written in technical language, students at this level are able to compare and contrast the information they find on different sites, and to hypothesise and form opinions about what they read drawing on information from everyday life. Students proficient at Level 5 or above can also successfully complete Level 4 tasks.

Across the participating OECD countries, 30% of students are proficient at Level 4 or above. For the majority of these countries and for the partner economy Hong Kong-China, about one-fifth to one-quarter of students perform within this level. A notable exception is Korea, where over 40% of students perform within Level 4. Taken together with the students performing at Level 5 or above, over 60% of Korean students are proficient at Level 4 – a proportion larger than that of any other country. The next highest-performing countries are Australia and New Zealand, both with 46% of students proficient at least at Level 4. Belgium, Japan, Iceland, Sweden and Ireland and the partner economy Hong Kong-China all have over 30% of students proficient at Level 4 or above. The proportion of students in Chile proficient at that level is less than 10% and in the partner country Colombia it is less than 2%.

Proficiency at Level 3 (scores higher than 480 but lower than or equal to 553)

Students performing at this level can cope with digital reading tasks of moderate complexity. They respond to digital texts in both authored and message-based environments. When given explicit guidance, they navigate across several pages to locate relevant material, and compare and contrast information from a number of web-based texts when the criteria for comparison or contrast are clearly stated. They evaluate information in terms of its usefulness for a specified purpose or in terms of personal preference.

Across the 16 participating OECD countries, a majority (61%) of 15-year-olds is proficient at Level 3 or above. In most of these countries, this is the modal level of highest attainment; only in Korea, Australia and New Zealand is the modal level of performance higher (Level 4), while in Chile, the model level is lower (Level 2). Among partner economies, students in both Hong Kong-China and Macao-China also most commonly perform at Level 3, while the modal performance of students in the partner country Colombia is below the described levels. In all participating countries except Chile and Colombia, then, it can be inferred that the majority of young people is capable of dealing with many everyday digital reading tasks, although they are unlikely to be able to manage more challenging tasks, such as finding information entirely by themselves or critically evaluating sources to ascertain their authenticity and their relevance to the reader.

Proficiency at the Level 2 (scores higher than 407 but lower than or equal to 480 points)

Students proficient at this level navigate successfully using conventional navigation tools and features. When provided with explicit instructions, they locate links even when they are not prominent and scroll to find required information. Using predefined criteria they select relevant material from a list of search results or a drop-down menu. They can locate several pieces of information in one text and transfer them to another format (such as an order form). They form generalisations, such as recognising the intended audience of a website, or figuring out a common requirement of two correspondents in an e-mail exchange.

Across participating OECD countries, more than four-fifths of students (83%) are proficient at Level 2 or above. In Australia and Japan, this proportion rises to over 90% and in Korea to 98%.

All participating countries and partner economies, except Korea, have significant numbers of students performing below the defined levels for the digital reading scale. In the OECD countries Chile, Poland, Austria and Hungary, more than one-quarter of students perform below Level 2, and in Colombia, nearly 70% of students perform below this level. This does not mean that such students have no proficiency in digital reading. Many students performing at this level can scroll and navigate across web pages, as long as explicit directions are provided, and can locate simple pieces of information in a short block of hypertext. Nevertheless, although the digital reading skills of these students are not necessarily negligible, they are performing at levels that are not likely to allow them full access to educational, employment and social opportunities in the 21st century.

Average level of proficiency

Another way of summarising the differences between countries is to consider their mean performance. Since only about half of the OECD countries participated in the PISA 2009 digital reading assessment option, the mean and standard deviation for the pooled data set of the 16 OECD countries in digital reading were arbitrarily set at the same values as this group of countries' mean (499) and standard deviation (90) for print reading in 2009.[1] These values establish the benchmark against which each country's digital reading performance in PISA 2009 is compared.

Figure VI.2.11 shows each country's mean score for digital reading. For each country shown in the middle column, the list in the right hand column shows countries whose mean scores are not sufficiently different to be distinguished with at least 95% certainty. For all other cases, one country has higher performance than another if it is above it in the list in the middle column, and lower performance if it is below. For example, Hong Kong-China's performance, which comes fifth on the list, is not significantly different from that of Japan, which comes fourth, Iceland, which comes sixth, Sweden (seventh) and Ireland (eighth). The dark band in the middle shows the participating countries Norway and France, whose performances are not statistically significantly different from the OECD average.

■ Figure VI.2.11 ■
Comparing countries' performance in digital reading

Statistically significantly **above** the OECD average
Not statistically significantly different from the OECD average
Statistically significantly **below** the OECD average

Mean	Comparison country	Countries whose mean score is NOT statistically significantly different from that of the comparison country
568	Korea	
537	New Zealand	Australia
537	Australia	New Zealand
519	Japan	Hong Kong-China
515	Hong Kong-China	Japan, Iceland, Sweden, Ireland
512	Iceland	Hong Kong-China, Sweden, Ireland, Belgium
510	Sweden	Hong Kong-China, Iceland, Ireland, Belgium
509	Ireland	Hong Kong-China, Iceland, Sweden, Belgium
507	Belgium	Iceland, Sweden, Ireland
500	Norway	France
494	France	Norway, Macao-China, Denmark
492	Macao-China	France, Denmark
489	Denmark	France, Denmark
475	Spain	Hungary
468	Hungary	Spain, Poland, Austria
464	Poland	Hungary, Austria
459	Austria	Hungary, Poland
435	Chile	
368	Colombia	

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Korea is the top-performing country by a significant margin, with a mean score of 568. This indicates that, on average, 15-year-olds in Korea perform at Level 4 in digital reading. New Zealand and Australia are in second and third positions, both at 537. Japan (519) and the partner economy Hong Kong-China (515) are in the next rank, together with Iceland (512) and Sweden (510). Two additional European countries have mean scores significantly higher than the OECD average: Ireland (509) and Belgium (507). Norway (500) and France (494) have means not significantly different from the OECD average. Denmark (489) and the partner economy Macao-China (492) have means not significantly different to that of France, though they are below the OECD average. On average in all of these countries except Korea, 15-year-olds perform at PISA proficiency Level 3 in digital reading. Students in the remaining five OECD countries perform, on average, at Level 2: Spain (475), Hungary (468), Poland (464), Austria (459) and Chile (435). The partner country Colombia's mean score (368) is well below those of the other participating countries, indicating that, on average, Colombian 15-year-olds perform below the described levels of digital reading. As mentioned above, however, this does not signify a complete lack of skills.

Because the figures are derived from samples, it is not possible to determine a precise rank of a country's performance among the participating countries. It is possible, however, to determine, with 95% likelihood, a range of ranks in which the country's performance lies, as shown in Figure VI.2.12.

■ Figure VI.2.12 ■

Where countries rank in digital reading performance

	Statistically significantly **above** the OECD average
	Not statistically significantly different from the OECD average
	Statistically significantly **below** the OECD average

	Digital reading scale					
			Range of rank			
			OECD countries		All countries/economies	
	Mean score	S.E.	Upper rank	Lower rank	Upper rank	Lower rank
Korea	568	(3.0)	1	1	1	1
New Zealand	537	(2.3)	2	3	2	3
Australia	537	(2.8)	2	3	2	3
Japan	519	(2.4)	4	4	4	5
Hong Kong-China	515	(2.6)			4	7
Iceland	512	(1.4)	5	7	5	8
Sweden	510	(3.3)	5	8	5	9
Ireland	509	(2.8)	5	8	6	9
Belgium	507	(2.1)	6	8	7	9
Norway	500	(2.8)	9	10	10	11
France	494	(5.2)	9	11	10	13
Macao-China	492	(0.7)			11	13
Denmark	489	(2.6)	10	11	11	13
Spain	475	(3.8)	12	13	14	15
Hungary	468	(4.2)	12	14	14	16
Poland	464	(3.1)	13	15	15	17
Austria	459	(3.9)	14	15	16	17
Chile	435	(3.6)	16	16	18	18
Colombia	368	(3.4)			19	19

Note: See Annex A3 for a detailed description of how the range of ranks is computed.
Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Inequality of learning outcomes

The gap between the means of the highest- and lowest-performing OECD countries (Korea and Chile) is 133 points – one-and-a-half standard deviations and almost two full proficiency levels. While the disparities between countries are evident, an equally large disparity in performance exists between the highest- and lowest-performing students within some of the countries. This is the case in Hungary, Austria and Belgium, where 141, 137 and 133 score points, respectively, separate the mean performance levels of the top and bottom quarters of the 15-year-old population. This finding is of particular concern. There is growing consensus that not only does such inequality reflect a reduced possibility for those on the lower rungs either to contribute to society or to benefit from its capital, but inequality within countries (compared to that between countries) is more likely to be perceived as unfair, because the disparities are local and obvious; and that, in turn, could sap a collective sense of well-being or lead to social unrest (Friedman, 2005; Pickett & Wilkinson, 2009).

A wide disparity in performance within countries is not inevitable, and relatively narrow gaps between the highest and lowest performance are not associated with any particular level of overall proficiency. With the average gap between the top and bottom quarter of students at 120 score points across the participating OECD countries, the Asian countries and economies, whose mean scores range from average to very high, all have distribution ranges well below the OECD mean. The interquartile range (the difference between the first and third quartiles) in these two countries and two economies is 88 for Korea, 89 for Macao-China, 95 for Japan and 103 for Hong Kong-China. The comparable figure for Colombia, the lowest performing country, was also below the OECD average difference (113), while for one of the best-performing countries, New Zealand, the difference is 131 score points. Chapters 4, 6 and 7 examine some of the factors that may explain these variations in performance.

Gender differences in performance on the digital reading scale

Girls have outperformed boys in print reading in every OECD and partner country and economy – except in Israel and the partner country Peru in PISA 2000 – since PISA's first reading assessment was administered in 2000 (OECD, 2003). Does the same hold true for digital reading? The brief answer is "almost". Figure VI.2.13 shows gender differences in reading performance for each country; Tables VI.2.2, VI.2.3 and VI.2.4 provide further details.

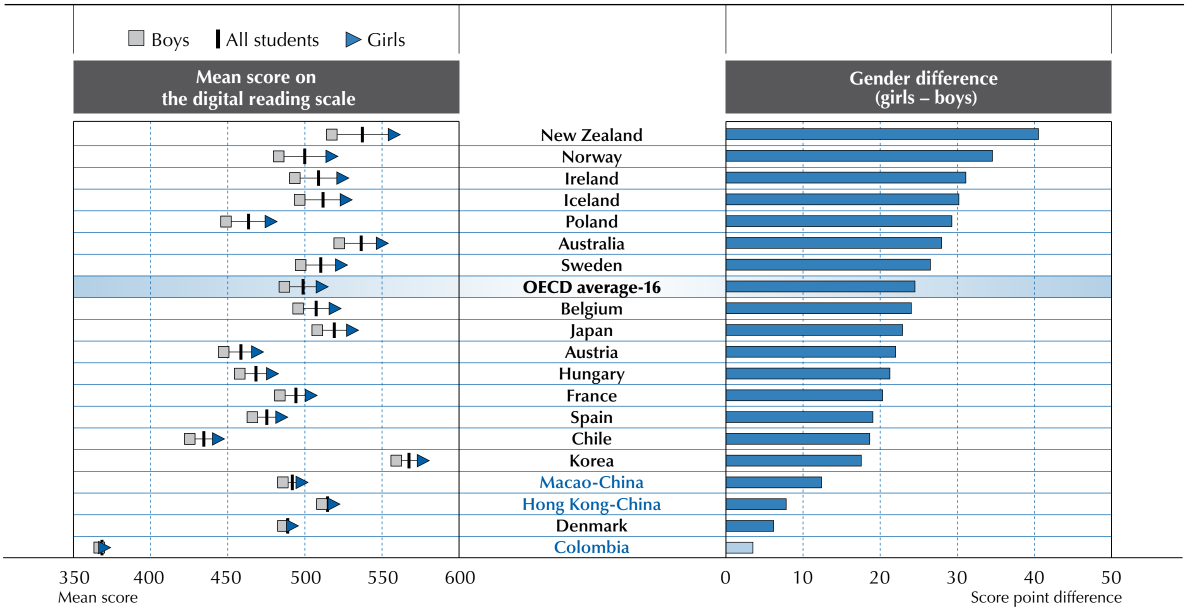
The mean difference between boys' and girls' performance in digital reading is 24 score points in favour of girls. In all but one country the difference is statistically significant. The exception is Colombia, where girls outperform boys by an average of only three score points. Except for Poland, the greatest gender differences are all in either

English-speaking or Nordic countries: New Zealand (40-point difference), followed by Norway (35), Ireland (31), Iceland (30), Poland (29), Australia (28) and Sweden (26). Denmark is alone among Nordic and English-speaking countries in having a below-average gap between boys' and girls' performance.

Figure VI.2.14 shows the percentages of boys and girls performing at each proficiency level and the percentage below the lowest level.

■ Figure VI.2.13 ■

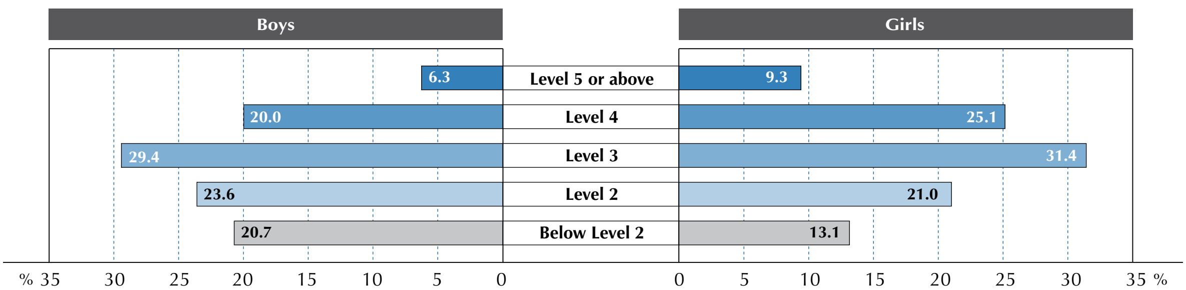
Gender differences in digital reading performance



Note: Gender differences that are statistically significant are marked in a darker tone.
Countries are ranked in ascending order of the gender score point difference (girls – boys).
Source: OECD, *PISA 2009 Database*, Table VI.2.4.
StatLink http://dx.doi.org/10.1787/888932435378

■ Figure VI.2.14 ■

How proficient are girls and boys in digital reading?

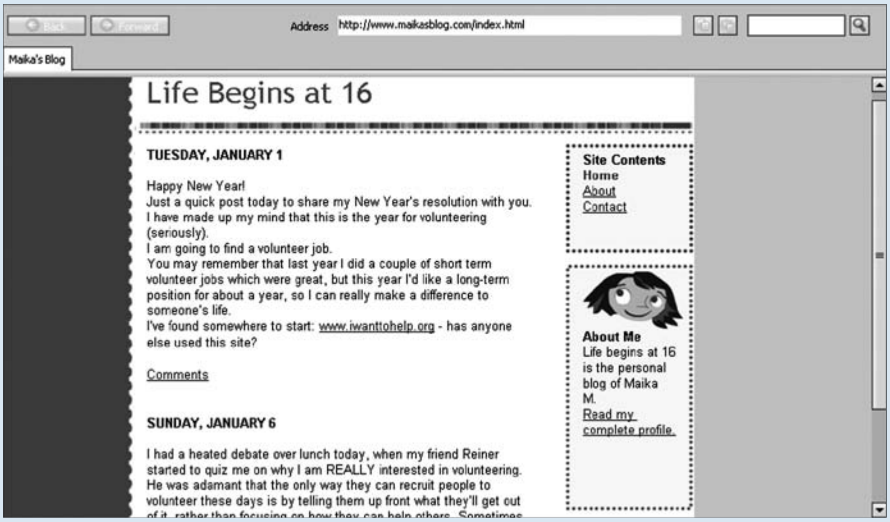


Source: OECD, *PISA 2009 Database*, Tables VI.2.2 and VI.2.3.
StatLink http://dx.doi.org/10.1787/888932435378

As shown in Figure VI.2.14, the mean highest proficiency level for both boys and girls across the participating OECD countries is Level 3, and the percentages of boys and girls performing at this level are quite similar (29% and 31%, respectively). However, the next most common level of performance for boys is Level 2 (24% of boys), while for girls it is Level 4 (25%); in both cases, around one-quarter of students perform at that level. In other words, on average, over half the boys in participating OECD countries perform at Levels 2 and 3, whereas a similar percentage of girls performs at Levels 3 and 4. Again, there is substantial variation among countries. At one end of the proficiency spectrum, more girls in Korea, Australia and New Zealand perform at Level 4 than at any other level, whereas only in Korea do more boys perform at that level than at any other. At the other end of the spectrum, only in Chile do more girls perform at Level 2 than at any other level, while more boys in both Chile and Poland perform at Level 2 than at any other level.

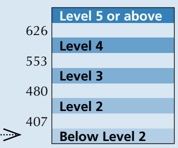
EXAMPLES OF DIGITAL READING ITEMS FROM THE PISA 2009 ASSESSMENT

IWANTTOHELP



IWANTTOHELP – *QUESTION 1*

Situation: *Occupational*
Environment: *Message-based*
Text format: *Continuous*
Text type: *Description*
Aspect: *Access and retrieve – Retrieve information*
Question format: *Multiple choice*
Difficulty: *362 (below Level 2)*



Read Maika's blog entry for January 1. What does the entry say about Maika's experience of volunteering?

A. She has been a volunteer for many years.

B. She only volunteers in order to be with her friends.

C. She has done a little volunteering but would like to do more.

D. She has tried volunteering but does not think it is worthwhile.

Scoring

Full Credit: C. She has done a little volunteering but would like to do more.

Comment

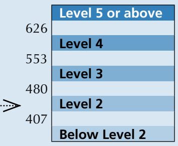
The first page that students see in this unit is the home page of the blog (Life Begins at 16) of a young person named Maika. This page contains two entries from the blog, for January 1 and January 6. Although this kind of text often appears on a social networking site, the specific content describes Maika's interest in and plans for doing voluntary work, so this question (and later questions in this unit) are classified as falling within the **occupational** *context.*

Fifteen-year-old students may not have much experience of volunteering, but the concept is quite concrete, and the text is made accessible by the use of language that is relatively simple and colloquial ("Just a quick post", "(seriously)"), and addressed directly to the audience who may be reading it ("share my New Year's resolution with you", "You may remember", "has anyone else used this site?"). The page contains features typical of social networking sites, with four links available within the site ("About", "Contact", "Read my complete profile", "Comments") and one link to an external site (www.iwanttohelp.org).

This task requires the reader to identify information about Maika's experience of volunteering. Students need to read the short text entry for January 1 in order to locate the answer. It is not necessary to scroll down to see the remainder of the entry for January 6, nor for any other kind of navigation. The second and third sentences of the text give an indication of Maika's desire to work as a volunteer, which discounts option D and guides the reader towards the second part of the key ("would like to do more"). The key is a simple paraphrase of two pieces of information in the following sentence: "… last year I did a couple of short term voluntary jobs …, but this year I'd like a long-term position …". Given the relative prominence of the information in this short text, the direct and relatively simple language, the lack of need to navigate, and the straightforward way in which terms in the question and key to expressions they locate in the text are related, this has all the features of an easy question.

IWANTTOHELP – *QUESTION 2*

Situation: *Educational*
Environment: *Message-based*
Text format: *Multiple*
Text type: *Description*
Aspect: *Access and retrieve – Retrieve information*
Question format: *Multiple choice*
Difficulty: *417 (Level 2)*



Go to Maika's "About" page.

What kind of work does Maika want to do when she leaves school?

A. Photography.

B. Web design.

C. Banking.

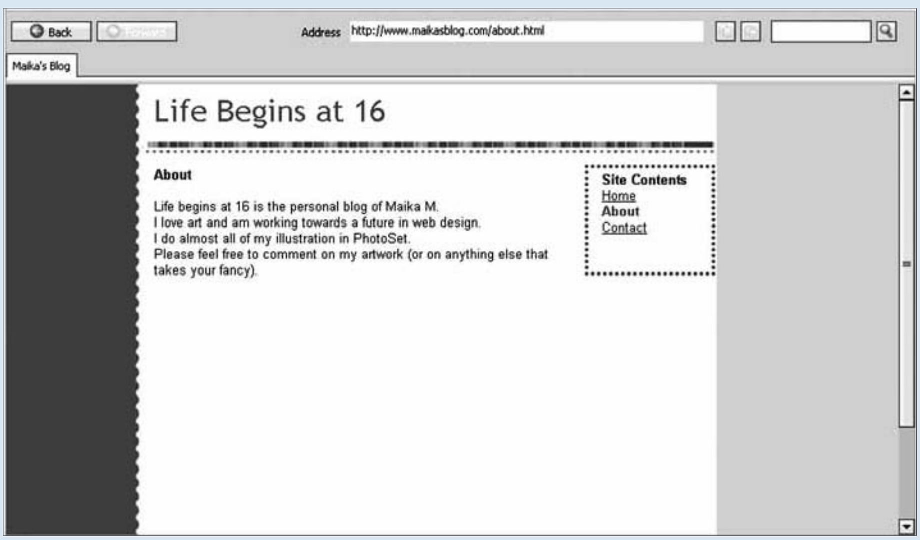
D. Social work.

Scoring

Full Credit: B. Web design.

Comment

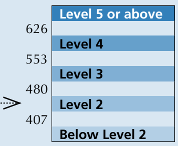
This question also starts on the home page of the blog, but the question directs students to navigate to a second page. Therefore, in contrast to all print reading tasks, the information needed to answer the question cannot be obtained from the material initially presented: the student needs to locate an additional text by clicking on the link. In this instance, selecting the correct link from the five available is easy because there is a literal match between the term in the task and the name of the link ("About"), and because the link is prominent.



Once students click on this link, a second text appears, hiding the first text – this is one of the strongest distinctions between print and digital texts. This new text is very brief, containing a small amount of background information about the personal life of the writer of the blog. It can be considered as dealing with information of a kind likely to be fairly familiar to most 15-year-olds. There is minor distracting information in option A, with reference to "PhotoSet" in the text, while option D is also plausible, given the information on the first text (the home page) about Maika's expressed desire to do voluntary work and to make a difference to someone's life. Answering this question relies on making a literal match between the key and one of the terms in the text, "web design". The brevity of the text, its simple language, and the literal matches make this question relatively comprehensible; it appears that the need for one navigation step adds an element of difficulty, making it slightly more difficult than the previous question.

IWANTTOHELP – *QUESTION 3*

Situation: *Educational*
Environment: *Authored*
Text format: *Multiple*
Text type: *Argumentation*
Aspect: *Integrate and interpret – Form a broad understanding*
Question format: *Multiple choice*
Difficulty: *462 (Level 2)*



Open the link that Maika refers to in her January 1 post. What is the main function of this website?

A. To encourage people to buy **iwanttohelp** products.

B. To encourage people to give money to people in need.

C. To explain how you can make money by volunteering.

D. To provide people with information about ways to volunteer.

E. To tell people in need where they can find help.

Scoring

Full Credit: D. To provide people with information about ways to volunteer.

Comment

In this task students are required to recognise the main idea of a text, but in order to do this, they first need to find the text. In order to view the necessary text, they have to click on a link, as indicated in the task. Only one of the hyperlinks on this page occurs within the blog entry for January 1, so the direction in the task is explicit, but four other links available on the page act as distractors. Clicking on the correct link takes the reader not only to a new page, but also to an entirely new website, the home page for an organisation called iwanttohelp. This page opens in a new tab, so that it is possible for students to click on the tab "Maika's Blog" if they wish to return to the first text, although that is not necessary for this task. The content of the new website is more abstract, employing terms that may be relatively unfamiliar to students, such as "non-profit organisation", "opportunity" and ".org", and is addressed to a large anonymous audience rather than operating at the personal level of a blog.

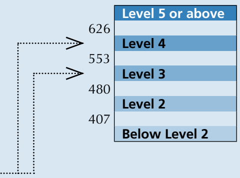
This text is classified as argumentation because it encourages readers to take action, either by contacting other organisations ("Find an Opportunity Now") or by making donations ("We rely on public donations"). Four links to other part of the website are available on this page if students wish to explore the site in order to obtain a broader picture of the organisation. This, however, would be time consuming and inefficient. Such opportunities always exist for anyone reading material on the Internet, so one feature of reading in this environment is being able to judge when it is necessary to open new links, thus expanding the number of available texts.

In this case, in order to answer this broad understanding question, students need to read the short description of the organisation provided in the box on the left of the home page, supported by the prominent question and link above the photograph. It is not possible to make any literal matches between the task and the key: some (relatively low) level of inference is needed to recognise that this site provides information explaining how people could volunteer. The distractors all have some degree of plausibility, because of their references to the iwanttohelp site, to money and people in need, to volunteering, and to giving information about help.

This task is somewhat harder than the previous task, although it is still relatively easy. The comparative difficulty is explained by the need to navigate to the text with the required information using the correct link; the amount of potentially distracting information available through irrelevant links on the web pages; the somewhat abstract and unfamiliar information and language used; and the need for a level of inference to answer the question.

IWANTTOHELP – *QUESTION 4*

Situation: *Educational*
Environment: *Mixed*
Text format: *Multiple*
Text type: *Mixed*
Aspect: *Complex*
Question format: *Constructed response*
Difficulty: *Full credit 567 (Level 4); Partial credit 525 (Level 3)*



Read Maika's blog for January 1. Go to the iwanttohelp site and find an opportunity for Maika. Use the e-mail button on the "Opportunity Details" page for this opportunity to tell Maika about it. Explain in the e-mail why the opportunity is suitable for her. Then send your e-mail by clicking on the "Send" button.

Scoring

Full Credit: Selects Graphic Artist or Upway Primary School and writes a message in the e-mail text box with a relevant explanation that matches Maika's criteria.

E-mail message for Graphic Artist

Refers to ongoing position or future or web design or art.
- You're a great artist and it is ongoing – you said you wanted a longer type of work right?
- It's ongoing and it would help you get experience for your future.
- You are obviously interested in graphic design, and want to pursue this when you finish school, and you would also love to volunteer. This would be a great opportunity to do both these things, and will look great on your CV too!

OR

E-mail message for Upway Primary School

Refers to ongoing position or making a difference.
- This would be a good job – ongoing and you get to help some kids.
- Here's a job where you'll really make a difference.

Partial Credit: Selects Graphic Artist or Upway Primary School and writes a message in the e-mail text box with no explanation or an irrelevant explanation.

E-mail message for Graphic Artist

Gives insufficient or vague answer.
- You'd like it.

Shows inaccurate comprehension of the opportunity or gives an implausible or irrelevant answer.
- You'd be working with kids a lot. *[Irrelevant, not one of Maika's criteria.]*
- It gives you a chance to get out and about.

OR

E-mail message for Upway Primary School

Gives insufficient or vague answer.

- You need an hour a week but it sounds like this could be what you're looking for. *[Lacks reference to job criteria, repeats part of stem.]*
- You'd like it.

Shows inaccurate comprehension of the opportunity or gives an implausible or irrelevant answer.

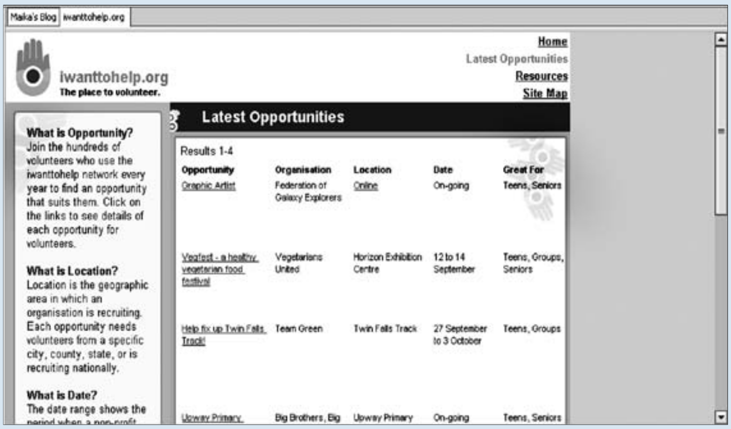
- It gives you a chance to get out and about.

Comment

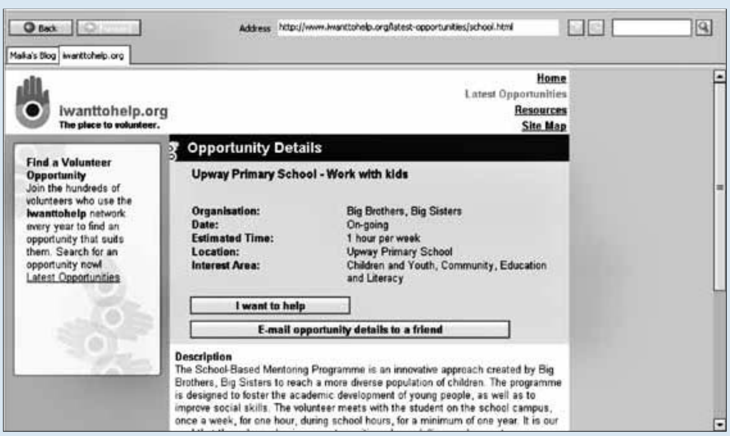
This is an example of a complex task, which involves all three aspects of reading. It also has a substantial navigation requirement. This complexity highlights a number of differences between print and digital reading tasks. The overall task requires students to construct a short e-mail message after integrating and reflecting upon information located in several texts. The text type has not been specified because the task requires the reader to integrate information from several types of text: argumentation (the iwanttohelp website), description (Maika's blog) and transaction (the e-mail).

Beginning with an interpretation of information given on Maika's blog, students are then required to locate a number of pages on the iwanttohelp website, evaluate information on these pages in relation to what they have read on the blog, and use the evaluation to send Maika a simple message. There is no single pathway for navigation, and two different texts can be used to formulate responses that receive credit. This variability is typical of navigation in the digital environment.

The task requires students to navigate from the starting page, Maika's blog, to the Latest Opportunities page shown below. To see the whole page, scrolling is required.



This page offers four opportunities for students to evaluate on Maika's behalf, each with links providing additional information. Students may open as many of the links as they consider necessary. The page for the Upway Primary School opportunity is shown below.



This text is fairly short, but relatively dense, with quite complex vocabulary ("an innovative approach", "a more diverse population", "foster the academic development", "academic support"). Having located the opportunities, students need to compare descriptions of the opportunities with the criteria given on Maika's blog. They may click on the tab to re-read her entry for January 1, where she refers to wanting "a long-term position" in which she can "make a difference". A broad understanding of the Upway Primary School text would support the evaluation that working here would fit Maika's criteria. This interpretation is supported by expressions such as "The volunteer meets with the student … for a minimum of one year" and "through academic support, positive role-modelling, and a one-to-one friendship, students will succeed".

Some students may also use the link "Read my complete profile" or "About", which refers to her interest in "a future in web design" and to her "artwork". The information here supports the selection of the Graphic Artist opportunity.

Students may use the "Back" and "Forward" buttons, the links on each page and the scroll bar to navigate back and forth between descriptions of various opportunities until they have selected the one that they judge to be most suitable. In each case it is necessary to scroll down to see a full description of the opportunity.

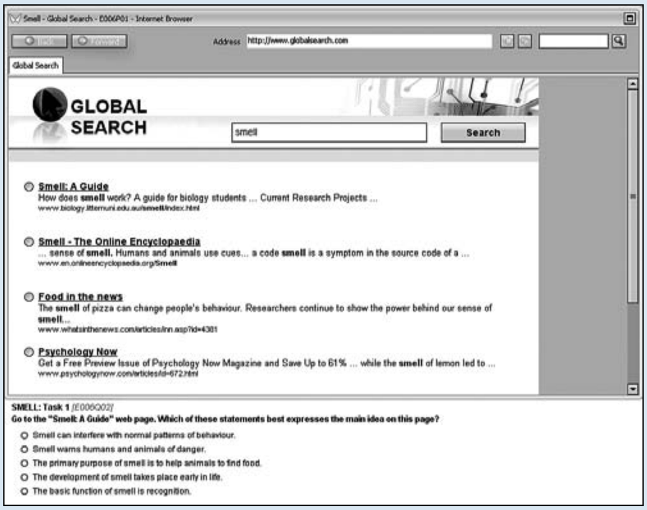
Once students have chosen an opportunity, they need to construct an e-mail message to send to Maika. They do this by opening yet another link, "E-mail opportunity details to a friend", in accordance with the task instructions.

The page where they do this has the e-mail address and subject lines already completed, together with the beginning of a message: "Thought you'd be interested in this volunteer opportunity because...". To receive credit, students must select either the Graphic Artist or the Upway Primary School opportunity. Students who recommend the Graphic Artist opportunity receive full credit if they refer to the fact that this opportunity is an ongoing position; or comment that it is relevant to her future or to her interest in web design or art. Students who recommend Upway Primary School receive full credit if they refer either to the fact that this is an ongoing position or to the idea of making a difference.

Students who select one of these two opportunities but do not write a message that refers to the criteria Maika is seeking nevertheless receive partial credit for having successfully completed much of this complex task: accessing relevant information, comparing information from different texts and making a judgment about which opportunity is suitable.

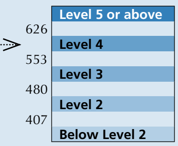
In summary, in order to obtain full credit for this task, students need to go through a series of processes, involving multiple navigation steps to access a series of texts. Some of the navigation steps are made explicit in the task instructions, but readers need to make multiple evaluations of the available links to decide which ones would allow the most efficient way of completing the task. Students need to make multiple interpretations of texts, from Maika's blog as well as various pages on the iwanttohelp website, and to compare ideas and information across these texts, in support of the reflection and evaluation that the task requires.

SMELL



SMELL – *QUESTION 1*

Situation: *Educational*
Environment: *Authored*
Text format: *Multiple*
Text type: *Exposition*
Aspect: *Integrate and interpret – Form a broad understanding*
Question format: *Multiple choice*
Difficulty: *572 (Level 4)*



Go to the "Smell: A Guide" web page. Which of these statements best expresses the main idea on this page?

A. Smell can interfere with normal patterns of behaviour.

B. Smell warns humans and animals of danger.

C. The primary purpose of smell is to help animals to find food.

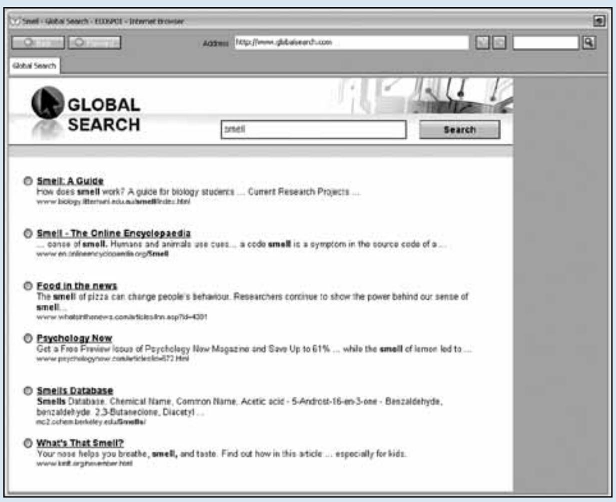
D. The development of smell takes place early in life.

E. The basic function of smell is recognition.

Scoring

Full Credit: E. The basic function of smell is recognition.

This question presents a list of six search results for the term "smell". Only the first four are immediately visible. If students wish to see the full list of six they need to either scroll down or click on the "Maximise" button in the top right corner of the browser. The screen shot below shows what the students see if they click the "Maximise" button.



Comment

The question first directs students to navigate to a second web page, "Smell: A Guide", and to identify the main idea of the text on this page. The information needed to answer the question cannot be obtained from the material presented in the search results. Links are available from the search results page to several other pages. There are a maximum of four available tabs in this task: the Global Search page, Smell: A Guide, Food in the News, and Psychology Now. The links to the remaining three results lead to a page that states, "This page has no content available." and has a link back to the search results page. Selecting the correct link from the six available is easy, because there is a literal match between the term in the task and the name of the link ("Smell: A Guide"), and because the link is the first in the list, and hence the most prominent.

Once students click on this link, a second text appears, in a new tab. This is a relatively long and dense expository text dealing with the role of smell. Students can identify that it is published by a research and teaching department (as indicated by the link "Current Research Projects" on the left of the page, and the headings "Teaching" and "Research and teaching information") in a university (the URL for the page is "www.biology.litternuni.edu.au/smell/index.html"). The text examines the everyday concept of smell in a scientific way. It contains multiple reference to everyday concepts, relating the abstract notion of the role of smell to these concepts in concrete ways (for example, "potential danger" is illustrated by "smoke indicates fire"; "Elephants' sense of smell" is related to how humans harness it in tracking poachers; babies' reactions to unpleasant smells are described). Consistent with its origin and purpose, the text includes some specialised (scientific) language ("identity of other living creatures", "uniquely identifiable", "land mammal", "foraging ants", "facial expressions that indicate rejection", "a putrid smelling substance") that requires careful reading and good vocabulary knowledge for complete understanding.

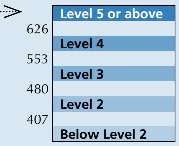
Students need to use the scroll bar to view the full text, and scrolling is probably necessary for this question, which focuses on the main idea of the text. Distracting navigational features are provided by top and side menus.

The first four options contain strongly distracting information of various kinds. Option A includes the ideas both of interference and of patterns of behaviour, plausible in this scientific context, except that the text does not support a link between them. Option B (chosen by over 25% of students) is possibly the strongest distractor because it appeals to common sense, and offers a simple paraphrase of an example of how smell is used, an idea presented in the second sentence in the text ("Sometimes our sense of smell can warn of potential dangers."); however, this idea is not consistently discussed through the text. Option C involves a misinterpretation of another sentence in the same paragraph, which describes another example of the use of smell ("sometimes"; "for example"), not its primary purpose. Option D presents a literal match ("early in life") with an idea presented in the text, but a detail rather than the main idea. Students can be expected to need to skim the entire text in order to relate the terms "basic function" and "recognition" in option E with a global interpretation of the text. The idea of "basic function" is hinted at in the opening sentence of the text ("the role of smell"), but it would be premature to link "information about the environment" from the text with ""recognition". It is the repetition of descriptions of functions of smell and examples of how these relate to recognition, scattered through the text ("potential dangers … smoke … fire"; "distinguish … twins .. siblings";

"elephants … track poachers"; "ants … know when to leave the nest"; "babies … rejection"), that allows the reader to identify this option as the key. Despite this repetition of ideas, the item is relatively difficult, most likely as a result of the combination of the length of the text, the use of specialist (scientific) language, and the plausibility of the information provided in the distractors.

SMELL – *QUESTION 2*

Situation: *Public*
Environment: *Authored*
Text format: *Multiple*
Text type: *Exposition*
Aspect: *Reflect and evaluate – Reflect on and evaluate content of text*
Question format: *Open constructed response*
Difficulty: *657 (Level 5 and above)*



Go to the "Food in the news" web page. Would this web page be a suitable source for you to refer to in a school science assignment about smell? Answer Yes or No and refer to the content of the "Food in the news" web page to give a reason for your answer.

Scoring

Full Credit

Answers (or implies) No and gives a plausible supporting explanation, referring to the trivial or sensational nature of the website content, or the popularisation of the issues by journalists or the site's failure to explicitly give its sources of information.

- No, it's just trying to popularise science and has almost certainly oversimplified the original research.
- No, it just offers sensational news. Look at the superficial issues covered in this site.
- No, it is obviously from a popular news magazine not a scholarly source.
- No, it has loads of silly links that show it's not a serious site.
- No, not suitable because it is just written by journalists not scientists.

OR

Answers (or implies) Yes and indicates that the site would be helpful as a secondary source, leading to more reputable sources.

- Yes, it would help me to find the original research.
- Yes, I would use it to look and see if more serious publications said the same thing.

OR

Answers (or implies) Yes and gives a plausible supporting explanation, referring to the article's sources of information or the level of detail provided.

- Yes, because it is a review of real research.
- Yes, because it talks about several real studies.
- Yes, they're talking about a study that won a Nobel prize, so it must be true.
- Yes, the study is described in detail so I don't think they would make it up.

No Credit

Gives insufficient or vague answer.

- Yes, The Food in the News page was convincing because the results that they were showing did not seem opinionated and sounded reliable. *[vague]*
- I don't think it's reliable because it's about the power behind our sense of smell. *[vague]*
- Yes, it's a long article. Why would they make all that up?
- No, my teacher would not be impressed.

OR

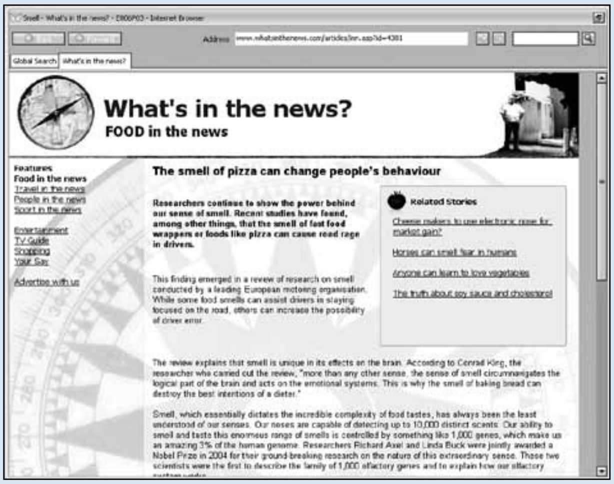
Shows inaccurate comprehension of the material or gives an implausible or irrelevant answer.

- Yes, because it's by a motoring organisation, which really matters. *[irrelevant]*
- I think it would be reliable because it describes how smell can affect your mood. *[irrelevant]*

Comment

The text is again quite lengthy, and scrolling is required to view it in its entirety.

This question asks students to open a different link from the previous question. Again, the relevant link is simple to identify there is a literal match with the question stem, and no scrolling is required to see the link, "Food in the news".



Evaluate two web pages in terms of credibility/ trustworthiness of information. Follow a link from search results to a web page using literal match. Scrolling is needed to read the full text. Contextual support relevant to response includes other links on the page. Text includes some specialised (scientific) language.

Students are required to evaluate the web page, "Food in the news", in terms of its suitability as a reference for a school assignment. This kind of task may be considered representative of the kind of issue faced with tremendous frequency by students when completing school tasks involving Internet-based research.

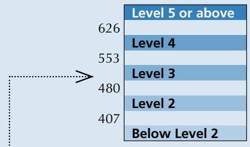
The page has many features which may contribute to the students' evaluation. The page itself has numerous links that indicate this is a commercial site (carrying the url "whatsinthenews.com"), which clearly has a populist pitch that intends to reach a wide audience ("Entertainment", "TV Guide", "Shopping", "Advertise with us"), and which has few, if any, pretensions to academic seriousness. There are also links to related sites ("Travel in the news", etc.), and to a series of related stories which have a rather sensationalist flavour ("Cheese makers to use electronic nose for market gain?", "Anyone can learn to love vegetables"). These features would tend to make the text accessible to students. The lack of academic pretension is reinforced by the fact that the article on this page carries a somewhat sensationalist title, "The smell of pizza can change people's behaviour", and is not credited to any specific source. There is reference to "a leading European motoring organisation" as the source for a "review of research", but no reason is offered for why such an organisation should concern itself with the diverse findings related to smell that are included here. All of these features may be considered relevant to a view that the site could be considered unsuitable as a source for a school assignment.

On the other hand, the article presented here does refer to results of a range of scientific findings from several studies; it does name the author of the review ("Conrad King"); it refers to some of the researchers by name ("Researchers Richard Axel and Linda Buck") and offers them credibility by citing the fact that they were recipients of "a Nobel Prize in 1994 for their ground-breaking research"). Some of the detail presented lends credibility to the article, most notably the paragraphs which begin, "Smell, which essentially dictates the incredible complexity of food tastes, has always been the least understood of our senses" and "However, the way genes regulate smell differs from person to person". These paragraphs contain technical (scientific) language appropriate to the topic and information presented ("family of 1,000 olfactory genes"; "olfactory genes which are switched on in some people and not in others"; "nearly every human being displays a different pattern of active and inactive odour-detecting receptors"); these also add to the difficulty of the text. These features could be referred to in support of a claim that the site would provide suitable information for a school assignment on smell.

Students have to make their own evaluation of the web page for the stated purpose, using one or more of the ideas discussed here, and then to express this. Evaluation of the suitability of something as abstract as a text page for a hypothetical purpose is a complex psychological task, perhaps especially so when, as here, there are multiple arguments to be made in support of or against a position. Students need to form a mental image of a hypothetical school science assignment, including the process of conducting research, then consider whether the information here would be suitable for it. There is no direction as to whether they should consider the content, the style or any other specific features of the web page. The challenge posed by the specialist nature of some of the scientific language, the length of the text, including the wide range and the requirement to refer to the content of the web page, rather than just to talk in vague terms about notions of suitability or its lack all contribute to the difficulty of this task. It seems that this kind of evaluative task, critical though it probably is for 15-year-old students, is not easily managed, as this task is in the high range of difficulty.

SMELL – *QUESTION 3*

Situation: *Public*
Environment: *Authored*
Text format: *Multiple*
Text type: *Exposition*
Aspect: *Integrate and interpret – Develop an interpretation*
Question format: *Multiple choice*
Difficulty: *485 (Level 3)*



There is information about the smell of lemon on the pages "Food in the news" and "Psychology Now".
Which statement summarises the conclusions of the two studies about the smell of lemon?

A. Both studies suggested that the smell of lemon helps you work quickly.

B. Both studies suggested that most people like the smell of lemon.

C. Both studies suggested that the smell of lemon helps you to concentrate.

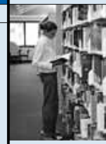
D. Both studies suggested that females are better at detecting the smell of lemon than males.

Scoring

Full Credit

Code 1: C. Both studies suggested that the smell of lemon helps you to concentrate.

Synthesise information from two web pages. Follow links from search results to two websites using literal match. Identify generalisation common to information on both sites.



Comment

As with the previous tasks in this unit, students cannot answer this question from the Global Search page initially presented. Instead, students need to locate and read multiple texts. This task introduces a third text, again accessible using literal matches between the question and the search result links. Students are required to compare ideas in this new text, "Psychology Now", and the one seen in the previous task, "Food in the news". Three tabs are open, and students need to switch between two of them, possibly multiple times, in order to synthesise information in the texts. Because only one text can be visible at one time, demands are placed on students' memory in a way that is unlikely when all relevant information is presented on a single page. The new text is shorter than the other two students have read, with no scrolling required. The page contains a series of links on the left, but these are not strong distractors, as there are no terms in them which match expressions or ideas in the question. They need to locate within the two pages references to studies about lemon. In each case they can make a literal match on the word "lemon". In "Psychology Now", this is easily found in the second paragraph, but the term is much harder to locate in "Food in the news", as students need to scroll down until they see it in the penultimate paragraph.

The options offer distracting information in the form of ideas included in one of the texts.

The ease of locating the term "lemon" in both the pages is very likely the key reason why this task proved to be relatively easy.

The paragraph about lemon in the text "Psychology Now" is about work (option A); the paragraph also mentions "smell of lemon" and "54%", which could lead to association with option B ("most people like the smell of lemon"); option D receives support from the sentence, " Women are generally better at identifying smells than men.", which provides a generalisation that goes beyond the specific issue of lemon, the focus of the question. Students need to synthesise information spread throughout the paragraph to infer a link between a reduction in typing errors in the workplace and the idea that the smell of lemon helps concentration.

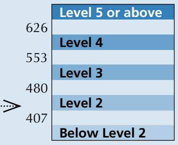
In the text, "Food in the news", the reference to smell is not at all prominent, being found in the sixth paragraph. Once students have located this, though, it is relatively easy to relate terms in the text ("concentration levels … Similarly … smells of lemon … promote … mental focus") with the key.

JOB SEARCH

Screen shots are used to illustrate parts of the stimulus relevant to each question. The digital version of this unit and other released tasks are available at *www.erasq.acer.edu.au*.

JOB SEARCH – *QUESTION 1*

Situation: *Occupational*
Environment: *Authored*
Text format: *Non-continuous*
Text type: *Description*
Aspect: *Reflect and evaluate – Reflect on and evaluate content of text*
Question format: *Multiple choice*
Difficulty: *463 (Level 2)*



This is a page from a job search website. Which job in this list is most suitable for school students? Click on the button next to the job.

Scoring

Full Credit

Code 1: B. Juice Bar Team Members.

Comment

The context for this question is a website that helps people to find and apply for jobs. The page that students see is a list of four available jobs, listed as "Today's Jobs". Initially the first two are fully visible, and students can see the full list by either scrolling down or clicking on the "Maximise" button in the top right corner of the browser. The screen shot below shows what the students see if they click the "Maximise" button.

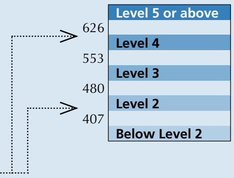
The text is fairly short, organised in list form, and uses fairly simple language that should be familiar to students, even if they have had no experience of employment or seeking a job.

In order to determine which job is most suitable for school students, readers need to use clues related to time and availability. The expressions "for weekdays", "full time" and "9am will allow them to 5pm" to reject the first and the last two options; "part-time job" and "from 5pm" indicate that the second option is likely to suit school students. Distracting information is included in the reference to "secondary school" in the third job listed, while the kinds of jobs listed, "café staff" (the first job in the list) and "retail assistant" (the third job) are the kind of job that many students may think of as suitable for school students.

There is no need to click on any links, or to explore the Job Search website in order to find the information needed to answer this question. The combination of the fact that the text is fairly simple, and the lack of navigation needed probably contribute to the relative facility of this question, which about two-thirds of students answered successfully.

JOB SEARCH – *QUESTION 2*

Situation: *Occupational*
Environment: *Message-based*
Text format: *Multiple*
Text type: *Description*
Aspect: *Integrate and interpret – Develop an interpretation*
Question format: *Complex Multiple choice*
Difficulty: *Full credit 624 (Level 4); Partial credit 462 (Level 2)*



You have decided to apply for the Juice Bar job. Click on the link and read the requirements for this job. Click on "Apply Now" at the bottom of the Juice Bar job details to open your résumé page. Complete the "Relevant Skills and Experience" section of the "My Résumé" page by choosing four experiences from the drop down lists that match the requirements of the Juice Bar job.

Scoring

Question intent:

- Integrate and interpret – Develop an interpretation
- Analyse a list of options using predefined criteria

Scoring Comment: Initially each part is coded separately. Final scoring combines codes as shown below.

Full Credit

Selects the following four experiences (in any order):

- Efficient at cleaning dishes: working at Corner Restaurant
- Good at following instructions: followed kitchen safety regulations daily
- Knowledge of food handling and preparation experience: work at Corner Restaurant
- Work well with team: won the 2007 sports team player award

Partial Credit

Selects any three of the following four experiences (in any order):

- Efficient at cleaning dishes: working at Corner Restaurant
- Good at following instructions: followed kitchen safety regulations daily
- Knowledge of food handling and preparation experience: work at Corner Restaurant
- Work well with team: won the 2007 sports team player award

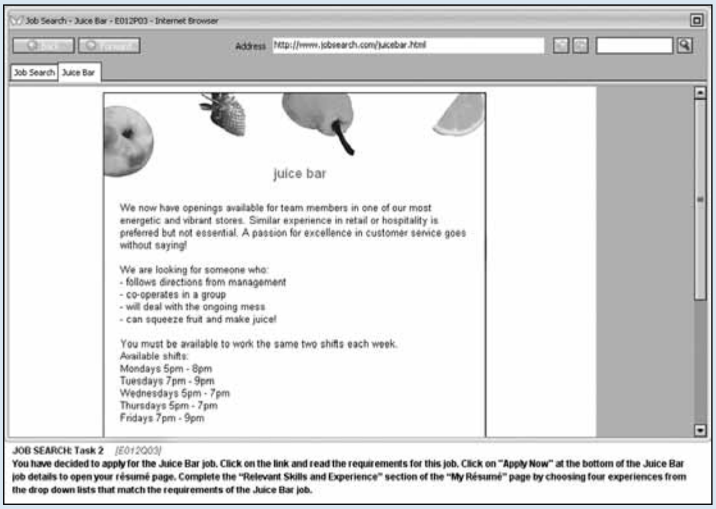
Comment

The task in the second question of this unit is for students to open a job advertisement, then adopt the role of someone applying for this job, and to decide which of a list of qualifications and experiences from their résumé are relevant to the job described in the advertisement. They are not required to write a job application, nor to have experience of working or applying for jobs, as all the information needed is supplied in the texts.

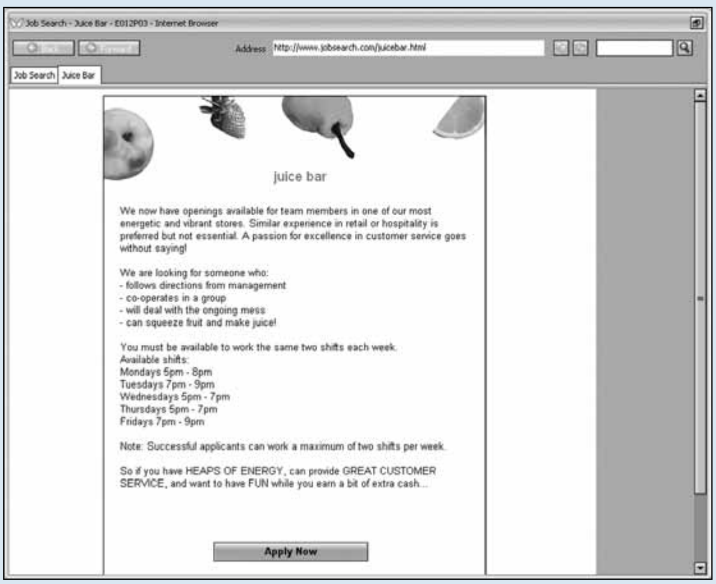
This question opens on a different page from the first, although is still part of the same Job Search website. The open tab "Today's Jobs" from the previous question has been replaced here with "Current Job", and the main text displayed here is the prominent link "View details of job: Juice Bar Team Members", which is the job from the list displayed in the previous question that is suitable for school students. The link also explains that if it is clicked, a new tab will open.

This question requires relatively complex navigation, in that students need to open several pages, and to compare multiple piece of information on two of them. The question provides explicit instructions to students about these navigation steps, directing them to click on the prominent link on the page that is open to view the job advertisement, then on a link on that page, and finally to select four options in the drop down menus available on the third page that will open. They are also directed to use information from the job advertisement to inform their selection.

The screen shot below shows the job advertisement, and how the tab for the "Job Search" page remains open.

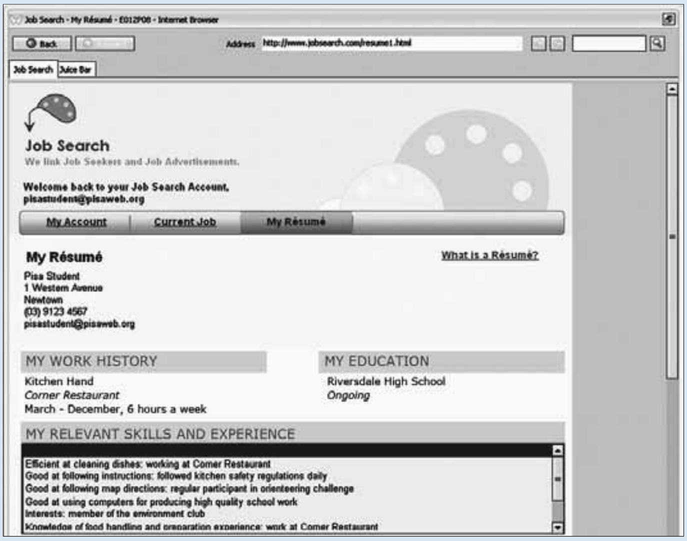


The "Apply Now" link referred to in the task instructions is only visible if they scroll down or maximise the page. The text of the "Juice Bar" advertisement is written in a way designed to appeal to young people, using terms such as "energetic", "vibrant", "HEAPS OF ENERGY", "FUN" and "a bit of extra cash", and aims to make the job appear accessible to people even if they do not have relevant experience ("preferred but not essential"). The absence of specialist language, and the list format for qualifications of Juice Bar workers and of the available shifts, mean that the reading demand should be fairly low, as each idea is expressed in a minimum number of words.



The screen shot below shows how the third page opens in a third tab. Students are therefore able to move between the key pages, the "Juice Bar" advertisement and the "My Résumé" page, by clicking on these tabs.

In order to view all the options in the drop-down menus, students need to scroll down using the arrows under "My Relevant Skills and Experience". The screen shots below illustrate the first six options that students see when they first click on one of the arrows, and then the last six of the available ten, when they scroll down within the window. The list of ten options is the same for each drop-down menu.



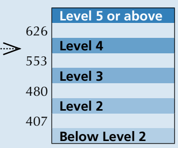
A number of irrelevant links can be clicked, but these are at the bottom of the "Job Search" pages and are not prominent. Clicking on the tabs on the "Job Search" page allows students alternative (if slightly longer) pathways for navigating to the "Juice Bar" and "My Résumé" pages.

Students are directed to refer to the Juice Bar advertisement for the job specifications, in order to inform their choices when completing the drop-down lists. It is to be expected that many students will switch between these two pages several times, to be sure they have obtained all the information they need.

Because navigation for this task requires a number of steps, including comparing information on two pages, and making choices in four different drop-down menus, it can be seen as relatively complex. The first three relevant options are visible without scrolling down. Although a level of common sense may assist in making choices relevant to a job in a juice bar, only reference to the advertisement can confirm the nature of the job requirements. It is relatively easy for students to obtain partial credit by correctly selecting three relevant options. The fourth option relevant to the job advertisement is the final one in the list, and selecting it requires making a inference to link winning a "Sports Team Player of the Year award", which is not immediately relevant to working in a juice bar, with the job requirement, "co-operates in a group". In order to obtain full credit for this item, students need to select all four relevant options. The combination of the multiple navigation steps, the multiple drop-down menus, and the need for an inference to select the fourth relevant option contribute to the relative difficulty of obtaining full credit for this item.

JOB SEARCH – *QUESTION 3*

Situation: *Occupational*
Environment: *Authored*
Text format: *Mixed*
Text type: *Description*
Aspect: *Reflect and evaluate – Reflect on and evaluate content of text*
Question format: *Open Constructed Response*
Difficulty: *558 (Level 4)*



"Note: Successful applicants can work a maximum of two shifts per week."
Why do you think the employer has made this rule?

Scoring

Question intent:

- Reflect and evaluate – Reflect on and evaluate content of text.
- Hypothesise about the reason for including a condition in a job advertisement using prior knowledge and information from the text.

Full Credit

Code 1: Refers (explicitly or implicitly) to a benefit or protection for the employer OR employee. Must be consistent with the stipulation of not working more than two shifts and with working a fixed two shifts. May refer to the flexibility, reliability or effectiveness of the (pool of) employees or to the employer's concerns about employee welfare.

- It is safer that way because the business can still operate OK if someone is off work for a few weeks.
- Students often have other priorities at those times. *["Those times" refers to the shifts in the advertisement. Implies benefit to employee.]*
- It is unlikely most students can do more than 2 shifts a week.
- They don't want to rely on any one person. [implied protection from risk]
- They say that at the start in case you're not very good.
- They want lots of different people working there.
- They want lots of happy faces.
- They don't want you to get tired.
- Because it's a tough job, and they don't want you to get tired and quit.
- Because they want a big staff in case someone quits or gets sick.
- Because the chaos at the Juice Bar is too much for anyone more often than twice a week.
- Because the best workers are people with other interests/hobbies than the job, and they want you to keep doing what you like.
- So students and other people who may be studying or holding down other jobs can still work casually but don't have the restrictions of working all day every day.

Comment

The final question in this unit requires no navigation beyond scrolling down the open page (the advertisement for the Juice Bar) to view the sentence referred to in the instructions, that students may work no more than two shifts a week. Students need to draw on their world knowledge as well as ideas presented in the advertisement to understand why such a restriction might be included. They receive credit for answers that consider the interests of either the employer or the employee. Clues in the advertisement that may be relevant include the reference to a team (numerous workers), to the busy, energetic nature of the work, the need to present a happy face, etc. The requirement for students to make plausible links between these ideas in the text and their potential implications in the real world, seeing the view point of either employers or employees, rather than considering only their own situation, is likely to play a major role in the relative difficulty of this item.

SIMILARITIES AND DIFFERENCES BETWEEN DIGITAL AND PRINT READING ASSESSMENTS

The framework for reading (see Box VI.1.1 and OECD, 2010a, Chapter 2) treats digital and print reading as a single domain, while acknowledging that there are some intrinsic differences. A key distinction that underpins many consequential differences is the fact that, in the digital medium, the reader is generally unable to see the physical extent of the available text at any given moment, while at the same time he or she has almost immediate access to a nearly infinite array of material via the Internet. The differences reflected in the framework were built into the design of the two assessments and the tests themselves. In this section, the construct and balance of the digital and print assessment instruments are compared in relation to the assessment framework, and then the design and operational similarities and differences of the two assessments are reviewed.

Framework characteristics and test construct

The intent in developing and extending the framework for reading to include digital reading was both to acknowledge the unitary nature of reading, regardless of medium, and to respect the differences between digital and print. Two main framework variables, text and aspect, shape the development of both digital and print reading assessments.[2]

Text

The PISA framework for reading describes four text characteristics: medium (print or digital), environment, format and text type. The *text environment* category – authored or message-based – is only applicable to digital reading.

The main categories of *text format* in print reading are continuous and non-continuous, reflecting the fact that in print, readers often have access to and encounter only a single text at a particular time. While in everyday life readers often need to consult several print texts, PISA makes only minimal use of such tasks for practical reasons. By contrast, a computer-based reading assessment makes presentation of multiple texts a practical possibility, as well as reflecting the reality that in the world of hypertext, on which the PISA digital reading assessment is focused, there is almost unlimited access to texts; and reading in this medium usually involves referring to several pages, and often to several texts from different sources, composed by different authors and appearing in different formats. The distribution of tasks by text format in the two media thus reflects both typical reading practices, and a better opportunity for large-scale assessment to measure readers' capacity to access, sort and selectively use several texts. Figure VI.2.15 shows the number and percentage of score points by text format on the PISA 2009 digital and print reading scales. The numbers and percentages quoted in this and the following similar figures relate to score points rather than individual task numbers. This allows for a more accurate representation of the relative weighting of these categories in the instruments.

■ Figure VI.2.15 ■

Distribution of score points in digital and print reading assessments, by text format

Text format	Number of score points PISA 2009 digital	% of total score points PISA 2009 digital	Number of score points PISA 2009 print	% of total score points PISA 2009 print
Continuous	2	5	87	62
Non-continuous	4	11	41	29
Mixed	2	5	7	5
Multiple	30	79	5	4
Total	**38**	**100**	**140**	**100**

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Text type refers to the rhetorical structure of a text. The category *transactional* was introduced into the PISA 2009 framework to reflect such texts as e-mails and text messages, which are the predominant type of text encountered by many digital readers (see Chapters 4 and 5). While transactional texts also exist in the print medium, in personal letters and notes, for example, they are not as prominent. Conversely, the category *narration* is more prominent in the print reading assessment, representing its importance in print reading behaviour. The substance of narration is social and personal experience and imaginative life, in the form of literature, history, biography and memoir. These texts are typically an important part of school curricula and they are also valued types of reading by many individuals beyond school. Narration in the digital medium, in the form of e-books, was not yet common when the 2009 assessment was being developed in 2006-07. Figure VI.2.16 shows the number and percentage of score points by text type in the PISA 2009 digital and print reading assessments.

■ Figure VI.2.16 ■
Distribution of score points in digital and print reading assessments, by text type

Text type	Number of scorepoints PISA 2009 digital	% of total score points PISA 2009 digital	Number of score points PISA 2009 print	% of total score points PISA 2009 print
Argumentation	8	21	30	21
Description	11	29	32	23
Exposition	11	29	44	31
Narration	0	0	22	16
Instruction	0	0	12	9
Transaction	6	16	0	0
Not specified	2	5	0	0
Total	**38**	**100**	**140**	**100**

Source: OECD, *PISA 2009 Database.*
StatLink http://dx.doi.org/10.1787/888932435378

Aspects

Three cognitive processes, or *aspects*, are common to digital and print reading: *access and retrieve*, *integrate and interpret* and *reflect and evaluate*. The aspect *access and retrieve* involves orienting and searching, using knowledge of the medium's structures and features to find information. In print reading, readers apply their skills in accessing and retrieving in a concrete space, while in digital reading they do so in a more abstract space. In addition, the sequence in which information is presented in print is more or less fixed, while in the digital medium readers construct their own sequences of information to a greater extent. As a result, the cognitive load of access and retrieve tasks in digital reading is generally greater than that in print reading. However, in the digital reading assessment, the degree to which readers have to construct their own sequence of information retrieval is often controlled by the task directives, such as "Click on the link …, then go to the page …" (for details, see Chapter 3).

The aspect *integrate and interpret* covers a very wide variety of cognitive tasks, including inferring the connection between one part of the text and another, processing the text to form a summary of the main ideas, identifying the distinction between principal and subordinate elements, finding a specific instance in the text of something earlier described in general terms, and comparing, contrasting and understanding figurative and nuanced language. All of these cognitive processes are common to digital and print reading. The main difference lies in what needs to be integrated. The number and diversity of the texts that can be drawn upon are usually much greater in the digital medium, and this is reflected in the PISA assessments. Integrating in the digital assessment requires the reader to consult multiple texts, sometimes in different formats, while integrate tasks in print reading usually focus on a single piece of stimulus.

The aspect *reflect and evaluate* involves thinking about the form and the content of texts, both in relation to personal experience and to more extrinsic standards. While predictive reading and critical evaluation are important in both media, readers of digital texts are more often required not only to predict what will be useful and relevant, because there is so much information to choose from, but also to judge the credibility of the content, given that publication is often not subject to any editorial filter between the author and the reader. This fact is reflected in the larger proportion of tasks in the assessment that focus on students' capacity to evaluate what they read.

The percentage of tasks devoted to each of the aspects varies between the digital and print reading assessments. In print reading, tasks reflecting the *integrate and interpret* aspect occupy about half of the assessment, while *access and retrieve* and *reflect and evaluate* tasks each account for roughly one-quarter of the assessment. Tasks in the digital reading assessment are more evenly spread across these three aspects. Moreover, in some digital reading tasks, readers must draw on all three aspects, for example in navigating to and between multiple texts, in sequences that may vary substantially. The digital reading assessment therefore adds another aspect, *complex*, to acknowledge the fact that the complexity of some tasks cannot be represented by any one of the three previously-established aspects. Figure VI.2.17 shows the number and percentage of score points, by aspect, in the PISA 2009 digital and print reading assessments.

■ Figure VI.2.17 ■

Distribution of score points in digital and print reading assessments, by aspect

Aspect	Number of score points PISA 2009 digital	% of total score points PISA 2009 digital	Number of score points PISA 2009 print	% of total score points PISA 2009 print
Access and retrieve	7	18%	34	24
Integrate and interpret	11	29%	69	49
Reflect and evaluate	8	21%	37	26
Complex	12	32%	0	0
Total	**38**	**100**	**140**	**100**

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Test design and operational characteristics

In addition to differences in the constructs of the two reading assessments, there were differences in how they were administered. Figure VI.2.18 sets out the major similarities and differences in the design and delivery of the PISA 2009 digital and print reading assessments.

■ Figure VI.2.18 ■

Similarities and differences between digital and print reading assessments in PISA 2009

Feature	Digital reading	Print reading
Mode of delivery and data collection	Computer-based delivery system	Pencil and paper
Number of countries participating in the assessment	A subset of 19 (16 OECD countries and 3 partner countries/economies)	65 (34 OECD countries and 31 partner countries/economies)
Required number of students per country	1 500	4 500
Actual average number of students per country that administered the assessment	OECD countries: 1944 Partner countries/economies: 1820	OECD countries: 8800 Partner countries/economies: 5700
Average number of students per school that administered the assessment	10	30
Number of items	29	131
Number of score points	38	140
Average test administration time per student	40 minutes	65 minutes
Average number of score points yielded per student	25	33
Scale construction	Single digital reading scale	Single print reading scale and subscales based on aspects and text formats

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Mode of delivery and data collection, and implications for participation and sample numbers

The immediately obvious difference between the digital and print reading assessments is that the former was delivered and completed on a computer and the latter was delivered and completed with pen and paper. Because computer-based assessment is relatively new, technically challenging and requires substantial resources, many of the early attempts to assess digital reading and other computer-based knowledge and skills have used a paper-based format. In some instances, a hybrid model was used, in which the stimulus is delivered via computer but the responses are captured on paper. Conversely, as computer-based assessments become more common and cheaper, print reading is beginning to be assessed on line, with print-style texts represented digitally. For PISA, it was judged important to use computers both for delivering the tasks and for collecting students' responses. This approach reflects the nature of the digital reading texts, thus allowing measurement of students' activated knowledge about and skills in using texts in the medium. It also allows for collecting evidence about 15-year-olds' performance on reading tasks in a way that reflects the definition of reading as entailing the capacity to "use … written texts": for example, students respond to some digital tasks by selecting from drop-down menus (in the case of selected-response items), or in the form of a blog or e-mail message (in constructed-response items). These response formats provide an added dimension of authenticity.

The decision to use a digital mode of delivery and data collection had resource implications, which undoubtedly contributed to the fact that only 19 of the 65 PISA countries opted to participate in the 2009 digital reading assessment. The need to make computers available also influenced the decision to administer the digital reading assessment to a smaller sample than usual within the participating countries. One-third of the students in each sampled school who undertook the paper-based assessment were selected for the digital reading assessment. All of the students in the digital reading sample had also been assessed in print reading, so that comparisons between performances on digital and print reading can be made with confidence.

For further details about implementing both assessments, see *PISA 2009 Technical Report* (OECD, forthcoming).

Number of items and score points in digital and print reading

Just as the sample of students who participated in the digital reading assessment is smaller per country than those who participated in the paper-based assessment, so the pool of items used in 2009 is also comparatively small: 29 digital reading tasks compared with 131 print reading tasks. A larger proportion of the digital items has partial-credit scoring, however, which means that the ratio between the pooled score points for digital and print reading (38 compared with 140) is higher than that between items.

These differences narrow further when considering the measures of student proficiency. Each student sampled for the paper-based assessment in PISA was administered a test of 120 minutes. Within this time all students in the sample spent between 30 and 120 minutes on reading tasks, with an average of 65 minutes of reading. (The students' remaining time was dedicated to mathematics and/or science assessment tasks.) All students in the subsample for digital reading assessment were delivered 40 minutes of test material. In effect, while the whole item pool is much smaller for digital than for print reading, at the student level there was much less difference between the amounts of assessment data collected per student: on average, 33 score points for print reading and 25 score points for digital reading. As a result, the precision and reliability of the measurement of student performance in the two media are similar.

Nonetheless, from the perspective of framework coverage and reporting on subscales, the difference between print and digital reading in the numbers of items and score points is significant. In print reading, framework coverage is well supported by the comparatively large pool of items, and three aspect subscales (*access and retrieve*, *integrate and interpret* and *reflect and evaluate*) and two text format subscales (*continuous* and *non-continuous*), as well as a single scale for print reading, were constructed and reported upon (See OECD, 2010b, Chapter 2). While the pool of 29 digital reading items allows for a light sampling of almost all of the categories of each of the major framework variables, yielding a single digital reading scale, there are insufficient data to support any subscale construction.

A COMPARISON OF PERFORMANCE IN DIGITAL AND PRINT READING

Overall, the correlation between digital and print reading performance is 0.83, with correlations for individual countries ranging from 0.71 to 0.89. By way of comparison, the correlations of print reading with mathematics and science (average for the 16 OECD countries) are 0.83 and 0.88, respectively; the correlation of digital reading with mathematics and science is 0.76 and 0.79, respectively. Though there is clearly a strong relationship between performance in print reading and digital reading, the correlation statistic also indicates some performance differences between the two types of reading.

The scales for the two reading assessments were constructed in a similar way so that, when considering only the 16 OECD countries that participated in the digital reading assessment, the mean and standard deviation for both digital and print reading are 499 and 90, respectively (the digital scale having been constructed to match the PISA 2009 results in print reading of the 16 participating OECD countries). Therefore, country comparisons of reading performance in the two media are valid.

Students reaching the different levels of proficiency

In order to facilitate comparison, the proficiency levels for digital reading – Level 5 or above, Level 4, Level 3 and Level 2 – are aligned with the same proficiency levels for print reading. The comparison is limited by the fact that the number of digital reading items administered in 2009 was small, so that while print reading has seven described levels (Level 6 as the highest level and Level 1b as the lowest level), digital reading has only four. A comparison between the digital and print proficiency levels, and the percentage of students at each of the four parallel described levels, are provided in Figure VI.2.19.

Figure VI.2.19 indicates that across OECD countries the percentage of students performing at any given level in digital reading is similar to the percentage performing at the equivalent level in print reading. However, there are notable differences at the country level. Figure VI.2.20 shows the distribution of students in each participating country over the four described proficiency levels for digital reading and the parallel levels in print reading. The upper bar for each country shows the distribution of performance on the digital reading scale and the lower bar shows the distribution on the print reading scale.

■ Figure VI.2.19 ■

A comparison of performance levels on the digital and print reading scales

Level	Lower score limit	Digital reading: Percentage of students able to perform tasks at this level or above (OECD average)	Print reading: Percentage of students able to perform tasks at this level or above (OECD average)
5 or above	626	7.8%	8.5% of students in the 16 participating OECD countries can perform tasks at least at Level 5 on the reading scale
4	553	30.3%	30.5% of students in the 16 participating OECD countries can perform tasks at least at Level 4 on the reading scale
3	480	60.7%	59.6% of students in the 16 participating OECD countries can perform tasks at least at Level 3 on the reading scale
2	407	83.1%	82.6% of students in the 16 participating OECD countries can perform tasks at least at Level 2 on the reading scale

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Given that the digital reading scale was constructed to match the mean and standard deviation of the print reading scale, it follows that the OECD average for performance is Level 3 for digital and print reading; both bands span the score point range of 480 to 552, and most individual countries show the same results for their mean highest proficiency levels: Level 3. An exception is Chile, where, on average, students are proficient at Level 2 for both digital and print reading. A few countries have different modal levels for digital and print reading. In Korea, New Zealand and Australia, Level 4 is the modal level in digital reading, while Level 3 is the modal level in print reading, and the proportion of students who reached Level 5 is greater in digital reading than print reading. In other words, in these countries larger proportions of students can be described as "strong performers" in the digital medium than in the print medium. In contrast, in the partner economy Hong Kong-China, the modal level in digital reading is Level 3, while in print reading it is Level 4. The partner country Colombia has a similar disparity in performance between digital and print reading, with a modal level performance in print reading (Level 2) higher than that in digital reading (below Level 2).

On average, 7.8% of students in the participating OECD countries perform at Level 5 or above on the digital reading scale, while a slightly higher percentage (8.5%) performs at Level 5 or 6 in print reading. At the country level, there are three OECD countries in which more than 15% of students are proficient in digital reading at Level 5 or above: Korea (19.2%), New Zealand (18.6%) and Australia (17.3%); whereas only one country, New Zealand, has a comparable percentage of students performing at Level 5 or 6 in print reading (15.7%). The country with the second highest percentage of students performing at Level 5 or 6 in print reading is Japan (13.4%), while only 5.7% of Japanese students are proficient at Level 5 or above in digital reading.

PISA's shorthand description of "lowest performers" applies to those performing below Level 2 of the (print and digital) reading, mathematics and science assessments. On average across the 16 OECD countries that participated in the 2009 digital reading assessment, 16.9% of students performed below Level 2 in digital reading, while a similar percentage (17.4%) performed below the baseline Level 2 on the print reading scale. Although there is wide variation across countries, about the same percentages of students within most countries are proficient below the baseline level in digital and print reading; that is, the proportions of low-performing students on digital and print reading are within five percentage points of each other. Ireland and Japan are the only countries in which there is a substantially larger proportion of low-performing students in print reading. In Ireland, 17.2% are low performers in print reading compared with 12.1% in digital reading; in Japan, 13.6% perform below Level 2 in print compared with 6.7% below Level 2 in digital reading. The picture is reversed in Chile, Hungary, Poland and the partner country Colombia, where there are substantially larger groups of low performers in digital than in print reading. The percentage of low performers in digital reading in Chile is 37.7%, while the percentage of low performers in print reading, while still substantial, is smaller, at 30.6%. In Hungary and Poland, the disparity is greater: the percentage of low performers in digital reading in Hungary is 26.8%, while in print reading it is only 17.6%; in Poland, 26.3% perform below the baseline level in digital reading, but only 15.0% do so in print reading. The partner country Colombia shows the greatest disparity: just over one-third of students (34.2%) perform below the baseline level in print reading, but two-thirds (68.4%) are below the baseline level in digital reading.

■ Figure VI.2.20 ■

Percentage of students at each proficiency level on the digital and print reading scales

Countries are ranked in descending order of the percentage of students at Level 2 or above in digital reading.
Source: OECD, *PISA 2009 Database,* Table VI.2.1.
StatLink http://dx.doi.org/10.1787/888932435378

Average level of proficiency

Another way of summarising the differences between countries is to compare their mean performances in the two reading media. A mean of 499 and a standard deviation of 90, respectively, are the benchmarks – pooled average for the 16 participating OECD countries – against which each country's digital and print reading performances in PISA 2009 are compared.

Figure VI.2.21 shows each country's mean scores for digital and print reading. Statistically significant differences are highlighted.

The figure shows that only a handful of individual countries – Japan, France, Belgium, Norway and Spain – have a similar mean for digital and print reading.

■ Figure VI.2.21 ■

Comparison of mean performance in digital and print reading

		Digital reading		Print reading		Difference between digital and print	
		Mean score	S.E.	Mean score	S.E.	Mean dif.	S.E.
OECD	Australia	537	(2.8)	515	(2.3)	**21.70**	1.81
	Austria	459	(3.9)	470	(2.9)	**-11.70**	2.98
	Belgium	507	(2.1)	506	(2.3)	1.45	1.61
	Chile	435	(3.6)	449	(3.1)	**-14.85**	2.41
	Denmark	489	(2.6)	495	(2.1)	**-5.99**	1.91
	Spain	475	(3.8)	480	(3.1)	-4.95	2.79
	France	494	(5.2)	496	(3.4)	-1.35	4.82
	Hungary	468	(4.2)	494	(3.2)	**-25.84**	2.92
	Ireland	509	(2.8)	496	(3.0)	**13.27**	2.64
	Iceland	512	(1.4)	500	(1.4)	**11.56**	0.94
	Japan	519	(2.4)	520	(3.5)	-0.63	2.91
	Korea	568	(3.0)	539	(3.5)	**28.31**	1.99
	Norway	500	(2.8)	503	(2.6)	-3.28	2.00
	New Zealand	537	(2.3)	521	(2.4)	**16.48**	1.70
	Poland	464	(3.1)	500	(2.6)	**-36.96**	2.20
	Sweden	510	(3.3)	497	(2.9)	**12.90**	2.11
	OECD average-16	499	(0.8)	499	(0.7)	0.01	0.63
Partners	Colombia	368	(3.4)	412	(3.6)	**-43.06**	2.64
	Hong Kong-China	515	(2.6)	533	(2.1)	**-18.36**	2.40
	Macao-China	492	(0.7)	487	(0.9)	**5.29**	0.84

Note: Values that are statistically significant are indicated in bold (see Annex 3).
Source: OECD, *PISA 2009 Database.*
StatLink http://dx.doi.org/10.1787/888932435378

In Poland, Hungary, Chile, Austria, Denmark, the partner economy Hong Kong-China and the partner country Colombia, students perform significantly better, on average, in print than in digital reading. In Korea, Australia, New Zealand, Ireland, Sweden, Iceland and the partner economy Macao-China, students perform significantly better, on average, in digital than in print reading. There is a tendency for the higher-performing countries in both media to do better in digital media, while the lower-performing countries perform more strongly in print media, although Hong Kong-China is an exception.

Another way of comparing countries' performance is to look at their ranking. Because the figures are derived from samples, it is not possible to determine a precise rank among the participating countries. It is possible, however, to determine, with 95% likelihood, a range of ranks in which the country's performance level lies. Figure VI.2.22 shows the relative ranking of the participating countries in digital and print reading.

Figure VI.2.22 shows that Korea ranks first among OECD countries in both digital and print reading, and Chile ranks last. The partner economy Hong Kong-China is ranked at the same level as Korea in print reading, but is below it by several ranks in digital reading. At the other end of the scale, the partner country Colombia is ranked last among all the participating countries on both scales. Around the middle of the ranking, the OECD average, there is a wide band of possible ranks in both media. For example, Denmark ranks between ninth and thirteenth among OECD countries for print reading and between tenth and eleventh for digital reading. France's position is even more difficult to ascertain: it ranks anywhere between seventh and thirteenth for print reading and between ninth and eleventh for digital reading. For these countries, there is no clear difference in relative position on the two scales.

However, for other countries, the ranking does shed light on relative performance on the two scales. Spain and the partner economy Macao-China rank higher on the digital reading scale than on the print reading scale. Ireland and Australia also show this pattern, but for these two countries, possible ranks overlap.

■ Figure VI.2.22 ■

Where countries rank in digital and print reading performance

Statistically significantly **above** the OECD average
Not statistically significantly different from the OECD average
Statistically significantly **below** the OECD average

	Digital reading scale						Print reading scale					
			Range of rank						Range of rank			
			OECD countries		All countries/economies				OECD countries		All countries/economies	
	Mean score	S.E.	Upper rank	Lower rank	Upper rank	Lower rank	Mean score	S.E.	Upper rank	Lower rank	Upper rank	Lower rank
Korea	568	(3.0)	1	1	1	1	539	(3.5)	1	1	1	2
New Zealand	537	(2.3)	2	3	2	3	521	(2.4)	2	3	3	4
Australia	537	(2.8)	2	3	2	3	515	(2.3)	3	4	4	5
Japan	519	(2.4)	4	4	4	5	520	(3.5)	2	4	3	5
Hong Kong-China	515	(2.6)			4	7	533	(2.1)			1	2
Iceland	512	(1.4)	5	7	5	8	500	(1.4)	6	10	7	11
Sweden	510	(3.3)	5	8	5	9	497	(2.9)	7	13	8	14
Ireland	509	(2.8)	5	8	6	9	496	(3.0)	8	13	9	14
Belgium	507	(2.1)	6	8	7	9	506	(2.3)	5	7	6	8
Norway	500	(2.8)	9	10	10	11	503	(2.6)	5	9	6	10
France	494	(5.2)	9	11	10	13	496	(3.4)	7	13	8	14
Macao-China	492	(0.7)			11	13	487	(0.9)			15	15
Denmark	489	(2.6)	10	11	11	13	495	(2.1)	9	13	10	14
Spain	475	(3.8)	12	13	14	15	481	(2.0)	14	14	16	16
Hungary	468	(4.2)	12	14	14	16	494	(3.2)	9	13	9	14
Poland	464	(3.1)	13	15	15	17	500	(2.6)	5	11	6	12
Austria	459	(3.9)	14	15	16	17	470	(2.9)	15	15	17	17
Chile	435	(3.6)	16	16	18	18	449	(3.1)	16	16	18	18
Colombia	368	(3.4)			19	19	413	(3.7)			19	19

Note: See Annex A3 for a detailed description of how the range of ranks is computed.
Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Gender differences in performance on the digital and print reading scales

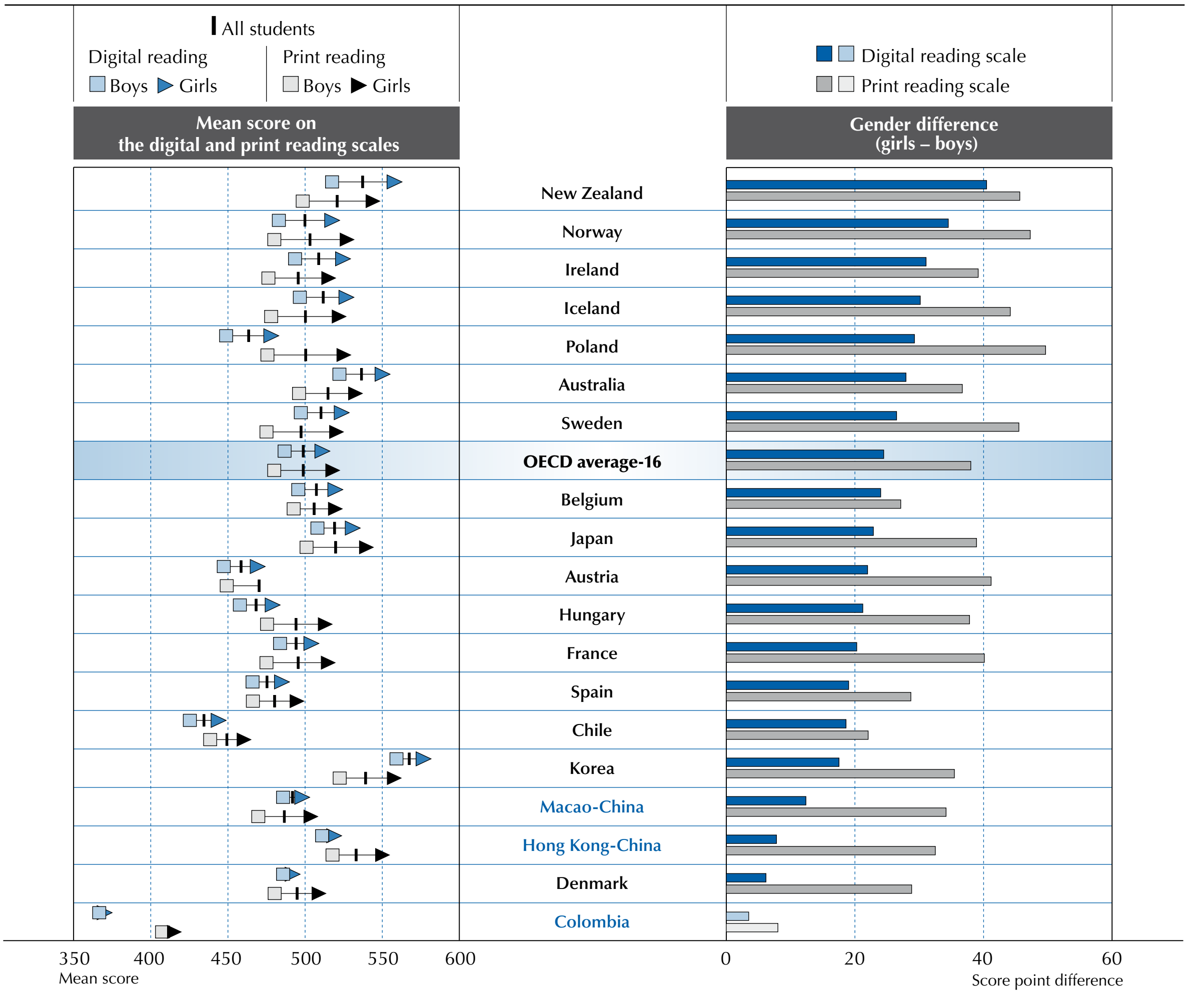
The mean difference between boys' and girls' performance in digital reading is 24 score points, in favour of girls, while the mean gender difference in print reading for the same 16 OECD countries is 38 score points. There is still a marked difference in performance in favour of girls in digital reading, but it is less extreme than the disparity between boys' and girls' performance in print reading. Figure VI.2.23 shows the scores for boys and girls in digital and print reading, ranked by the gender difference in digital reading performance.

In all participating countries and economies the gap in gender performance was wider in print than digital reading. The variations in the size of the gender gap among countries do not seem to be associated with the absolute levels of performance. In the highest-performing country in both digital and print reading, Korea, the gender gaps in both digital and print reading are close to the respective OECD averages, while in one of the other top-performing countries, New Zealand, the gender gaps in both media are among the widest among all countries. Among countries performing below the OECD average in digital and print reading, Austria has a substantially narrower gap between boys and girls in digital reading (22 points) than in print reading (41 points), while the gaps between Chilean boys and girls in digital and print reading are almost the same (19 points and 22 points, respectively).

Of the 19 countries and economies that participated in the digital reading assessment, those with the widest gender gaps in digital reading tend to have a comparatively wide gender gap in print reading as well. New Zealand, for example, shows a large gender gap in digital reading (40 points) and in print reading (46 points). Ireland and Australia show a similar pattern. In these countries, whatever factors might explain the performance differences between boys and girls in the digital medium seem to be the same as, or at least have a similar effect to, those that underpin performance differences in the print medium. Like these predominantly English-speaking countries, three of the Nordic countries, Norway, Iceland and Sweden, have above-average gender gaps in digital reading performance (girls outperform boys by 35, 30 and 26 score points, respectively). However, unlike in New Zealand, Ireland and Australia, these three Nordic countries have much wider gender gaps in print reading than in digital reading: girls in Norway, Iceland and Sweden outperform boys by 47, 44, and 46 score points, respectively, in print reading. Poland also has an above-average gap (29 points) between girls' and boys' performance in digital reading and it also has a massive gap of 50 points in print reading.

■ Figure VI.2.23 ■

Comparison of gender gaps in digital and print reading



Note: Gender differences that are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the gender difference in digital reading performance.
Source: OECD, *PISA 2009 Database*, Table VI.2.4.
StatLink http://dx.doi.org/10.1787/888932435378

Conversely, countries with narrow gender gaps in digital reading tend to have narrow gender gaps in print reading as well. In some cases, the differences in the gaps, measured in score points, are quite small. For example, the partner country Colombia shows no significant gender gap in digital reading proficiency and a gap of only eight score points between boys and girls in print reading. The OECD countries Chile, Spain and Belgium also show relatively small differences in the gender gap in performance for both digital and print reading.

In another group of countries with below-average gaps between boys' and girls' performance in digital reading, there is a much more substantial gender gap in performance in print reading. In the two partner economies, Macao-China and Hong Kong-China, the gap between boys and girls in digital reading is only 12 and 8 points, respectively, while the gender gap in print reading proficiency is just a little below the OECD average of 38 points, at 34 and 33 points, respectively. Denmark has a gap of just six points between boys and girls in digital reading proficiency; but while the gender gap in print reading proficiency is below-average, it is still a substantial 29 score points. For these two economies and one country, it would appear that the factors influencing boys' and girls' digital reading proficiency are different from those that affect their proficiency in print reading.

While girls are generally more proficient readers in both media, on average, girls score seven points lower in digital reading than in print reading, and boys score seven points higher. It was noted above that a handful of individual countries – Japan, France, Belgium, Norway and Spain – have a similar mean for digital and print reading. For some of these countries, however, the apparent similarity in performance across the two media masks significant gender differences. France and Norway, the only two countries whose performance in both digital and print reading was not significantly different to the OECD average, offer illustrations. Their "average" performance masks the fact that French girls scored 11 points lower in digital reading than they did in print reading, while French boys scored 9 points higher in digital than in print reading. Similarly, Norwegian girls scored 10 points lower in digital than in print reading, while Norwegian boys performed about the same on the two assessments. Two other countries, Japan and Denmark, and the partner economy Macao-China, also show girls scoring lower in digital reading than in print reading, while boys attain higher scores.

In Sweden, Iceland and Korea, boys and girls performed better in digital than in print reading, but boys performed *much* better in digital reading than in print reading. In contrast, in Poland, Austria, Hungary and in the partner economy Hong Kong-China, boys and girls performed worse in digital reading than in print reading, but in Poland and the partner economy Hong Kong-China girls performed *much* worse in digital reading. In these countries, policy makers might consider developing strategies specifically to improve girls' familiarity with and skills in reading digital texts.

In summary, then, it is clear that, on average, the gap between boys' and girls' proficiency that has been such a constant feature in of print reading performance is narrowed in digital reading, but in every country except one it has not disappeared. It is clear too that there is a good deal of variation across countries in the relative sizes of the gaps in performance between boys and girls across the two media. The variations do not appear to be associated with the absolute levels of performance, but there are some interesting patterns among countries with cultural and/or linguistic similarities that would reward further investigation. Some of the possible explanations are explored in succeeding chapters.

A COMPOSITE SCALE FOR DIGITAL AND PRINT READING

Because readers today need to handle texts in both digital and print media, it is useful to consider reading proficiency as a single measure. Accordingly, PISA has developed a composite reading scale. The scale is based on equal weighting of results from the two assessments: an arithmetic average. The equal weighting is justified in measurement terms because both of the assessments estimate student proficiency reliably. It is justified in construct terms because proficiency in both digital and print reading is essential for citizens of the 21st century (for further details, see Annex A1a).

The distribution of the digital reading items on a single scale is similar to the distribution of the print reading items, and when the two sets of items are calibrated together, the estimates of the difficulty of each item are similar to their estimates on the separate scales. Since the same methodology was used to construct the scales for digital and print reading proficiency, with the hierarchy of levels set at the same cut-points on the respective scales and the level bands at the same widths, it is possible to align the descriptions of results for those levels in digital reading where there are sufficient data. In generating descriptions for the composite levels, the combined set of items from the two separate scales was again inspected, and the main common features identified as characteristics of the new composite level. The descriptions also include some elements specifically relating to navigation, consistent with items within the level. Thus, the construction of a composite scale provides an overall picture of reading proficiency that is both qualitatively and quantitatively consistent with the two separate scales. Figure VI.2.24 shows the match between the digital and print reading levels. The numerical terms used to describe proficiency in print reading have been adopted for the composite reading scale to allow the full range of descriptions, though the absence of digital reading items at the highest and lowest levels means that the descriptions at the extremes are confined to print reading.

■ Figure VI.2.24 ■

Alignment between the described levels for digital and print reading and composite reading

Lower score limit	Digital reading	Print reading	Composite reading
698	Level 5 or above	Level 6	Level 6
626		Level 5	Level 5
553	Level 4	Level 4	Level 4
480	Level 3	Level 3	Level 3
407	Level 2	Level 2	Level 2
335	Below Level 2 (undescribed)	Level 1a	Level 1a
262		Level 1b	Level 1b
		Below Level 1b (undescribed)	Below Level 1b (undescribed)

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

■ Figure VI.2.25 ■

Summary descriptions for the composite reading scale (digital and print combined)

Level	Lower score limit	Percentage of students able to perform tasks at this level or above (OECD average)	Characteristics of tasks
6	708	0.60%	Tasks at this level typically require the reader to make multiple inferences, comparisons and contrasts that are both detailed and precise. They require demonstration of a full and detailed understanding of one or more texts and may involve integrating information from more than one text. Tasks require the reader to deal with unfamiliar ideas, in the presence of prominent competing information, and to generate abstract categories for interpretations. Reflect and evaluate tasks may require the reader to hypothesise about or critically evaluate a complex text on an unfamiliar topic, taking into account multiple criteria or perspectives, and applying sophisticated understandings from beyond the text. There are limited data about both access and retrieve tasks and digital tasks at this level, but in both cases it appears that a salient condition is precision of analysis and fine attention to detail that is inconspicuous in the texts.
5	626	6.60%	Tasks at this level that involve retrieving information require the reader to locate and organise several pieces of deeply embedded information. In tasks requiring interpretation the reader needs to draw on a full and detailed understanding of one or more texts whose content or form is unfamiliar. Reflect and evaluate tasks require critical evaluation or hypothesis, drawing on specialised knowledge. These tasks typically require the reader to generate the criteria on which a critical evaluation is based. In the digital medium, tasks may require the reader to navigate across several sites without guidance, negotiating information in different formats. For all aspects of reading, tasks at this level typically involve dealing with concepts that are contrary to expectations or ambiguous.
4	553	29.80%	Tasks at this level that involve retrieving information require the reader to locate and organise several pieces of embedded information. Some tasks at this level require interpreting the meaning of nuances of language in a section of text by taking into account the text as a whole. Other tasks require understanding and applying categories in an unfamiliar context. Reflect and evaluate tasks at this level require readers to use formal or public knowledge to hypothesise about or critically evaluate a text. Digital reading tasks may require the reader to navigate across a number of sites with only limited guidance. Readers must demonstrate an accurate understanding of long or complex texts whose content or form may be unfamiliar, particularly texts that deal with scientific or technical content.
3	480	60.50%	Tasks at this level require the reader to locate, and in some cases recognise the relationship between, several pieces of information that must meet multiple conditions. In tasks requiring interpretation the reader may need to integrate several parts of a text in order to identify a main idea, understand a relationship or construe the meaning of a word or phrase. The reader needs to take into account many features in comparing, contrasting or categorising. Often the required information is not prominent or there is much competing information; or there are other text obstacles, such as ideas that are contrary to expectation or negatively worded. Reflect and evaluate tasks at this level may require connections, comparisons, and explanations, or they may require the reader to evaluate a feature of text. Some reflect and evaluate tasks require readers to demonstrate a fine understanding of the text in relation to familiar, everyday knowledge. Other tasks do not require detailed text comprehension but require the reader to draw on less common knowledge. In the digital medium, the task may require several steps of well-directed navigation. where evaluation is required, the reader needs to generate simple categories, and apply them using the information that is most directly accessible, or only part of the available information.
2	407	83.50%	Some tasks at this level require the reader to locate one or more pieces of information, which may need to be inferred and may need to meet several conditions. Others require recognising the main idea in a text, understanding relationships, or construing meaning within a limited part of the text when the information is not prominent and the reader must make low level inferences. Tasks at this level may involve comparisons or contrasts based on a single feature in the text. In the print medium, typical reflect and evaluate tasks at this level require readers to make a comparison or several connections between the text and outside knowledge, by drawing on personal experience and attitudes. In the digital medium, tasks require locating and interpreting well-defined information, usually in familiar contexts. The task may require navigation across a limited number of sites and use of other web-based tools such as drop-down menus; if so, the reader is supplied with clear directions to the relevant links.
1a	335	95.10%	Tasks at this level require the reader to locate one or more independent pieces of explicitly stated information; to recognise the main theme or author's purpose in a text about a familiar topic; or to make a simple connection between information in the text and common, everyday knowledge. Typically the required information in the text is prominent and there is little if any competing information. The reader is explicitly directed to consider relevant factors in the task and in the text. There are limited data about digital reading at this level, but it appears that, if access to more than one page is required for a task, navigation directions are explicitly directed and links are prominent.
1b	262	99.2%	Tasks at this level require the reader to locate a single piece of explicitly stated information in a prominent position in a short, syntactically simple text with a familiar context and text type, such as a narrative or a simple list. The text may provide support to the reader, such as repetition of information, pictures or familiar symbols. There is minimal competing information. In tasks requiring interpretation the reader may need to make simple connections between adjacent pieces of information. (There are insufficient data about digital reading at this level.)

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

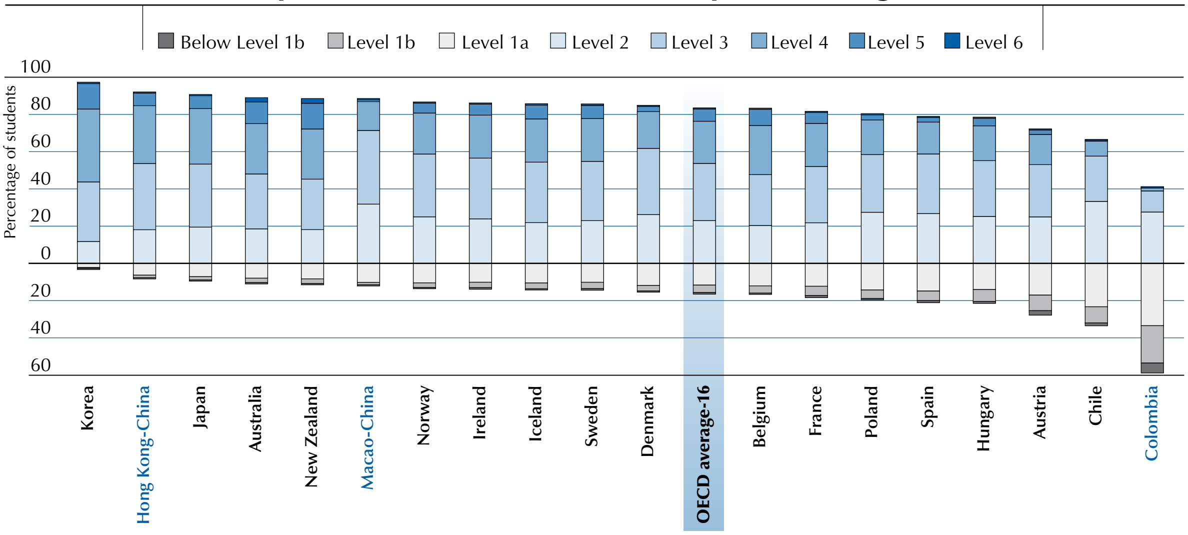
Students reaching the different levels of proficiency on the composite reading scale

Figure VI.2.25 describes the composite reading scale. Although there were few digital reading tasks designed to reflect the equivalent level of difficulty of tasks at Levels 1a, 1b and 6 in print reading, student performance can nevertheless be accurately measured to cover all seven levels of the composite reading scale.

The distribution of student performance across these proficiency levels for each participating country and economy is shown in Figure VI.2.26. Table VI.2.1 provides figures for the percentage of students at each proficiency level on the composite reading scale, with standard errors.

■ Figure VI.2.26 ■

How proficient are students on the composite reading scale?



Countries are ranked in descending order of the percentage of students at Levels 2, 3, 4, 5 and 6.
Source: OECD, *PISA 2009 Database,* Table VI.2.1.
StatLink http://dx.doi.org/10.1787/888932435378

Proficiency at Level 6 (scores higher than 698 points)

The description of what students proficient at Level 6 know and can do is drawn almost entirely from the print reading scale since only one digital reading item was calibrated at this level of difficulty. On average across OECD countries, 0.6% of 15-year-old students perform at this level. Only two countries have a significantly higher percentage of students performing at Level 6, New Zealand (2.5%) and Australia (2.2%). Korea (0.8%), which ranks first in mean performance, attains close to the OECD average for students performing at this very high level, reflecting the relative homogeneity of its student population's proficiency in both digital and print reading. In some countries and economies, notably Chile, Spain, the partner country Colombia and the partner economy Macao-China, fewer than one-tenth of 1% of students are proficient at this level.

As noted in Chapter 2 of Volume 1, *What Students Know and Can Do*, the very small percentage of students performing at Level 6 illustrates that the PISA scale is capable of distinguishing reading proficiency up to the highest level of excellence among 15-year-olds.

Proficiency at Level 5 (scores higher than 626 but lower than or equal to 698 points)

On average across the 16 participating OECD countries, 7.2% of students are proficient at this level or above, but the proportions range from over twice this percentage in Korea and New Zealand, to less than half in Chile, Austria, Spain, Poland, Denmark, the partner country Colombia and the partner economy Macao-China.

Proficiency at Level 4 (scores higher than 553 but lower than or equal to 626 points)

Across the 16 participating OECD countries, 29.8% of students are proficient at Level 4 or above. In Australia, New Zealand, Belgium, Iceland, France, Ireland, and Sweden, about one-quarter of students attain Level 4 as their highest level of proficiency. In Japan and the partner economy Hong Kong-China, the proportion is closer to one-third, while in Korea it is almost 40%. About one-fifth of students in Norway, Denmark, Hungary, and Poland attain Level 4 as their highest level, while about 15% of students in Spain, Austria and the partner economy Macao-China attain this level. Some 8% of Chilean students and just over 2% of Colombian students attain this level as their highest level.

Proficiency at Level 3 (scores higher than 480 but lower than or equal to 553 points)

Just over 60% of 15-year-olds across the 16 participating OECD countries are proficient at Level 3 or above. It can be inferred, then, that the majority of young people in these countries is capable of dealing with many everyday reading tasks, regardless of the medium. However, in Hungary, Poland, Spain and Austria Poland and Hungary, only around 50% are proficient at Level 3 or above, and in Chile only a third of students attain this level of proficiency. This means that in these countries half or fewer of 15-year-olds are able to perform the kinds of reading tasks commonly expected of young people and adults in their everyday lives.

In all but two of the participating OECD countries, Level 3 is the modal level of highest attainment. The exceptions are Korea, whose modal highest attainment level is Level 4, and Chile, whose modal highest attainment level is Level 2. Students in the partner economies Hong Kong-China and Macao-China also most commonly perform at Level 3, while the modal performance level of Colombian students is Level 1a.

Proficiency at Level 2 (scores higher than 408 but lower than or equal to 480 points)

Across the participating OECD countries, some 84% of students are proficient at baseline proficiency Level 2 or above. Only in Austria, Chile and the partner country Colombia does the proportion of 15-year-olds proficient at this level fall below three-quarters.

Proficiency at Level 1a (from 335 to 408 points)

Some 95% of 15-year-old students across participating OECD countries are proficient at Level 1a or higher. In most countries, the proportion is well over 90%, while in Chile and Austria it is just under 90% (89.2% and 89.8%, respectively). In Colombia, nearly 75% of 15-year-olds perform at or above Level 1a; but for nearly one-third of students in this partner country, Level 1a is their highest performance level.

Proficiency at Level 1b (from 262 to 335 points) and below Level 1b (below 262 points)

The description of what students proficient at Level 1b know and can do is drawn entirely from the print reading scale. On average across the 16 participating OECD countries, 4% of students reach Level 1b as their highest level of proficiency. In Japan and the partner economies Hong Kong-China and Macao-China, fewer than 2% of students perform no higher than Level 1b, while in Korea the proportion of those students is less than 0.5%.

A small percentage of students in OECD countries perform below the lowest level on the PISA composite digital and print reading scale, Level 1b. On average, only 0.8% of students have scores below 262 points on the PISA scale. In the partner country Colombia, the lowest performing of the countries that participated in the 2009 digital reading assessment, just over 5% of students perform below this level on the composite reading scale.

Students whose proficiency is estimated at below Level 1b on the composite reading scale do not necessarily lack reading skills completely, but there is insufficient information on which to base a description of their reading proficiency, given the small number of tasks at that level presented in PISA 2009. The fact that fewer than one in one hundred students across OECD countries cannot perform tasks at Level 1b demonstrates that the PISA reading scale can measure and describe the performance of almost all students.

Average level of proficiency

Figure VI.2.27 shows each country's mean score for composite digital and print reading. For each country shown in the middle column, the list in the right column shows countries whose mean scores are not sufficiently different to be distinguished with at least 95% certainty. For all other cases, one country has higher performance than another if it is listed above the second country in the middle column, and lower performance if it is listed below. For example, Hong Kong-China's performance, which comes fourth in the list, cannot be distinguished from that of New Zealand or Australia, which come second and third respectively, and Japan, which comes fifth. The darkest band in the middle shows those participating countries whose performance is not statistically significantly different from the OECD average.

■ Figure VI.2.27 ■

Comparing countries' performance on the composite reading scale

	Statistically significantly **above** the OECD average
	Not statistically significantly different from the OECD average
	Statistically significantly **below** the OECD average

Mean	Comparison country	Countries whose mean score is NOT statistically significantly different from that of the comparison country
553	Korea	
529	New Zealand	Australia, Hong Kong-China
526	Australia	New Zealand, Hong Kong-China, Japan
524	Hong Kong-China	New Zealand, Australia, Japan
520	Japan	Australia, Hong Kong-China
507	Belgium	Iceland, Sweden, Ireland, Norway
506	Iceland	Belgium, Sweden, Ireland, Norway
504	Sweden	Belgium, Iceland, Ireland, Norway, France
502	Ireland	Belgium, Iceland, Sweden, Norway, France
502	Norway	Belgium, Iceland, Sweden, Ireland, France
495	France	Sweden, Ireland, Norway, Denmark, Macao-China
492	Denmark	France, Macao-China
489	Macao-China	France, Denmark
482	Poland	Hungary, Spain
481	Hungary	Poland, Spain
478	Spain	Poland, Hungary
464	Austria	
442	Chile	
390	Colombia	

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

Korea is the top-performing country by a significant margin, with a mean score of 553. This indicates that, on average, 15-year-olds in Korea perform at the border between Levels 3 and 4 on the composite reading scale. New Zealand, Australia, the partner economy Hong Kong-China and Japan follow. These countries, together with Belgium and Iceland, perform significantly above the OECD average. Students in Sweden, Ireland, Norway and France perform near the OECD average, while students in Denmark and the partner economy Macao-China perform significantly below the OECD average, but cannot be distinguished from students' performance in France. Poland, Hungary and Spain follow. All of the countries mentioned above, except for Korea and Spain, have a mean level of proficiency within the Level 3 band. Spain, Austria and Chile have a mean proficiency within Level 2 while the partner country Colombia's mean is within Level 1a.

■ Figure VI.2.28 ■

Where countries rank on the composite reading scale

	Statistically significantly **above** the OECD average
	Not statistically significantly different from the OECD average
	Statistically significantly **below** the OECD average

	Composite reading scale					
			Range of rank			
			OECD countries		All countries/economies	
	Mean score	S.E.	Upper rank	Lower rank	Upper rank	Lower rank
Korea	553	(3.1)	1	1	1	1
New Zealand	529	(2.2)	2	3	2	3
Australia	526	(2.4)	2	3	2	4
Hong Kong-China	524	(2.0)			3	5
Japan	520	(2.6)	4	4	4	5
Belgium	507	(2.1)	5	8	6	9
Iceland	506	(1.3)	5	7	6	8
Sweden	504	(2.9)	5	9	6	10
Ireland	502	(2.6)	6	10	7	11
Norway	502	(2.5)	6	10	7	11
France	495	(3.7)	9	11	10	13
Denmark	492	(2.1)	10	11	11	13
Macao-China	489	(0.7)			12	13
Poland	482	(2.6)	12	14	14	16
Hungary	481	(3.4)	12	14	14	16
Spain	478	(3.2)	12	14	14	16
Austria	464	(3.1)	15	15	17	17
Chile	442	(3.1)	16	16	18	18
Colombia	390	(3.2)			19	19

Note: See Annex A3 for a detailed description of how the range of ranks is computed.
Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435378

For many of the countries it is not possible to determine a precise rank; however, it is possible to determine, with 95% likelihood, a range of ranks in which the country's performance level lies. Figure VI.2.28 shows the range of possible ranks for each country.

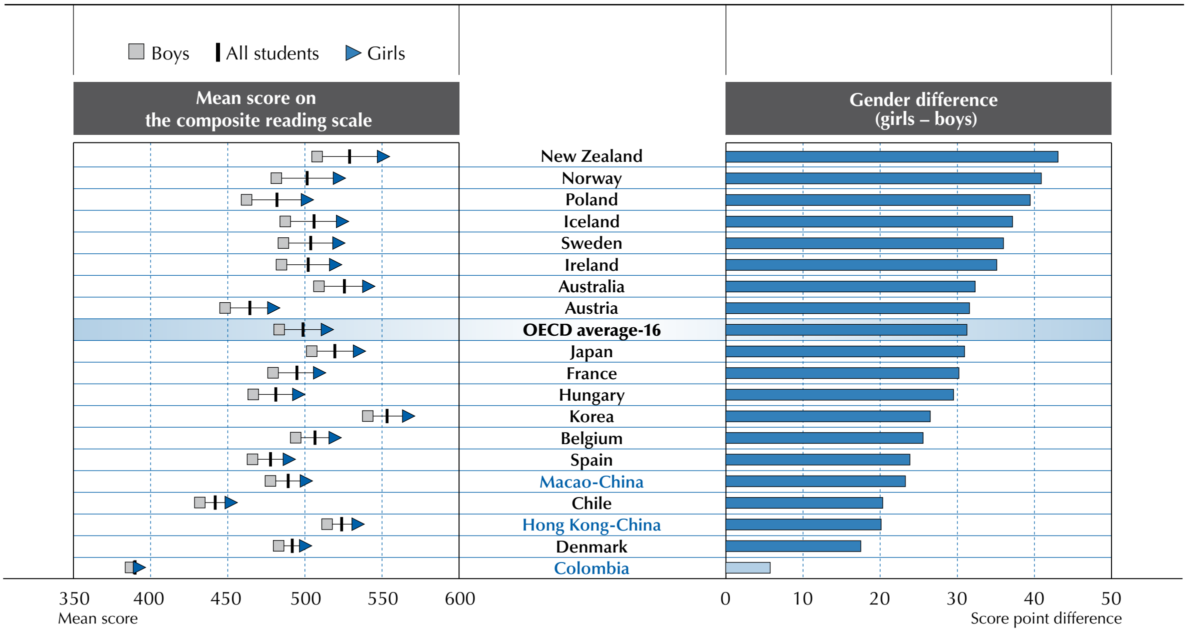
Gender differences in performance on the composite reading scale

As noted earlier, girls consistently outperform boys in digital and print reading, both on average across the OECD area and in individual countries. However, in digital reading, the gender gap is narrower by an average of 15 score points, and in the partner country Colombia, it disappears entirely. Given that the composite reading scale is an amalgam of the digital and print scales, with equal weighting for each, it is not surprising that the gender gap in favour of girls lies between the gender gap in print reading (38 score points) and that in digital reading (24 score points).

Figure VI.2.29 shows gender differences in reading performance for each country. Tables VI.2.2, VI.2.3 and VI.2.4 provide further details.

■ Figure VI.2.29 ■

Gender differences on the composite reading scale

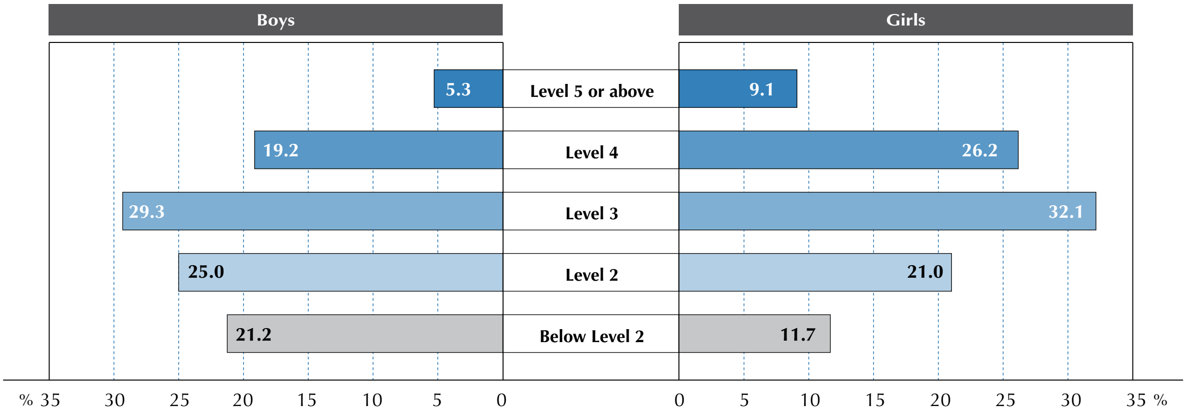


Note: Gender differences that are statistically significant are marked in a darker tone.
Countries are ranked in ascending order of the score point difference between girls and boys.
Source: OECD, *PISA 2009 Database*, Table VI.2.4.
StatLink http://dx.doi.org/10.1787/888932435378

The mean difference between boys' and girls' performance on the composite reading scale is 31 score points in favour of girls. The mean score for boys is 483, near the bottom of Level 3, while it is 515 for girls, still within Level 3, but towards the top of the level. The difference in performance between boys and girls is statistically significant in all OECD countries and partner countries and economies except Colombia. New Zealand shows the largest gap among the 16 OECD countries and three partner countries and economies that participated in the 2009 digital reading assessment, with a gender gap of 43 points. Norway shows the next widest gap (41 points), then Poland (39 points), Iceland (37 points), Sweden (36 points) and Ireland (35 points). All of these countries, except Poland, are at or above the OECD average in mean proficiency. Other chapters discuss the factors that are related to the smaller gender difference in digital reading performance.

Figure VI.2.30 shows the percentages of boys and girls performing at the proficiency Levels 2, 3 and 4 on the composite reading scale. The three lowest levels are summarised as "Below Level 2" and the two highest levels as "Level 5 or above".

■ Figure VI.2.30 ■
How proficient are girls and boys on the composite reading scale?



Source: OECD, *PISA 2009 Database,* Tables VI.2.2 and VI.2.3.
StatLink http://dx.doi.org/10.1787/888932435378

Figure VI.2.30 shows that the modal highest proficiency level for both boys and girls on average across the participating OECD countries is Level 3, and the percentages of boys and girls who perform at this level are similar (29% and 32%, respectively). In most individual countries, this modal level of performance for both boys and girls is the same: usually Level 3, but Level 4 in Korea, Level 2 in Chile and Level 1a in Colombia. In a few countries, the modal levels for boys are different from that for girls. In New Zealand, Australia, Belgium and the partner economy Hong Kong-China, the modal performance for girls is Level 4, while for boys it is only Level 3 (Tables VI.2.2 and VI.2.3). In Austria and Poland, the modal level of performance for boys is Level 2, while the highest level of proficiency reached by most girls is Level 3. In these six countries in particular, a dual focus on developing strategies to improve both the digital and print reading proficiency of boys would be likely to yield overall improvements in reading at the national level.

CONCLUSIONS

This chapter has discussed the similarities and differences between digital and print reading and has shown that digital reading involves many of the skills required to process print texts, including awareness of language, and the capacity to form inferences from parts of a text and to construe connections between them. But digital reading also requires different skills, such as the deployment of new knowledge about the unique structures and features of digital texts. It also requires heightened proficiency in prediction, integration and evaluation that are even more emphatically called upon in digital than in print reading, because the amount of text visible at any one time is small, its origin often unverified and its extent often unknown.

Reporting digital reading as a separate scale highlights countries' proficiency in this medium. While countries vary in their performance in digital and print reading, one pattern emerges clearly: the gender gap is narrower in digital reading proficiency than it is in print reading proficiency. On average across the 16 participating OECD countries, the gap narrowed by 14 points, and it shrunk to some degree in every participating country and economy. These results suggest that it might be possible to harness boys' relatively strong performance in digital reading and use it to improve their overall proficiency as readers.

The results of the digital reading assessment have also been reported in combination with print reading as a composite scale. Reporting reading performance on a composite scale reflects what it means to be a proficient reader in the 21st century. Given that there is mounting evidence of the economic and social benefits of developing human capital, countries should consider allocating resources to teaching students how to read in both digital and print media.

As the first large-scale international assessment of digital reading, PISA 2009 has provided initial insights into the proficiency of young people in accessing, interpreting and evaluating information on line, drawing on data from 16 OECD countries and three partner countries and economies. While this group represents only about one third of the PISA participants it is a significant proportion. The PISA 2009 digital reading assessment has laid the ground for further investigations, and for an expanded set of countries to build on in future cycles.

Notes

1. The mean and standard deviation for print reading were computed using the pooled samples of the 16 OECD countries and using transformed student final weights and replicates, so that their sum per country is a constant. These transformed weights are usually denoted as senate weights.

2. For further details, see Chapter 1 of *PISA 2009 Framework: Key Competencies in Reading, Mathematics and Science* (OECD, 2009b) and Chapter 2 of *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* (OECD, 2010b).

3

Navigation in the PISA 2009 Digital Reading Assessment

Navigation is a key feature of digital reading. Tracking and analysing the sequences of pages students visit to complete a task can help to identify which navigation behaviours are associated with greater digital reading proficiency. In addition to examining this relationship, the chapter presents a series of case studies showing how students respond to certain digital reading tasks.

As discussed in Chapter 2, navigation is considered to be part of the cognitive process of digital reading. In addition to locating clickable links within texts, students are required to predict what kind of information they will encounter once these links are opened, including its likely utility or relevance to the task in which they are engaged. These cognitive processes themselves are not directly observable; however, there are traces of the results of at least some of this cognitive activity in the navigation pathways that students follow. Tracking and analysing the sequences of pages students visit provide insights into navigation behaviours that, in turn, can ultimately suggest which kinds of navigation behaviour are more or less likely to be effective in digital reading.

This chapter examines how general patterns of navigation behaviour across tasks, and navigation patterns in response to individual tasks, relate to overall proficiency in digital and print reading. It also presents a series of case studies, illustrating student behaviour in response to a number of digital reading tasks.

GENERAL PATTERNS IN THE RELATIONSHIP BETWEEN NAVIGATION AND PERFORMANCE IN DIGITAL AND PRINT READING

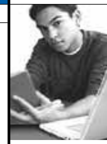
One of the major distinctive features of digital text or, more specifically, hypertext (see OECD, 2009b, p. 22), is that it consists of several pieces of text, or "nodes", that are interconnected via hyperlinks (see Chapter 1). The reader is required to select pieces of text and put them into an appropriate order so that both the selection and the ordering fit both the reading goal and the learner's cognitive resources, such as their prior knowledge (Salmerón, *et al.*, 2006). This process of selecting and ordering pieces of textual information in hypertext is referred to as "navigation" (see Lawless and Schrader, 2008, for an in-depth discussion of the "navigation" metaphor).

A considerable number of studies have found that navigation is closely linked to understanding digital texts. This is because in digital reading, a reader "constructs" his or her text through navigation. Thus, his or her navigational choices directly influence what kind of text is eventually processed. This affects both the text's content and structure. Navigation choices will determine which pieces of information will be accessible to the reader, and whether that information is appropriate to the task at hand. They will also determine whether the pieces of information accessed will be in a semantically coherent order, and thus require more or less cognitive effort to be understood (Kintsch, 1998).

A wide variety of methods has been used in prior research to describe students' navigation behaviour (Naumann, 2008; Richter, *et al.*, 2003; and Rouet and Passerault, 1999). Among these are graphical methods that fully describe a given reader's navigational path. To relate navigation to measures of comprehension or learning outcomes statistically, however, navigation behaviour has to be captured in some metric or scale.

In the most simple case, this metric can be qualitative (or "nominal") and classify students in terms of whether their navigational behaviour falls into one or another category. An example of such a scale is classifying students as to whether they performed a specific navigation action or not – for example, whether or not they clicked on a particular link. Another example is the distinction between different "types" of navigators, who differ in more than one aspect of their navigational behaviour. Lawless and Kulikowich (1996), for instance, looked at seven different navigational indices, such as the proportion of relevant pages accessed, the proportion of special features accessed, such as movies or sound effects, or the number of deviations from an optimal path. These seven indices served as the basis for a cluster analysis. This analysis resulted in grouping students into three clusters, identified as "knowledge seekers", "feature explorers", and "apathetic users". Within this classification, "knowledge seekers" were those who navigated in a very structured and task-oriented way, and were not easily distracted by task-irrelevant text content or devices. These users usually scored best on a reading-recall measure. "Feature explorers" tended to investigate each and every feature in the hypertext, especially its technical features. A student belonging to this class of user would probably click on a video or an animation that looked interesting or appealing, more or less regardless of its importance to completing the particular learning task. These users scored second best. "Apathetic users" were not easily distracted, but they did little navigating: their paths were usually short, and their information-seeking behaviour did not meet the requirements of the task. These users scored the worst.

A reader's navigational behaviour can also be described by one or more variables indicating the *extent* to which he or she performed pre-defined acts of navigation, leading not to a discrete classification, or a nominal scale, but to an ordinal or an interval scale. One variable of this kind that has been used widely in describing task-oriented navigation is the extent to which readers access task-relevant information within the digital text environment. A straightforward and frequently used way to measure task-oriented navigation is to count the number of task-relevant



page visits, or to take the ratio of task-relevant visits, divided by the number of page visits. This variable has proven to be highly predictive of learning outcomes in hypertext or hypermedia learning (Cress and Knabel, 2003; McDonald and Stevenson, 1998a, 1998b; Naumann, *et al.*, 2008).

In addition to accessing information, ordering information is crucial for proper comprehension of hypertext materials. Students who fail to organise the material they read in a semantically coherent order are at a disadvantage, especially if they have minimal prior knowledge and they are thus not in a position to bridge gaps in understanding by appropriate inferences (Salmerón, *et al.*, 2005). Thus, one theoretically important aspect of navigation is captured by indices that look not only at individual page visits, such as visits to task-relevant pages, but at movement between pages, that is, semantically coherent *vs.* incoherent movement between pages belonging to the same hypertext node *vs.* movement between pages belonging to different hypertext nodes.

Relevance of pages

The PISA 2009 digital reading assessment tasks were deliberately constructed so that navigation was required to obtain full credit. Thus, in some tasks, students were required to go through a number of pages to access the information they needed to complete the task, or to integrate information from at least two different pages. For example, in the unit "*IWANTTOHELP*", students engage with a blog entry written by a girl named "Maika", who discusses her intention to start a volunteer job. From the blog entry, a text-embedded link refers to a site from a non-profit organisation called "iwanttohelp", where volunteering opportunities are offered. In Question 3 of this unit, students are asked to define the purpose of the "iwanttohelp" website. To answer the question, students first have to use the link to the "iwanttohelp.org" website, and then have to determine that this website's aim is "providing people with information about ways to volunteer" (as stated in one of the multiple-choice options). In this task, in addition to the two pages that students need to visit to receive a score in this item (unless they guess), there are a number of additional pages that might reasonably be assumed to be helpful in determining the purpose of the iwanttohelp website, such as an FAQ page or an "About" page, which can be accessed using a site map. In each task there are a number of pages that will only be chosen by students as a result of poor comprehension, as those pages contain no relevant information. Thus, each unit contains three types of pages: those that must be visited to complete a given task (necessary pages), those that either are necessary or might be useful in completing the task (relevant pages), and those that are clearly irrelevant to the task (irrelevant pages). Thus, the necessary pages are a subset of the relevant pages (each necessary page is also relevant, but not the reverse).

Indicators used to describe navigation

Three indicators are used to describe students' navigation behaviour. First, as a rough index of how intensely students use the environment overall, the *number of page visits* is examined. This comprises visits to any pages, regardless of their relevance to the task, and regardless of whether each is a first visit to the page or a revisit. Students with a very low score on this variable might be called "apathetic" according to Lawless and Kulikowich (1996). Second, the *number of visits to relevant pages* is taken into account. This index describes how often students accessed a page that contains task-relevant information, has to be accessed to find task-relevant information, or can be assumed to contain task-relevant information. This index describes the overall intensity of students' task-oriented navigation behaviour.

Box VI.3.1 **Example of navigation indices**

The following sample pathway illustrates how the navigation indices *number of page visits, number of visits to relevant pages*, and *number of relevant pages visited* are computed:

Step No.	Page accessed	Description
1	"**Page 1**"	In this example, the pages that are considered relevant to the task are marked in **bold** (pages "1", "4" and "5"). Thus, a student displaying this path would be assigned seven as the *number of page visits*, corresponding to the total length of the path, or the number of steps taken. The *number of visits to relevant pages* would amount to four, since the student visited a page classified as relevant four times (in steps 1, 3, 5 and 6). Finally, the *number of relevant pages visited* would amount to three, since three *different* relevant pages were accessed (pages "1", "4" and "5").
2	"Page 2"	
3	"**Page 1**"	
4	"Page 3"	
5	"**Page4**"	
6	"**Page 5**"	
7	"Page 3"	

However, this index says nothing about how comprehensively a student covers the material that is potentially relevant to the task. In theory, a student could switch back and forth between two pages that are both relevant to a task, and thus obtain a large number of visits to relevant pages, despite seeing only a small part of the material, and without navigating in any straight or task-oriented way. Given this possibility, the *number of relevant pages visited* is calculated. This index describes how many of the pages judged to be relevant to a task were accessed while the student worked on that task.[1] The tracking and analysis of the sequences of pages students visit to complete a task to identify navigation behaviours associated with greater digital reading proficiency is one of the major aspects of assessing student competencies that ICT enable.

The two indices relating to visits to task-relevant pages can be expected to be positively associated with digital reading performance. In the case of the *number of relevant pages visited*, the assumption is clear: the greater the proportion of relevant pages a student visits, the more likely the student is to succeed in that task, and the better he or she is likely to perform in the assessment as a whole. This is because before understanding the content of a text that is necessary or relevant to a given task, the text itself must first be accessed. A positive association with performance can also be assumed for the *number of visits to relevant pages*, since students who include more visits to relevant pages in their navigational paths will have navigated more systematically and will have had access to more task-relevant information than students who had fewer visits to relevant pages. *Revisits* to task-relevant pages can be a sensible navigation strategy.

The relationship between *number of page visits*, that is, the mere length of a students' navigational path, and performance is unclear. While some studies find path length to be positively associated with learning outcomes (Barab, *et al.*, 1996; Brunstein and Krems, 2005; Lin, 2003), others find no such association (McEneaney, 2001; Naumann, *et al.*, 2007). The different findings might be related to the origin of the path lengths. For example, a path length might be the result of a student getting lost and attempting to find his or her way back to a better path. This path length would have a negative association with performance. The same would be true if the path length were the result of idle and distracted navigation. On the other hand, if path length is a result of comprehensive coverage

Box VI.3.2 **How the findings are organised**

The findings relating to navigation in the PISA digital reading assessment that use indices aggregated across tasks are organised as follows:

First, the distribution (mean, standard deviation, median, skewness) of the three indicators of navigation (number of page visits, number of visits to relevant pages, and number of relevant pages visited) is given for each country. Within countries, the mean and standard deviation of all three indicators are also plotted against each other, and against countries' mean digital reading scores. Then, correlations between the three indicators and between both digital and print reading scores are reported.[a] Correlations between print reading scores and navigation, and between digital reading scores and navigation, are also reported. Regression analyses that introduce navigation as a predictor of digital and print reading performance are then reported. These analyses show whether students with similar levels of print reading proficiency differ in their digital reading performance, depending on their navigational behaviour. Finally, regression analyses that consider non-linear trends in the prediction of performance based on navigation are discussed. A moderate, as opposed to a low, number of visits to relevant pages can be expected to benefit performance, especially if revisits are included. However, when students go beyond a moderate number of visits to relevant pages, for example by moving frequently back and forth between two (relevant) pages, it might not improve their performance. Thus, the impact of increasing numbers of visits to relevant pages on digital reading performance might be expected to be diminished. The same holds for the number of page visits. Figure VI.3.1 illustrates the non-linear relation between the number of relevant page visits and digital reading performance. A similar curve is expected for the number of page visits.

Following these analyses, case studies of navigation behaviour in six individual tasks are analysed and related to performance

a. Here, and in the rest of this chapter, Weighted Likelihood Estimates (WLEs) are used for both digital and print reading proficiency scales because indices of navigation were not included in the background model for the computation of Plausible Values (PVs), and thus cannot be used as predictors in regression models using PVs as dependent variables.

of available material, with a lot of visits, and goal-oriented revisits, to task-related materials, or the exploration of pages considered relevant, the number of page visits will have a positive association with performance.

Distribution of navigation indices at the country level

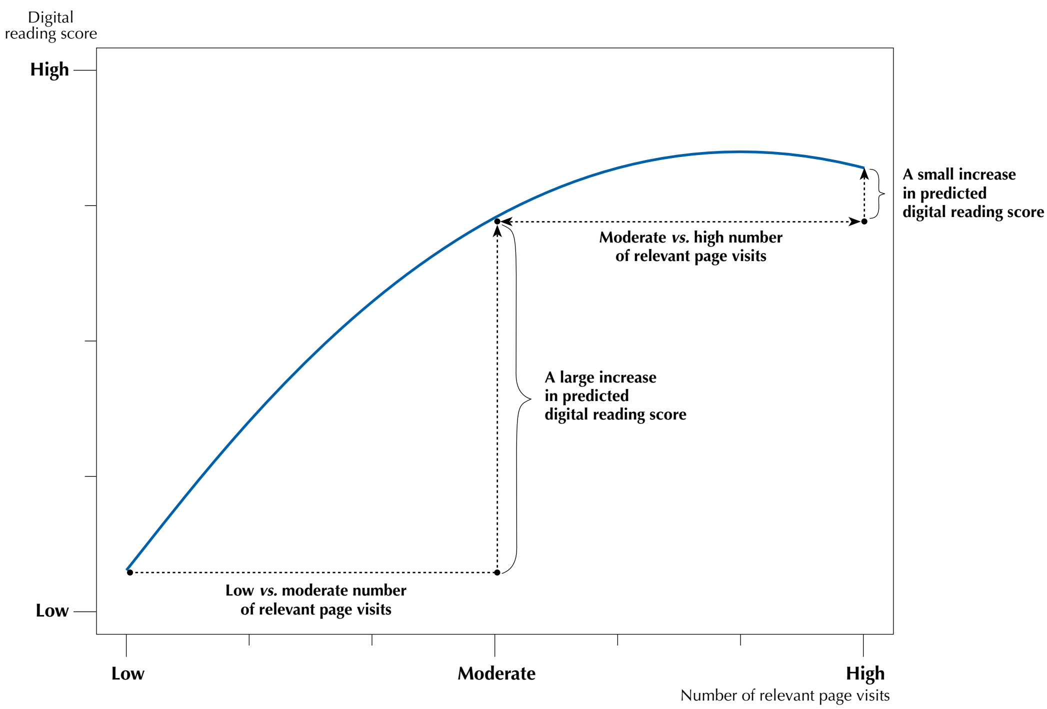
The distribution of navigation indices within countries is slightly skewed for each index, especially for the number of relevant pages visited and the number of page visits. The number of relevant pages visited is skewed to the left in every country except Colombia, where the skew is to the right (Table VI.3.1). The number of page visits is consistently skewed to the right in every country (Table VI.3.1).

This means that for the number of relevant pages visited, the median is larger than the mean because some, although comparatively few, students perform differently from the majority in that they visit relatively few relevant pages. For the number of page visits, the mean is larger than the median. Here, relatively few students access and revisit pages much more often than the majority. Overall, the skewness of the frequency distributions of navigation indicators is less pronounced than it often is in the small-scale studies reported in the literature (for example, the *number of visits to relevant pages* in Naumann, *et al.,* 2008).[2] Figure VI.3.2 illustrates the distribution of navigational indices aggregated across OECD countries; the overall shapes of the distributions within countries are the same as the shape of the distributions that result when the data are aggregated across OECD countries.

Across countries and economies, there is wide variation in the distribution of the navigation indices considered (Table VI.3.1). For instance, with respect to the mean *number of relevant pages visited*, students in Korea saw an average of 53 pages, while in Colombia they saw only 31 pages. The same holds for the mean *number of visits to relevant pages*, which varies between 44 (Colombia) and 74 (Korea), and the mean *number of page visits*, which varies between 58 (Colombia) and 100 (Macao-China). These differences, especially those in the *number of relevant pages visited*, match closely country differences in digital reading performance (Figure VI.3.3).

■ Figure VI.3.1 ■

Illustration of the relationship between number of relevant pages visited and digital reading performance



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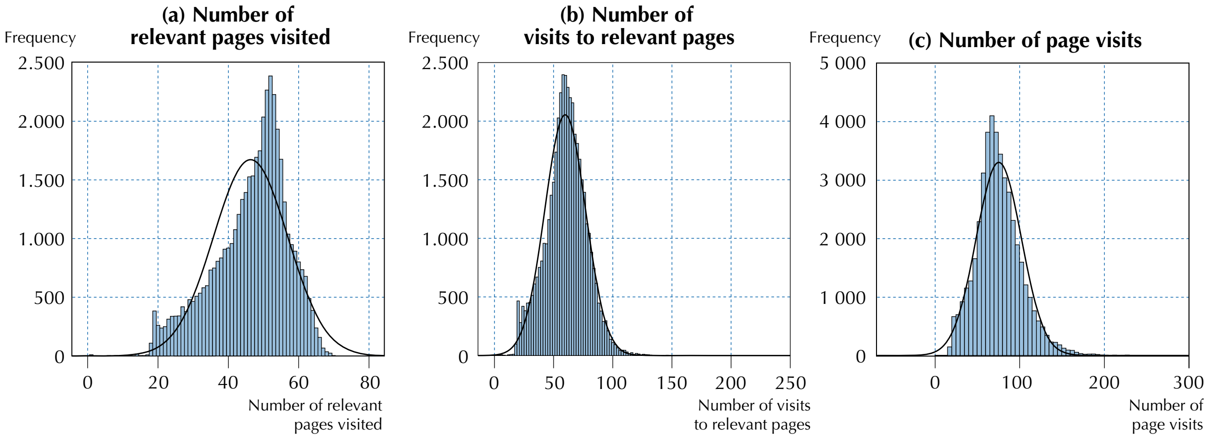
■ Figure VI.3.2 ■

Distribution of the number of pages and visits, aggregated across OECD countries

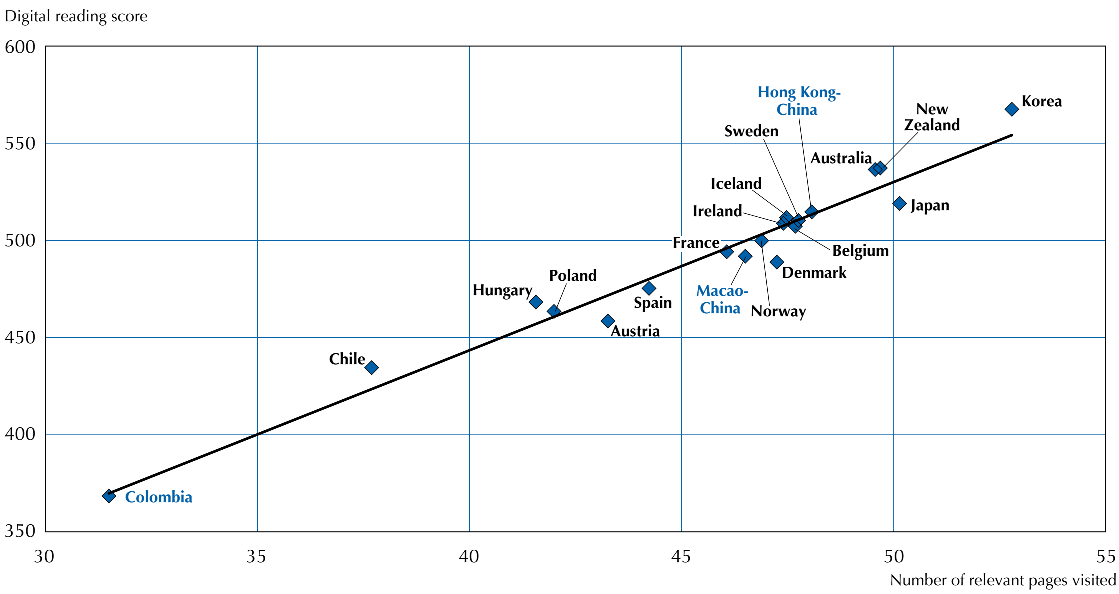


Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435397

At the country/economy level, both the Pearson and rank-order correlations between the mean number of relevant pages visited and the mean digital reading score amount to 0.98.

■ Figure VI.3.3 ■

Relationship between the number of relevant pages visited and digital reading performance



Source: OECD, *PISA 2009 Database*, Tables VI.2.4 and VI.3.1.
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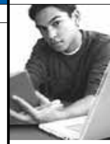
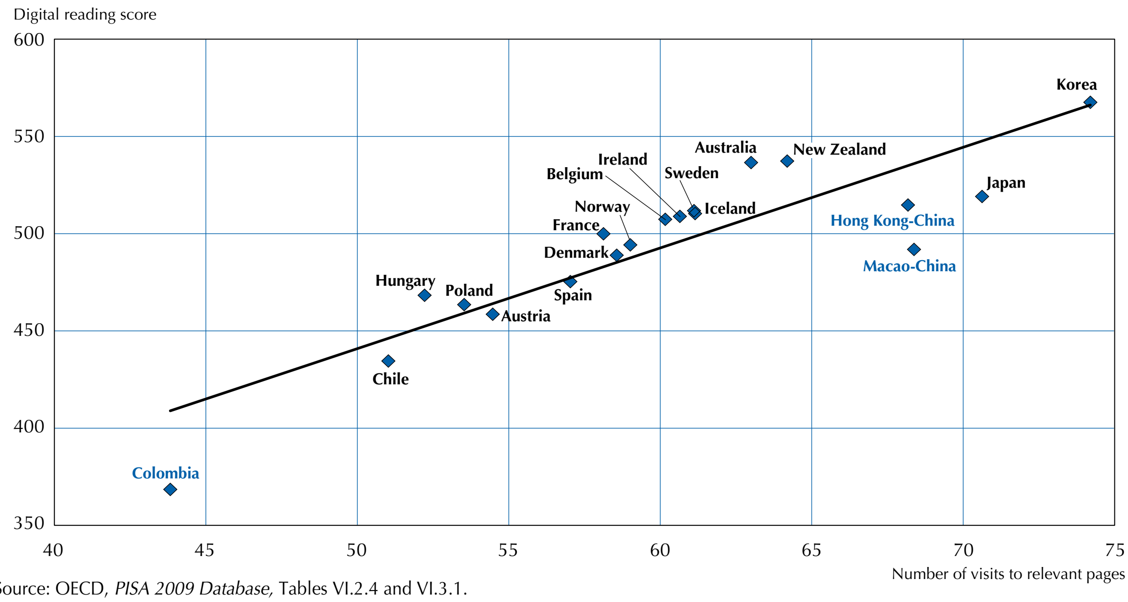
The relation is somewhat less clear concerning the *number of visits to relevant pages* and the *number of page visits*. The reason is that students in the participating Asian countries and economies were more likely to revisit relevant pages and to explore pages beyond those considered relevant (Figures VI.3.4 and VI.3.5).



■ Figure VI.3.4 ■

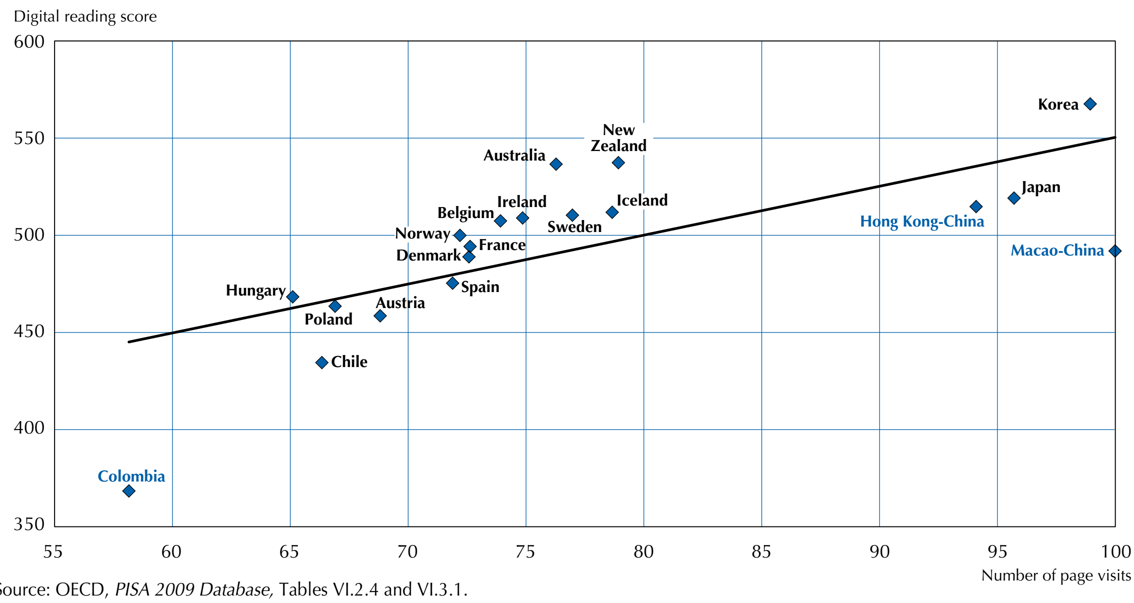
Relationship between the number of visits to relevant pages and digital reading performance



Source: OECD, *PISA 2009 Database,* Tables VI.2.4 and VI.3.1.
StatLink http://dx.doi.org/10.1787/888932435397

■ Figure VI.3.5 ■

Relationship between the number of page visits and digital reading performance



Source: OECD, *PISA 2009 Database,* Tables VI.2.4 and VI.3.1.
StatLink http://dx.doi.org/10.1787/888932435397

While the difference between the mean *number of page visits* and the mean *number of relevant pages visited* is 29 for the OECD average, it is 46 for Japan, Korea and the partner economy Hong Kong-China, and as high as 53 for the partner economy Macao-China.

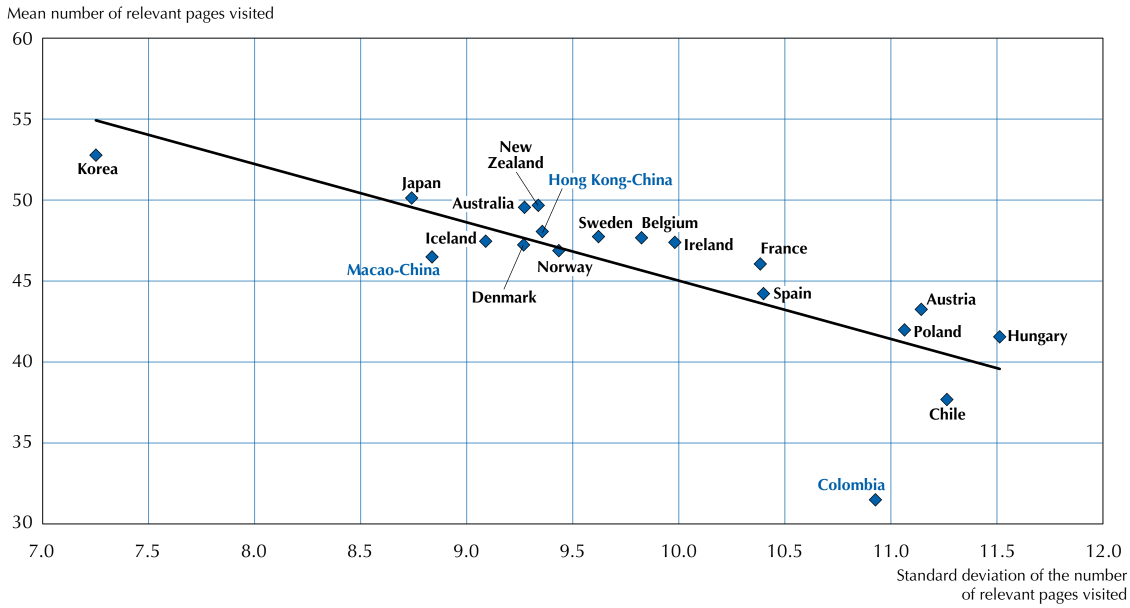
Not only across countries and economies, but also within countries there is considerable variation in each navigational index, as indicated by within-country standard deviations (Table VI.3.1). Standard deviations in the *number of relevant pages visited* range from 7.3 (Korea) to 11.5 (Hungary). Standard deviations in the *number of visits to relevant pages* range between 14.3 (New Zealand) and 20.0 (Colombia). Standard deviations in the *number of page visits* range from 22.4 (Denmark) to 34.1 (Macao-China).

All tasks were constructed so that students had to navigate (see Chapter 1). However, in a number of tasks, students were given guidance on how to navigate most efficiently, such as which link to click on first on the start page, and instructions on how to minimise the risk of getting "lost". It is thus a significant finding that students differ to a large degree in the *number of relevant pages visited,* in the *number of visits to relevant pages* and in the *number of page visits*. If, in tasks where guidance was provided, a large majority of students had followed the instructions on how to navigate, and if they had found for themselves the shortest route, there would have been much less variation in all three indicators.

The amount of within-country variation that occurs in the *number of relevant pages visited* has a negative relation both with the *number of relevant pages visited* and with digital reading scores at the country/economy level (Figures VI.3.6 and VI.3.7). At that level, the Pearson correlation between the within-country standard deviation in relevant pages visited and the mean *number of relevant pages visited* is -0.79 while the rank order correlation is -0.81. The Pearson correlation between the within-country standard deviation in *relevant pages visited* and the mean digital reading score is -0.79, and the rank order correlation is -0.77. For instance, students in Korea, who scored highest in digital reading and also had the highest *number of relevant pages visited,* at the same time had the lowest standard deviation in the *number of relevant pages visited* (7.3). In contrast, students in the partner country Colombia, who scored lowest in digital reading, displayed large variations in the number of relevant pages visited (standard deviation 10.9). Likewise, students in Chile, who had the second lowest performance in digital reading and visited the second lowest mean *number of relevant pages,* had the second highest standard deviation in the *number of relevant pages visited* (11.3).

■ Figure VI.3.6 ■

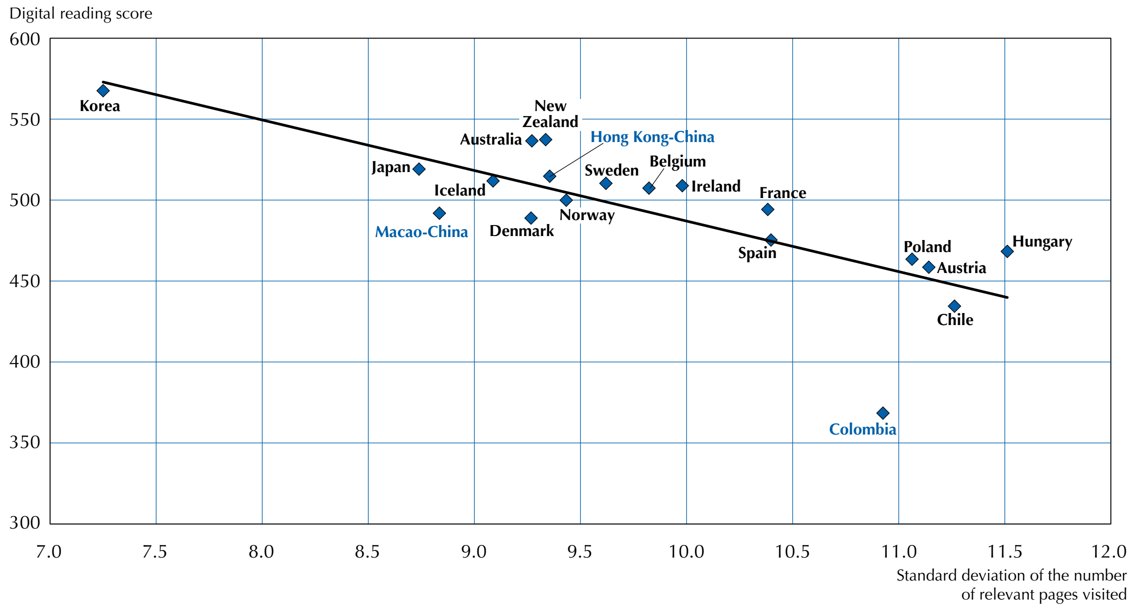
Relationship between standard deviation and mean of the number of relevant pages visited



Source: OECD, *PISA 2009 Database,* Table VI.3.1.
StatLink http://dx.doi.org/10.1787/888932435397

In part, the negative correlation between standard deviation and mean across countries is due to the fact that in some countries there was a tendency for most students to visit all relevant pages, in which case the standard deviation was close to zero. It is not likely, however, that the negative relation between standard deviation and mean in the *number of relevant pages visited* is entirely due to a ceiling effect. Depending on the test version administered, the *number of relevant pages* available was 63, 73 or 76; but even in countries and economies where students visited high numbers of relevant pages (*e.g.* 53 in Korea or 48 in Sweden and Hong Kong-China), the mean *number of relevant pages visited* was well below the maximum number of relevant pages.

■ Figure VI.3.7 ■
Relationship between standard deviation of the number of relevant pages visited and digital reading performance



Source: OECD, *PISA 2009 Database,* Tables VI.2.4 and VI.3.1.
StatLink http://dx.doi.org/10.1787/888932435397

Thus, in countries and economies where students succeeded, on average, in accessing a large proportion of the material relevant to the task, for example, Korea, Japan, New Zealand, Australia and Iceland, only a few students did *not* succeed in accessing a large amount of relevant material, resulting in comparatively little variation in the *number of relevant pages visited* (Figures VI.3.6 and VI.3.7). At the same time, these are the countries where students performed better in digital reading.

Relationships among navigation, print and digital reading

As outlined above, navigation can be assumed to be closely associated with proficiency in digital reading. However, correlations between navigation and print reading can also be assumed, for a number of reasons. First, in assessments such as the PISA 2009 digital reading assessment, the task is presented in written form. Second, most navigational devices, such as text-embedded links, menu items, or items in a drop-down menu, have textual labels that have to be deciphered. Thus, lower-level reading processes, such as word identification or syntactic parsing, are one prerequisite for navigation. In addition, these processes should be routine in order to leave available cognitive resources for making navigational choices (Naumann, *et al.*, 2008). Third, to make appropriate predictions, for example, about where a text-embedded link will lead, and thus whether it makes sense to use it, its textual context has to be considered and understood. Thus, text-level reading skills are required in addition to routine lower-level processes for efficient navigation.

Despite these considerations, navigation is a process that is specific to digital reading, even if it might be affected by proficiency in print reading. Thus, while there may be associations between print reading and navigation, they are likely to be stronger between digital reading and navigation. This is because navigation is considered to be a specific and integral part of digital reading, as outlined in the *PISA 2009 Assessment Framework* (OECD, 2009).

Correlations between navigation and performance

Navigation and digital reading performance

Bivariate correlations between the three indicators of navigation and digital reading performance are all positive, and strong for the number of *relevant pages visited* (Table VI.3.2). As expected, correlations are highest for the *number of relevant pages visited,* ranging from 0.68 (Korea) to 0.86 (Hungary), followed by the *number of visits to* *relevant pages*, that range from 0.39 (Korea) to 0.75 (Hungary). Correlations between the *number of page visits*, not taking task relevance into account, are still positive, but comparatively small, ranging from 0.15 (Macao-China) to 0.59 (Hungary).

On average across OECD countries that participated in the digital reading assessment, correlations between navigation and digital reading performance are 0.81 (*number of relevant pages visited*), 0.62 (*number of visits to relevant pages*), and 0.42 (*number of page visits*).

Navigation and print reading performance

There are significant positive associations between print reading performance and with navigation as well. These are, however, consistently weaker for print reading than for digital reading (Tables VI.3.2 and VI.3.3). Correlations of the *number of relevant pages visited* with print reading scores range from 0.43 (Macao-China) to 0.72 (Hungary); correlations of the *number of visits to relevant pages* with print reading scores range from 0.24 (Macao-China) to 0.63 (Hungary); and correlations of the *number of page visits* with print reading scores range from 0.06 (Macao-China) to 0.51 (Hungary).

On average across OECD countries that participated in the digital reading assessment, the correlations of navigation indices with print reading scores are 0.62 (*number of relevant pages visited*), 0.48 (*number of visits to relevant pages*) and 0.33 (*number of pages visited*). Thus, consistent with the need to employ reading skills in order to accomplish navigation tasks, navigation is related not only to digital reading, but to print reading as well. At the same time, corresponding correlations between indices of navigation are stronger for digital than for print reading (Tables VI.3.2 and VI.3.3).

Regression of digital reading performance on print reading and navigation

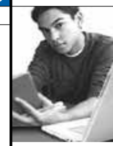
Multiple regression analyses were conducted to test whether navigation would be predictive of digital reading performance after accounting for print reading proficiency. These analyses provide a crucial test for the claim that navigation – as captured by the indices used here – is a specific and integral part of digital reading, especially given that navigation is correlated not only with digital reading but also with print reading scores. Theoretically, one model that could account for the data presented thus far would assume that good navigation is a by-product of good print reading proficiency, which also influences digital reading proficiency (Salmerón and García, forthcoming). In this case, correlations between navigation and digital reading achievement should be close to zero when print reading proficiency is accounted for. In other words, if good navigation were a by-product of good reading proficiency, and thus correlated with digital reading scores, in a multiple regression of digital reading scores on print reading and navigation, navigation should have no increment in variance explained over and above what is already explained by print reading. Although such a model is not considered seriously in the hypertext literature, rarely has it been put to the test: in most studies investigating the impact of navigation on comprehension in electronic environments, no independent measure of print reading proficiency has been included. Thus, there is little evidence of an association between navigation and digital reading comprehension after accounting for print-reading proficiency.

Number of relevant pages visited

In a regression of digital reading scores on print reading scores and the *number of relevant pages visited*, the regression coefficient for both predictor variables is significant for each country (Table VI.3.4).

This means that students with the same level of print reading proficiency will still differ in their predicted digital reading achievement, depending on how many relevant pages they visited. On the other hand, students accessing an equal number of task-relevant pages will still differ in their predicted digital reading score depending on their print reading proficiency. The magnitude of the effects of navigation conditional on print reading, and of print reading conditional on navigation, can be examined by inspecting both the regression coefficients and the amount of unique variance explained by each predictor.

Regression coefficients for the *number of relevant pages visited* range from 5.22 in the partner country Colombia and the partner economy Macao-China, to 6.93 in France, with an average of 6.40 across all participating OECD countries. This means that for students with similar print reading proficiency, their predicted digital reading score is increased by between about five and about seven score points for each relevant page visited. Regression coefficients for print reading proficiency vary between 0.23 in Japan and 0.39 in New Zealand, with an average of 0.31 across all participating OECD countries.



Thus, for students who visit an equal number of relevant pages, their predicted digital reading score is increased by between 2 and 4 score points with each additional 10 score points gained on the print reading scale.

The increase in variance explained in digital reading (ΔR^2) that is obtained when the *number of relevant pages visited* is included in the model, in addition to print reading proficiency, ranges from 16% (Korea) to 31% (France), with an average increase of 23% across all participating OECD countries. Including print reading proficiency as a predictor of digital reading proficiency, in addition to the *number of relevant pages visited*, increases the variance explained in digital reading by between 4% (Poland and Spain) and 11% (Korea and Macao-China), with an average of 6% across all participating OECD countries. In terms of conventions for effect sizes (Cohen, 1988), the effect of navigation on digital reading performance after accounting for print reading proficiency is large, with an effect size f^2 that ranges from 0.38 in Korea to 1.32 in France, with a mean of 0.83 across all participating OECD countries.[3] Effect sizes for print reading proficiency, while accounting for the number of relevant pages visited, are also large by convention, but smaller than those obtained for navigation.

This analysis suggests that navigation ability is an additional component of reading in the digital medium, beyond the other abilities that students have, and employ, in print reading. Although there is overlap with print reading, performance is improved when students navigate effectively, that is, when they maximise *visits to relevant pages*.

Number of visits to relevant pages

In a regression of digital reading performance on print reading performance and the *number of visits to relevant pages,* regression coefficients are significant for the *number of relevant page visits* consistently across countries, ranging from 1 in Korea to 3 in Austria (Table VI.3.5), with an average of 2.4 across all participating OECD countries.

This means that for students with equal proficiency in print reading, their digital reading score increases by between 1 and 3 score points for *any* visit to a relevant page, whether this page has already been visited or not. Regression coefficients for print reading proficiency vary between 0.38 (Japan) and 0.60 (New Zealand), with an average of 0.50 across all participating OECD countries. This means that accounting for the *number of visits to relevant pages*, students' digital reading score increases by between 0.38 score points and 0.60 score points for each additional score point on the print reading scale.

The increase in variance explained in digital reading proficiency that is obtained when the *number of visits to relevant pages* is included in the model, in addition to print reading proficiency, ranges between 3% (Korea) and 14% (Austria and Hong Kong-China), with an average of 11% across all participating OECD countries. Including print reading proficiency as a predictor, in addition to *number of visits to relevant pages*, increases the variance explained by between 14% (Hungary) and 29% (Korea), with an average of 20% across all participating OECD countries. Effect sizes in these analyses range from medium to large for the *number of visits to relevant pages* and are large for print reading proficiency (Table VI.3.5). Thus, although once again both print reading proficiency and navigation can be proven to account for independent proportions of variance in digital reading performance, the pattern of results is in one way reversed in comparison to the analysis involving the *number of relevant pages visited*: taking the *number of relevant pages visited* as an indicator of navigation, and as a predictor of digital reading performance, in addition to print reading proficiency, the *number of relevant pages visited* accounts for a larger proportion of unique variance than print reading proficiency does. Taking the *number of visits to relevant pages*, rather than the number of *relevant pages visited*, as an indicator of performance reverses this pattern. Here, a larger proportion of unique variance is accounted for by print reading proficiency than by *the number of visits to relevant pages*.

Number of page visits

In a regression of digital reading performance on the *number of page visits* and print reading proficiency, all regression coefficients are positive and significant (Table VI.3.6). Regression coefficients for the *number of page visits* range from 0.26 (Korea) to 1.26 (Austria), with an average of 0.92 across all participating OECD countries (Table VI.3.6).

This means that the predicted digital reading performance for students with the same print reading proficiency is increased by between 0.26 and 1.26 score points per *additional visit to any page*, whether it is relevant to the task or not. For print reading proficiency, in this analysis, regression coefficients varying between 0.43 (Japan) and 0.70 (New Zealand) are obtained, with a mean of 0.61 across all participating OECD countries. In terms of unique variance accounted for by each of the predictors, the effect for the *number of page visits* varies between 1% additional variance

explained (Korea and the partner economy Macao-China) and 8% additional variance explained (Norway), with an average of 5% across all participating OECD countries. In contrast, the unique variance accounted for by print reading proficiency in this analysis varies between 23% (Colombia) and 49% (New Zealand), with an average across all participating OECD countries of 34%. Effect sizes for each of the predictors range from small to medium for the *number of page visits* and are large for print reading proficiency (Table VI.3.6). Thus, similar to what has already been seen for the *number of visits to relevant pages*, and in contrast to what was found for the *number of relevant pages visited*, print reading proficiency accounts for considerably larger proportions of unique variance than does the *number of page visits*.

Taken together, the results presented in this section indicate clearly that navigation has positive associations with digital reading performance even when print reading proficiency is accounted for. In the case of the *number of relevant pages visited*, which provides an indication of the amount of potentially relevant information that students view, these effects turn out to be even stronger than the complementary effects of print reading proficiency, accounting for navigation. In the case of the other two indices that focus more on how often students opened and re-opened pages, there were still effects on digital reading performance independent of print reading proficiency, but these were smaller; and in these analyses, print reading proficiency proved to be the comparatively stronger predictor.

This means that the more *relevant pages* students visit, the better they are likely to perform. This effect cannot be explained solely by the fact that students who display better navigational behaviour are also those with better print reading proficiency. On the contrary, although students with better print reading skills display better navigational behaviour in terms of the number of relevant pages they visit (*number of relevant pages visited*), and the number of times they access relevant content (*number of visits to relevant pages*), navigation is associated with digital reading performance in ways that are independent of print reading proficiency. This supports the notion that proficiency in digital reading cannot fully be mapped according to traditional print reading proficiency.

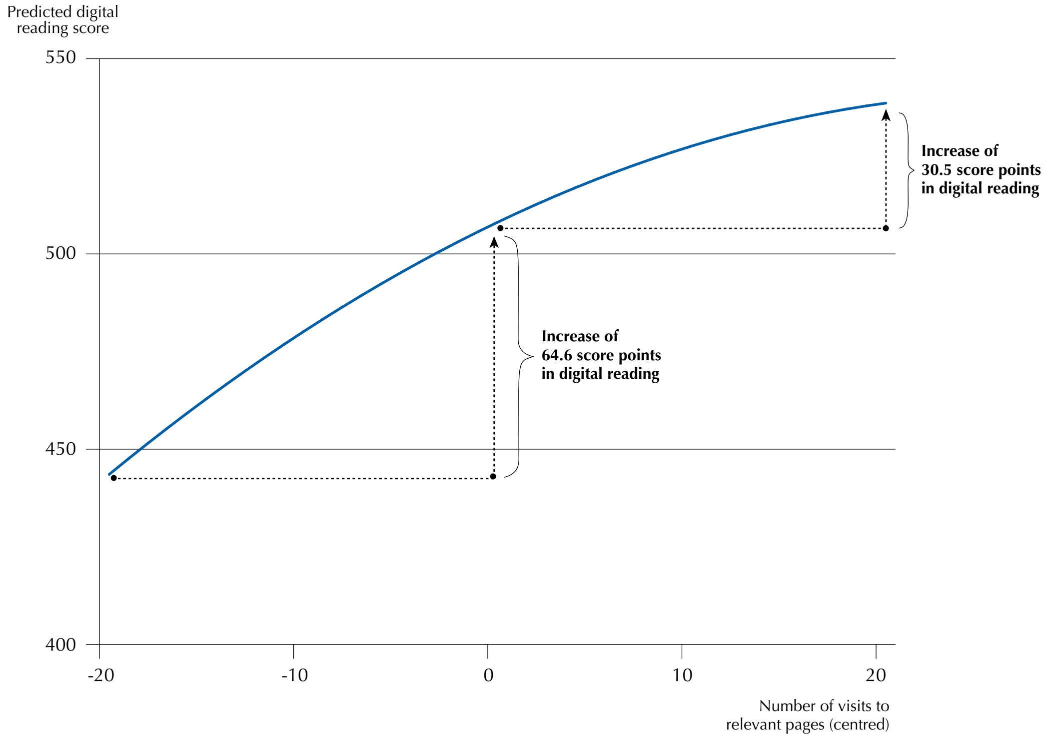
Non-linear effects of navigation on digital reading performance

Indices capturing the extent of actions students take when performing digital reading tasks, such as the *number of visits to relevant pages*, or the *number of page visits*, have overall positive linear associations with performance (Tables VI.3.2, VI.3.5, and VI.3.6). However, a linear model might not be the best way to describe these aspects of the relationship between navigation and performance. Consider, for example, the *number of visits to relevant pages*. Clearly, a student who rarely visits relevant pages will most likely fail in a given task and achieve a low score on the entire test. In contrast, a student who has a moderate number of visits to relevant pages will probably fare better. However, visiting relevant pages more often than is needed, meaning that these pages are revisited frequently, might have an additional beneficial effect on comprehension if done thoughtfully, as a result of proper monitoring and regulation of the comprehension process (see also the case study of Item 2 in the unit *JOB SEARCH* below). In many cases, clicking back and forth between pages is a sign of disorientation, rather than of proper monitoring and regulation, as is indicated by negative associations of high numbers of backtrack-sequences of the type $\text{Page}_A - \text{Page}_B - \text{Page}_A$ with learning outcomes reported in the literature (Richter, *et al.*, 2005; Savayene, *et al.*, 1996).

To test for non-linear effects of navigation on digital reading performance, the previous section's regression models, which predicted digital reading performance by print reading and navigation, were extended. In addition to the linear effect of navigation on digital reading performance, a non-linear (quadratic) effect of navigation on digital reading performance was estimated. Inspection of the regression coefficients revealed that non-linear effects were present for both the *number of visits to relevant pages* and the *number of page visits* consistently across countries (Tables VI.3.7 and VI.3.8).

For the *number of visits to relevant pages* and the *number of page visits*, the regression coefficient for the non-linear term was negative in each case. This indicates that, in each country, visiting yet another (relevant) page becomes less predictive of digital reading performance, the more visits to relevant pages students had already made. Averaged across all participating OECD countries, the predicted digital reading score for a student with 20 fewer visits to relevant pages than the average is 64.6 score points below the score predicted for a student with an average number of visits to relevant pages. In contrast, for a student with 20 more visits to relevant pages than the average, the predicted increase in digital reading score is only 30.5 score points (Figure VI.3.8). Overall, in conventional terms for effect size classification, the non-linear trends for both the *number of visits to relevant pages* and the *number of page visits* correspond to a medium-sized effect.

■ Figure VI.3.8 ■
Relationship between the number of visits to relevant pages (centred) and digital reading performance, OECD average



Source: OECD, *PISA 2009 Database,* Table VI.3.8.
StatLink http://dx.doi.org/10.1787/888932435397

In contrast to the *number of visits to relevant pages* and the *number of page visits*, for the *number of relevant pages visited* no consistent non-linear trend can be observed (Table VI.3.9).

Thus, for the indicators that load heavily on how often students visit any page, there is a point beyond which visiting more is not helpful. In contrast, for the *number of relevant pages visited* the relation with performance is linear. Taken together, these results suggest that once students have adequately covered all the relevant material, either visiting relevant pages more often or visiting more pages in general (relevant as well as irrelevant), tends not to provide any additional benefit.

Navigation and gender

Analyses presented in this chapter thus far provide evidence that navigation is related to digital reading performance, before and after accounting for print reading proficiency. At the same time, correlations exist between navigation and print reading albeit smaller. Chapter 2 shows that the gender gap found in print reading is also found in digital reading, however, the difference is smaller here, and after accounting for their print reading skill, boys tend to have a slight advantage over girls in digital reading. A similar pattern holds for navigation: In general, girls navigate better than boys. Overall, they visit more relevant pages (*number of relevant pages visited*), and tend to visit relevant pages more frequently (*number of visits to relevant pages*). For the *number of relevant pages visited*, girls' advantages are significant for 14 OECD countries (Table VI.3.1). Insignificant differences are found in Chile and Japan, and all three partner countries and economies. For the *number of visits to relevant pages*, significant advantages for girls are found in 10 OECD countries. Averaged across all participating OECD countries, girls visit more relevant pages (*number of relevant pages visited*), and more frequently (*number of visits to relevant pages*). These differences are not too surprising, given that the *number of relevant pages visited*, but also the *number of visits to relevant pages* are strongly correlated with digital reading performance, and girls do better digital reading than boys. However, when print reading proficiency is accounted for, these advantages for girls are diminished, or even reversed. After accounting for print reading skill, significant differences in favour of boys are found in Chile, Spain and Poland, as well as in the partner countries and economies Macao-China and Colombia. This means that in these countries and economies, of boys and girls with similar print reading proficiency, boys will visit more relevant pages. A similar result emerges for the *number of visits to relevant pages*. On this index of navigation, after accounting for print reading proficiency, significant differences in favour of boys are found in Spain, France, Korea and Poland, and all four participating partner countries and economies. Also, averaged across all participating OECD countries, after controlling for print reading proficiency, boys display a significantly higher *number of visits to relevant pages*.

Taken together, these results are consistent with the assumption that the comparatively smaller advantage of girls over boys in digital reading as compared to print reading might be due to the fact that boys, who are on par with girls in print reading, tend to navigate slightly better. One should, however, bear in mind that *unconditionally*, girls are not only better readers than boys, but also navigate more proficiently in the electronic environment.

The analyses provided so far in this chapter underscore the importance of navigation for the comprehension of digital text. In particular, strong correlations between digital reading performance and the *number of relevant pages visited* were found, indicating that careful and comprehensive selection of task-relevant materials within a hypertext is one variable closely tied to digital reading proficiency in general. These associations are largely independent of students' print reading proficiency. Although the data provided here cannot ascribe causality, the statistical dependency of digital reading performance on navigation appears not to be a mere by-product of students' print reading proficiency. Rather, for two students with the same print reading proficiency, different digital reading scores are predicted, depending on how much of the material considered relevant to a given task they access, and depending on how often they access relevant pages. Some conclusions might also be drawn concerning different aspects of navigation, and their respective associations with digital text comprehension as assessed by the PISA digital reading assessment. Generally, it appears crucial that students systematically assess what they need to see in a hypertext and then access these materials. Doing more than that – visiting a lot more pages than required – apparently has no additional positive association with digital reading proficiency.

CASE STUDIES: NAVIGATION BEHAVIOUR OF STUDENTS IN SELECTED DIGITAL READING TASKS

The remainder of the chapter presents case studies of the navigation behaviour observed among students for six individual tasks from three units used in the PISA 2009 digital reading assessment: *IWANTTOHELP, SMELL* and *JOB SEARCH*. The case studies illustrate how some of the findings in this chapter operate at the task level.

The units used in the PISA 2009 digital reading assessment were designed to vary considerably in the complexity of text processing and navigation demands. The six tasks analysed in these case studies were chosen to illustrate this variety. The analysis describes a range of strategies used by students in response to these different task demands. It identifies behaviours that are associated with students who show higher digital reading proficiency, and other behaviours that are associated with students who show lower proficiency. This analysis offers a sense of the range of strategies used by good readers and by less effective readers. These strategies vary from task to task, as do the specific questions investigated.

To date, empirical studies of readers' navigation behaviour in individual reading tasks have mostly been conducted on a small scale (Barab, *et al.,* 1996; Madrid and Cañas, 2008; McEneaney, *et al.,* 2009; Puerta Melguizo, *et al.,* 2008; Rouet, 2003). The PISA 2009 digital reading assessment allows for a large-scale examination of students' navigation behaviour in response to a variety of individual reading tasks by analysing the log files that capture every navigation step made by students as they respond to each task, as well as the time they spend on each page.

Data of this kind allow for analysis of the different kinds of behaviour students exhibit when confronted with different tasks. It is possible to observe how much exploration stronger and weaker readers typically engage in when confronted with new reading stimuli, as well as the extent to which this level of exploration varies according to the demands of individual tasks. It is also possible to observe under what circumstances readers avoid visiting pages not obviously relevant to the task, and when, by contrast, they are more likely to explore the available material. The analysis allows for a consideration of the value of categorising students according to the behaviours referred to earlier in this chapter as "knowledge seekers", "feature explorers" and "apathetic users" (Lawless and Kulikowich, 1996).

The case studies provide evidence of specific navigation sequences, including when better readers decide to visit specific pages multiple times, and when they deem a single visit sufficient. They describe navigation behaviours typically employed by weaker readers and contrast these with behaviours of better readers. Information is provided about the activity of students who fail to gain credit or to provide responses to particular questions, for example, how much navigation (if any) they engage in, and whether or not they locate all the relevant pages. The case studies also show the amount of time students spend on tasks with differing demands, and on pages containing information necessary to answering the question. The behaviours of students who answer questions successfully and unsuccessfully are compared. Differences in patterns of navigation behaviour between girls and boys are described. For example, the analysis provides evidence of how far it is true to say that boys are likely to engage in more navigation (that is, to click on more links) than girls. The analysis focuses mainly on digital reading performance, but when relevant, comparisons between performance by different sub-groups in digital and print reading are also examined.

The main aim of these case studies is to investigate patterns of behaviour observed when students perform individual reading tasks. The aim is not to report on navigation indices, as the first section of this chapter does, nor to relate these patterns to performance on the digital reading assessment as a whole. Rather, the case studies show the demands made by individual tasks, and the patterns of navigation behaviour used on these tasks by stronger and weaker readers. Therefore, the tables presented in the remainder of this chapter draw on somewhat different data and use different analyses from the statistics used in the other chapters and PISA 2009 volumes.

In this section, all figures relating to the numbers of students refer to those for whom log-file data are available, from all countries and economies that participated in the digital reading assessment. They may differ slightly from absolute numbers of students attempting each task. Group sizes are often too small for meaningful analysis at the country level; as a result, the analysis in this section is at the level of the whole sample of students to whom each task was administered. Scale scores are given to indicate the difficulty of each task; in addition, percentages of students in different score categories (full credit, partial credit, no credit, no response given) are provided to facilitate comparisons between different types of behaviours and the various sub-groups within each score category.

Although the tables in this section refer to similar measures referred to in the first section of this chapter, the *number of relevant pages visited*, *number of visits to relevant pages* and *number of page visits* are reported in absolute numbers in this section. For some tasks, additional counts are also presented: *number of pages visited*, *number of irrelevant pages visited* and *number of visits to irrelevant pages*. These are not analysed as indices, generalisable across the entire digital reading assessment, but are related to individual tasks. They are presented in absolute terms, not centred or standardised. Because the behaviours are identified according to issues relevant to individual reading tasks, rather than associated with framework variables or patterns of performance by country, the analyses present unweighted numbers (to illustrate the absolute frequency of particular behaviours), percentages of students, and unweighted mean scores.

Tasks analysed in the case studies

Figure VI.3.9 lists the six tasks analysed in Chapter 3. As described at the beginning of this chapter, the pages that students can view in the course of each task can be categorised as *necessary* (that is, the pages students need to visit to locate the information required to answer the question), *relevant* (pages that may or may not be essential, but contain useful information that may assist students), or *irrelevant* (pages that contain no information that will assist students in completing the task successfully). The sum of all pages that students can view, by using all links and tabs, represents the number of *available* pages. Figure VI.3.9 summarises features of the task related to navigation and text processing: the number of pages of each type, and an indication of the quantity and complexity of the text students need to process. It also shows the percentage of students who obtained credit, the mean time spent by all students on each task, and the average number of pages visited by students during each task.

Figure VI.3.9 shows that, for example, in *IWANTTOHELP* Question 1, students can locate the necessary information on a single page (that is, the starting page for the task) containing only a small amount of simple text. This is the only relevant page for this task, although there are 31 pages available to students during this task if they decide to explore all the possibilities. The task is relatively easy (digital reading scale score 362). The mean time spent on the task is 66 seconds, and the mean number of pages visited by each student is 1.6. Other tasks require students to visit two, three or more pages, each containing text of varying lengths and complexity.

The section at the end of Chapter 2, comprising examples of the PISA 2009 digital reading units, provides a detailed description of all the tasks in each of these units. They can be viewed on line at w*ww.pisa.oecd.org*.

■ Figure VI.3.9 ■

Summary of characteristics of digital reading tasks analysed in this section

	Task features					Student response				
	Navigation			Text processing		Performance	Behaviour			
							Time on task (seconds)		Number of pages visited	
Task	Necessary pages[1]	Relevant pages	Available pages	Quantity of text	Complexity of text	Digital reading scale score	Mean	S.D.	Mean	S.D.
IWANTTOHELP **Question 1 E005Q01**	1	1	31	Short: one short text (less than 200 words)	Low level: simple. informal language	362	66	41	1.6	2.1
IWANTTOHELP **Question 2 E005Q02**	2	2	31	Short: two short texts (essential information is in 50-word text)	Low level: simple, informal language	417	39	29	2.4	1.8
IWANTTOHELP **Question 4 E005Q08**	5 or more	13	31	Long: multiple texts, each with multiple sections	High level: some formal text, some technical language, relatively unfamiliar situation	Full credit: 567 Partial credit: 525	183	123	11.2	8.8
SMELL **Question 1 E006Q02**	2	2	13	Medium: set of six search results, plus relatively long text (230+ words)	Medium-high level: some dense text, popular scientific language, familiar topic	572	88	49	2.4	2.4
SMELL **Question 3 E006Q06**	3	3	13	Long: multiple texts of varying lengths (longest is 400+ words)	Medium-high level: some dense text, popular scientific language, familiar topic	485	85	51	4.1	3.9
JOB SEARCH **Question 2 E012Q03**	3	4	8	Medium: multiple short texts	Low: mainly informal language, personal, familiar topic	Full credit: 624 Partial credit: 462	153	81	5.5	4.4

1. Including the page where the task starts.
Source: OECD. *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435397

The number of available pages in each task is relatively modest. This restriction was a deliberate decision made by those who developed the test: it was seen as critical that students were presented with a set of tasks they could reasonably be expected to complete in the available time, in order to allow an adequate assessment of their ability to respond to these tasks. Another consideration arose as the test was developed: students need guidance in locating the information necessary to answer the questions. There is no value in including tasks where large numbers of students become disoriented, confused and frustrated because they cannot locate the necessary pages. The result is that some of the tasks provide explicit directions about links to click on and pages to visit. Others are somewhat less explicit, since it was considered important to assess the extent to which students were able to locate necessary information by themselves. As indicated by the substantial amount of variation in the navigation indicators *number of relevant pages visited* and *number of visits to relevant pages* (Table VI.3.1), students did differ in the degree to which they visited pages containing necessary information. These issues, concerning available material and explicitness of guidance, play an important role in students' ability to navigate in the digital medium.

Each of the case studies that follow starts with the task that students see, followed by a set of questions to be explored, a description of essential features of the task, and a list of the necessary pages (pages that students need to visit in order to locate the information required to respond successfully to the task). Since each task raises different issues, the discussions that follow vary.

IWANTTOHELP

IWANTTOHELP – *QUESTION 1*

Read Maika's blog entry for January 1. What does the entry say about Maika's experience of volunteering?

Questions for this task

This is the first task in this unit, and therefore lends itself to consideration of how much students explore when presented with new stimuli. Although the task requires no navigation and there is little text that students need to process, they have the opportunity to investigate numerous links, both within the website of the starting page (Maika's Blog) and within another website accessible from a hyperlink on the starting page.

- What proportion of students visited pages not necessary for answering the question?
- Is increased navigation associated with higher digital reading performance?
- Are there differences in the patterns of navigation used by boys and girls?
- Are any observed gender differences associated with differences in reading performance?

Essential features of the task

The context for this unit is a blog for Maika, who is interested in doing volunteer work. This is a relatively simple task, requiring students to read one short, simple text. The instructions direct them to look only at the text at the top of the open page, making a literal match between the date in the question and in the heading for Maika's blog entry, "Tuesday, January 1". No navigation is needed, as the task directs students to read only this page and the information required to answer the question can be seen on this page without scrolling.

When students start this unit, two tabs are open: the active (visible) tab, Maika's Blog (P24), and a second one, *IWANTTOHELP* (P01). Students may click on the other available tab, "iwanttohelp.org" (P01), or on the link in Maika's Blog that goes to the same page. There are several other links available on Maika's Blog, leading to additional pages, but none of them is relevant to this question.

This was a relatively easy question (digital reading scale score 362), with over 84% of students receiving credit (Table VI.3.10). The mean digital reading score for students who answered unsuccessfully was low (385 for girls, 317 for boys), and even lower for the small proportion who did not attempt the question (306 for girls, 287 for boys).

Necessary page

- P24[4]: Maika's Blog Home page

Exploring

Overall, few students engaged in much exploration in this initial task in the unit: 83.5% of students did not go beyond the page that is open at the start of the task, the only page relevant to this task.

Boys (19.3%) were more likely than girls (13.7%) to visit one or more pages other than the starting page (Table VI.3.11). There was no difference in the mean proficiency level of boys viewing only the starting page compared to those visiting multiple pages. However, girls who did no navigation beyond the starting page had a higher mean score (508) than those who visited two or more pages (493).

Exploration of the available links and pages for this task, where there is only one relevant page, is not generally indicative of the behaviour of good readers, consistent with what has been described above. The great majority of students who obtained credit successfully found the answer by reading the starting page, with no further navigation (70.8% of all students). The pattern that emerges beyond this is that as the number of pages visited increases, the mean ability of the students diminishes (Table VI.3.12).

In terms of *number of page visits*, when all students obtaining full credit are examined as a group, there is very little difference in digital reading proficiency among those who visited only the starting page where the necessary information can be found (519), or made three page visits (520) or five page visits (523) (Table VI.3.13). When girls

and boys are considered separately, however, a slightly different picture emerges. The girls with the highest reading proficiency for both digital (526) and print (530) were those who visited *no* pages other than the starting page. Those making three or five page visits had slightly lower scores, though the difference is not significant. The boys with the highest mean reading score in both digital (524) and print reading (508) are the small group who made five page visits (2.1% of all boys). Their score for digital reading is similar to those with three page visits (521), but considerably higher than for those boys who visited no pages other than the starting page (511). It seems, then, that while most students, both boys and girls, do not engage in unnecessary navigation, small groups of good readers do choose to explore the available navigation space. This provides a qualification to the suggestion by Lawless and Kulikowich (1996) that so-called "feature explorers" tend to demonstrate lower performance in reading tasks.

The small proportion of students who visited two pages (that is, only one page other than the Necessary page) had a much lower reading ability in both digital and print reading, similar to those who visited 10 or more pages. In most cases the second page visited was the other available tab ("iwanttohelp.org"), which contains no information relevant to the task. It seems that these students were pursuing no clearly directed activity and did not actively explore the available content, since they went no further than the single extra page. Minimal undirected exploration seems to be a behaviour characteristic of less proficient readers. It may be that a single cursory click on an additional page is a mark of confusion or uncertainty, whereas students who explore further are taking the trouble to satisfy themselves that they have found all the relevant information, or at least determined that they do not need to continue with lots of additional page visits.

There is a suggestion from the navigation patterns for this task that, in general, the more proficient readers assess the task requirements and adapt their navigation behaviour accordingly. Where no navigation is required, the better readers tend not to engage in navigation that appears irrelevant. There are, however, small groups of good readers who do actively explore a number of pages; boys with good reading ability are slightly more likely than girls to do this. This exploration may result from the fact that this is the first time students have encountered this set of material, and their exploration is intended to give them a sense of the overall context and scope of the kind of material that is available.

SUMMARY

- Students most commonly acted strategically for this task, using the task directions and remaining on the starting page, where the target information is available.
- Few students engaged in lots of exploration ("feature explorers"), but those who did explore tended to perform better if they engaged in a relatively thorough fashion.
- There is some difference in the navigation behaviour of girls and boys. The highest-performing (and largest) group of girls did not go beyond the starting page, while for the highest-performing group of boys (a very small group), the optimum number of page visits was five. This suggests that for those boys (and to a slightly lesser extent, girls) who deem it important to explore the site, this is a useful strategy. This exploration may be more relevant in the first question in the unit (first encounter with the stimulus) than in later questions.
- A single click on an irrelevant page, with no follow-up, is characteristic of lower-proficiency students, and does not seem as effective as either remaining on the single relevant page or more thorough exploration.

IWANTTOHELP – *QUESTION 2*

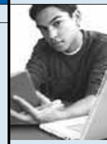
Go to Maika's "About" page.

What kind of work does Maika want to do when she leaves school?

Questions for this task

The main issue for this question relates to the behaviour of students who did and did not visit the target page where the information can be found.

- What proportion of students visited the target page, Maika's "About" page, P25?
- What proportion of students gained credit for the task without visiting the target page? What evidence is there that these students guessed?



- What behaviour is most commonly associated with students who received no credit?
- Is there evidence of students seeking but failing to find the target page?
- Are any gender differences associated with any of these patterns?

Essential features of the task

This task requires students to follow a link on the starting page to a second page (P25). Identifying the link relies on making a literal match with the task wording. Once students find the target page, the text is very short. The task is relatively easy (digital reading scale score 417), with just over 76% of students answering it correctly (Table VI.3.14).

Necessary pages

- P24: Maika's Blog Home page
- P25: Maika's "About" page

Guessing

This task requires students to click on a link from the starting page (the Home page for Maika's blog, P24) to Maika's "About" page, P25, in order to find the answer. The data show that the great majority of students (almost 80%) visited this page (Table VI.3.14). Those who did not visit the page would have had to guess an answer, unless they had already visited the page while answering Question 1, and remembered the answer. Using their memory in this way is likely to be a mark of a good and careful reader, and the data do not support the notion that they were good readers relying on their memories: the small percentage (3.9%) who received full credit but did not visit P25 had a much lower reading ability than those who followed the link to P25. This suggests that they did in fact guess. Boys (4.9%) were slightly more likely than girls (3.0%) to guess.

Of the 79.8% of all students who did visit P25, about 90% received credit (credit: 72.6% of all students; no credit or no response: 7.2% of all students). About two-thirds of those who received no credit (including students giving no response: 16.3% of all students) also failed to visit P25. Boys were slightly more likely than girls not to visit P25, and this is reflected in their performance on the task as well as in their overall reading score.

Efficiency of navigation

For students receiving credit for this task, those who followed the most efficient navigation path, clicking directly and only on P25, Maika's "About" page, had a substantially higher mean digital reading score (532; see Table VI.3.14) than those who visited additional (irrelevant) pages (mean digital reading score = 512). The strategy of "knowledge seeking" appears most suitable here. This finding is in line with the negative quadratic trend found for the number of page visits in relating to digital reading proficiency, as described in the section "Non-linear effects of navigation on digital reading performance".

Of those requiring multiple clicks to locate P25, 358 students (1.6%) required five or more clicks to reach the page, and a further 189 students required four or more clicks to locate it, suggesting they had some level of difficulty in this access aspect of the task. A small number of students (86) seem to have become lost, visiting five or more pages, but not finding P25. These students had a low mean reading ability (448), similar to those who did find P25, but answered incorrectly.

SUMMARY

- The overall picture that emerges here is that most of the difficulty in this task consisted in following the task instructions and finding the correct page, using a literal match; the text processing task, once they had found the page, was relatively simple.
- A small but significant minority of these students also visited one or more irrelevant pages. This irrelevant navigation was associated with students of lower proficiency, suggesting that it was counter-productive. In contrast to the first question in this unit, exploration seemed to be no longer of value.
- About 20% of students did not visit the critical page, and there is evidence that they guessed. A very small proportion of students engaged in a lot of navigation, but did not find the critical page. It seems that careful attention to the demands of the task might assist here.

IWANTTOHELP – *QUESTION 4*

Read Maika's blog for January 1. Go to the iwanttohelp site and find an opportunity for Maika. Use the e-mail button on the "Opportunity Details" page to tell Maika about this opportunity. Explain in the e-mail why you think the opportunity is suitable for her. Then send your e-mail by clicking on the "Send" button.

Questions for this task

This task allows for an investigation of how students deal with the demands of a complex task requiring a combination of multiple navigation steps and integration of information from multiple texts. There are numerous pages available, necessary, relevant and irrelevant, as well as directions in the task that assist students in navigating efficiently. This task offers the best illustration, among the six tasks analysed, of the variations in navigation behaviours that students exhibit.

- How much time did students typically spend on this complex task, and how many pages did they typically visit? How wide was the variation in these behaviours?
- What evidence is there that exploration of the available space is typical of higher proficiency students in this kind of task?
- What proportion of students followed the most efficient pathways? How did use of these pathways relate to overall proficiency? What evidence is there of inefficient navigation?
- What navigation behaviours were used by students who received no credit or gave no response for this task? Did they locate the critical pages? Did they engage in much irrelevant navigation?

Essential features of the task

This is the final question in this unit. It is a complex task that requires students to follow a series of links to locate one or more volunteering opportunities. They need to use information given on the page where the task starts, Maika's Blog, in selecting a suitable opportunity from the four possibilities. They then need to write a short explanation for their selection and send it as a message. There are two suitable opportunities, and students gain credit for selecting and justifying the choice of either one. There are 31 pages available for them to navigate to in total, of which 13 are relevant; they need to visit a minimum of five pages to provide a valid response to the question.

Slightly over 42% of students (46.7% of girls; 37.9% of boys) obtained full credit (digital reading scale score 567) for this question (Table VI.3.15). Some 14% obtained partial credit (digital reading scale score 525), while fewer than 5% answered the question but obtained no credit. The number of students giving no response was especially high for this item (around 40%). The high non-response rate may be attributable in part to the multiple demands, including navigation, of this complex task.

Necessary pages

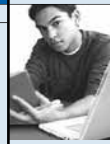
This task offers a range of necessary and relevant pages, depending on evaluations students make. There are two equally short possible navigation paths that students can follow in order to obtain credit, described below as Pathway A and Pathway B. Each of these pathways involve visits to five pages.

Pathway A

1. P24: Maika's Blog Home page
2. P01: iwanttohelp Home page
3. P02: Latest opportunities
4. P04: Graphic Artist opportunity details
5. P08: E-mail this Opportunity to a Friend (Graphic Artist)

Pathway B

1. P24: Maika's Blog Home page
2. P01: iwanttohelp Home page
3. P02: Latest opportunities
4. P07: Upway Primary School – Work with kids opportunity details
5. P11: E-mail this Opportunity to a Friend (Upway Primary School – Work with kids)



Students may complete the task successfully, and obtain credit, by using either Pathway A or Pathway B, but they more often visit at least seven pages, including the two expected additional pages described below:

Expected additional pages

6. P35: Edit or Send your message (Graphic Artist)
7. P12: E-mail confirmation: "Your message has been sent successfully."

OR

6. P36: Edit or Send your message (Upway Primary School – Work with kids)
7. P12: E-mail confirmation: "Your message has been sent successfully."

Students may obtain credit for having completed the reading task if they omit these two final steps; that is, they receive credit for finding a suitable opportunity and giving an explanation relating to its suitability even if they do not send the information in an e-mail message as directed by the task.

The full list of 13 relevant pages is shown in Figure VI.3.10.

■ Figure VI.3.10 ■

Relevant pages for *IWANTTOHELP* – Question 4

Page ID	Page content
P01	*IWANTTOHELP* Home page
P02	Latest opportunities
P03	FAQ
P04	Graphic Artist opportunity details page
P07	Upway Primary School – Work with kids opportunity details
P08	E-mail this Opportunity to a Friend (Graphic Artist) page
P11	E-mail this Opportunity to a Friend (Upway Primary School – Work with kids)
P12	E-mail confirmation: "Your message has been sent successfully."
P24	Maika's Home page
P25	Maika's About page
P26	Maika's Contact details
P35	Edit or Send your message (Graphic Artist)
P36	Edit or Send your message (Upway Primary School – Work with kids)

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435397

Time spent on this task

This complex task required a lot of time (Table VI.3.16). The mean time spent on this task, for all students, was slightly over three minutes, the longest of any of the tasks presented in this chapter, although some other tasks in the PISA 2009 digital reading assessment required a longer average time. Students gaining full credit spent on average closer to four minutes; even those giving no response to the question spent on average around two minutes on the task. There is a correlation of 0.33 between time on task and score (Table VI.3.17).

Number and relevance of page visits

The mean number of pages visited by students obtaining full credit was 8.2 although students who gave a response made, on average, slightly over 13 visits to pages in total (Table VI.3.17). Some students made many more page visits than this, however: the maximum was 125 (Figure VI.3.11). There is a correlation of 0.32 between number of visits to pages and score (Table VI.3.17). The relatively high correlation of ability with pages visited (0.52) and with number of relevant pages visited (0.63) is consistent with what has been described in the first part of this chapter: students who visit only relevant pages tend to be better readers than those who explore all available material, including multiple irrelevant pages.

Table VI.3.17 shows that students receiving full credit, although they visited a similar number of pages (both number of pages visited and number of page visits) to those receiving partial credit and no credit, tended to visit fewer irrelevant pages than either of those groups: an average of 0.8 irrelevant pages visited and 1.2 visits to irrelevant pages. As students performed better on this task, they tended to make more relevant page visits, and fewer irrelevant page visits.

In contrast, students who obtained no credit visited, on average, 3.7 irrelevant pages and made 5.1 visits to irrelevant pages. This means that these students were wasting a substantial proportion of their extensive navigation activity on irrelevant pages that would not provide information useful for completing the task. Students who gave no response to the task still engaged in a significant amount of navigation, visiting, on average, 6.6 pages in total, most of which were relevant.

Variation by country

Since this task is the most complex, in terms of navigation, of those analysed in this chapter, it is worth considering variations among countries in the time spent as well as the number and relevance of pages visited (Table VI.3.18). Countries' mean scores on this task were generally closely aligned with their overall means on the digital reading assessment, with only Denmark (performing considerably more weakly on this task) and France (performing considerably more strongly) showing much variation between their mean score on this task and their mean digital reading score overall. Students in northeast Asian countries spent the most time on this task: Japan (mean of 254 seconds, a little over 4 minutes), followed by Macao-China, Hong Kong-China and Korea (241, 238 and 223 seconds, respectively). In contrast, several European countries spent the least time: Austria, Hungary and Iceland (139, 151 and 155 seconds, respectively).

For most categories of potentially useful navigation (number of pages visited, number of relevant pages visited, number of visits to relevant pages and number of page visits), east Asian countries tend to have the highest means, consistent with time spent on task, although their rank order varied somewhat. Students from the partner economy Hong Kong-China tended to visit the most pages in total (17.6), followed by the partner economy Macao-China (16.8), Korea (16.2) and Japan (15.0). For total relevant page visits, the rank order was Hong Kong-China (14.4), Korea (13.5), Macao-China (13.0) and Japan (12.5). The number of relevant page visits showed some variation from this pattern, however, with Korea, the highest-performing country, having the highest mean (7.1), followed by New Zealand and Japan (6.3), then Hong Kong-China (6.2) and Australia (6.1); these were the five countries with the highest overall means for digital reading, as well as the highest average numbers of relevant pages visited overall (Table VI.3.1).

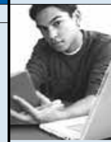
In contrast, students in Colombia, Chile and Austria visited far fewer pages: 4.1 pages in Colombia and 5.1 pages in Austria and Chile. Similarly, pages visited and relevant page visits were also significantly lower in these countries: Colombia (3.3 relevant pages visited, 5.4 relevant page visits), Chile (4.2 and 6.9, respectively) and Austria (4.3 and 6.9, respectively).

Students in the partner economies Macao-China and Hong Kong-China had the highest number of visits to irrelevant pages (irrelevant pages visited: 2.0 and 1.8, respectively; total irrelevant page visits: 3.7 and 3.2, respectively), followed by Korea and Japan (2.7 and 2.5, respectively). The country with the fewest irrelevant pages visited was Australia (0.6), followed by Norway, Iceland, New Zealand and Ireland (all 0.7). Students in two of these countries also visited, on average, less than one irrelevant page in total: Norway 0.8, and Australia 0.9. Means of students in Iceland and Ireland (1.0) and New Zealand (1.1) were only marginally higher.

Initial navigation sequences

Students had four options to choose from. Pathways A and B, described above, led directly to the two opportunities suitable for Maika. Parallel pathways for may be described as Pathways C (for "Vegfest") and D (for "Help fix up Twin Falls Track!"). These seem efficient, but both could be eliminated on the basis of information provided in Maika's Blog, which states that she is looking for a longer-term opportunity.

Substantial numbers of students who were awarded credit followed Pathway A or B as their initial navigation sequence (Table VI.3.19). Student gaining full credit had somewhat different overall proficiency scores according to which of these pathways they chose. Those who began with Pathway A (13.9%) had slightly higher reading proficiency (577) than the mean of all students at each score level; those who began with Pathway B (only 1.3%) had significantly lower mean scores (535). For students awarded partial or no credit, the mean score of those starting with Pathway A was significantly higher than for Pathway B (and for Pathway C or D).There are several possible reasons for choosing Pathway A: Maika's Blog notes that she wants a longer-term position, and the "Graphic Artist" opportunity is "ongoing"; Maika's "About" page refers to her interest in web design, which allows the inference that a "Graphic Artist" opportunity is likely to be relevant to her; and this is the first opportunity in the list.



Students who received no credit rarely started with either of the most efficient navigation sequences. Only nine students began with Pathway A, and a single student began with Pathway B. This contrasts with 3 333 students (15.2%) who were awarded full credit, and a further 902 (4.4%) who were awarded partial credit, who began with Pathway A or B.

Few students who were awarded credit (15 students in total: 8 with full credit, 7 with partial credit) began with Pathway C or D. In contrast, only 18 students who were awarded no credit began with Pathway A or B, whereas 260 (1.2%) of those students began with Pathway C or D (mean scale score = 462). In all, 4 263 students (19.3%) embarked on and followed Pathway A or B within four steps of starting their navigations for the task, and the great majority were awarded credit. In contrast, 275 chose Pathway C or D, almost all of whom were awarded no credit.

This suggests either that better readers begin with more efficient navigation pathways, or that students benefit from starting their navigation pathways in the right direction. The data do not allow any clear view on which of these is more likely; but a close reading of the information presented on the first pages students are likely to see, the table summarising opportunities, and the information given in Maika's Blog identifying information that is relevant to the reading task, would seem to improve the likelihood that students set off on a suitable path, and may reduce the likelihood that they become confused or frustrated as a result of lengthy and unhelpful navigation.

Inefficient navigation

Although many students began their navigation with the most efficient pathways (A or B), the majority did not, whether or not they were awarded credit (Table VI.3.19). This is perhaps surprising, since the task directions, which state the purpose of the task, would tend to direct students to one of these efficient pathways. Nevertheless, there is no significant difference between all students who obtain full or partial credit and those with the same credit level who began with Pathway A. It seems that students will choose a variety of pathways, not necessarily the most efficient, to successfully reach the same end.

The concern, however, is less with those who did obtain credit than those who performed poorly. Many students who gave no response failed to locate necessary pages (Table VI.3.20). Some 4 475 students (about 20%) who gave no response visited four or fewer pages, whereas the minimum sequence needed to obtain credit is five pages. The table shows a clear link between the number of pages visited and mean ability, in both digital and print reading. Those who did not move beyond the starting page had a (low) mean score of 350 for digital reading and 396 for print reading. This may be a sign of disengagement in the task. At the other end of the spectrum, those who visited 11 or more pages (2.3% of students with no credit; 8.1% of students who gave no response), had much higher mean scores for digital reading, even though they received no credit. Their scores were similar to those among students who received no credit (467) and among students who gave no response (463). It seems that many students navigate a great deal to no effect.

Variations in individual student behaviour

Figure VI.3.11 gives a sense of the range of time taken and pages visited by individual students. The time spent for an answer receiving full credit varied from as little as 46 seconds to 1 511 seconds (over 25 minutes), with visits to pages varying between 5 and 125. The persistence of this student paid off, as he received full credit and also managed to complete all items in the assessment.[5] One girl who obtained full credit spent 1 000 seconds (nearly 17 minutes) on the task, visiting 24 pages in the process. This was clearly an ineffective strategy, as she failed to complete 6 of the 19 items in the test, a factor that would have contributed to her relatively low digital reading score (360) compared to print (407). Some students who received no credit, or gave no response, spent similar or even longer times on the task.

A few students (four girls and five boys) who were awarded full credit visited only the minimum number of necessary pages (five). Others, regardless of their score on this task, visited many more than this. In contrast, another student, despite visiting 85 pages, ultimately gave no response to the question. His digital reading score (220) was much lower than his print score (429). In this case, facility in clicking on links was not associated with reading effectiveness in this medium.

This wide variation offers a good illustration of the highly disparate ways in which students construct their own texts as part of the process of responding to the task (see the discussion at the beginning of this chapter). Figure VI.3.11 provides a powerful indication of the extent to which students also vary in their ability to know what to do in the digital medium. This task offers a maximum of 31 available pages. Every page received at least 100 visits from students, while the average number of visits to each irrelevant page was 1 962 (data from 22 036 students were collected for this task).

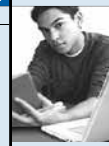
■ Figure VI.3.11 ■

Extremes of student behaviour for *IWANTTOHELP* – Question 4

Score	Time on task (seconds)	Gender	Country	Digital reading score	Print reading score	Number of pages visited	Number of relevant pages visited	Number of visits to relevant pages	Number of irrelevant pages visited	Number of visits to irrelevant pages	Number of page visits	Number of items not reached	Number of items reached, with no response	Comment
Full credit	1 511	boy	New Zealand	469	458	24	11	91	13	34	125	0	0	Most page visits (boy)
	959	girl	Norway	427	374	16	10	62	6	18	80	0	6	Most page visits (girl)
	697	girl	Hong Kong-China	582	587	9	9	58	0	0	58	0	2	Most pages visited, all relevant (girl)
	565	boy	Ireland	484	437	9	9	51	0	0	51	0	2	Most pages visited, all relevant (boy)
	548	girl	Colombia	502	506	15	12	43	3	5	48	3	0	Equal highest number of unique relevant pages visited (all)
	1 000	girl	Colombia	360	407	8	7	18	1	1	19	6	2	Longest time for full credit (girl)
	46	girl	Korea	473	505	7	7	7	0	0	7	0	0	Shortest time for full credit (girl)
	47	boy	New Zealand	305	403	7	5	5	2	2	7	5	8	Shortest time for full credit (boy)
	121	girl	Iceland	688	694	5	5	5	0	0	5	0	0	Equal fewest page visits for full credit (girl)
	160	girl	Poland	620	589	5	5	5	0	0	5	0	0	Equal fewest page visits for full credit (girl)
	254	boy	Belgium	601	547	5	5	5	0	0	5	0	0	Equal fewest page visits for full credit (boy)
	222	boy	Japan	517	494	5	5	5	0	0	5	0	0	Equal fewest page visits for full credit (boy)
Partial credit	722	boy	Macao-China	498	513	18	10	45	8	55	100	0	0	Most pages, most irrelevant pages, partial credit (boy)
	939	boy	Macao-China	394	270	21	12	49	9	44	93	0	1	Longest time for partial credit (boy)
	638	girl	Austria	502	568	10	9	64	1	3	67	0	0	Highest total relevant page visits, partial credit (all)
	573	boy	Hong Kong-China	422	536	26	12	41	14	23	64	0	1	Most unique pages visited (all)
	973	girl	Macao-China	394	446	17	9	30	7	22	52	0	3	Longest time for partial credit (girl)
	29	boy	Ireland	455	424	7	7	7	0	0	7	0	0	Shortest time for partial credit (boy)
	38	girl	Australia	532	512	7	7	7	0	0	7	0	0	Shortest time for partial credit (girl)
	313	girl	France	548	502	5	5	5	0	0	5	0	1	Equal fewest pages visited for partial credit (all)
No credit	639	boy	Korea	394	324	20	7	40	13	45	85	0	2	Most page visits for no credit (all)
	868	girl	Austria	383	385	11	4	10	7	26	36	0	4	Longest time for no credit (girl)
	1 192	boy	Hungary	302	509	11	7	16	4	5	21	0	5	Longest time for no credit (boy)
Missing	1 058	boy	Sweden	220	429	20	8	43	12	42	85	0	4	Most page visits, no response (boy)
	840	girl	Macao-China	334	366	12	5	21	7	39	60	0	2	Most page visits, no response (girl)

Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435397

The 31 pages in this task represent a miniscule proportion of what is available in the real digital world. In that sense, the navigational demands of this task are far less than what readers may face as digital readers in their daily lives. Some students are capable of operating with great speed and effectiveness when presented with this kind of material, suggesting that they would easily cope with far greater demands. However, many other students appear to become disoriented, and to spend a great deal of time to little or no effect when presented with a reading task requiring them to synthesise information on one website in order to locate and evaluate information on a second website. This emphasises the need for clear guidance by teachers in how to approach reading tasks when students are required to use the Internet for seeking information, and when they are required to evaluate the available information. Simply sending students to the Internet without clear guidance is likely to be a waste of time and lead to frustration and poor learning.



SUMMARY

- This kind of task does not lend itself to a superficial approach. Good readers tend to visit as many pages as they deem necessary, with repeated visits, until they are satisfied with their answer.
- Patience with the complexity of the task is important. It is not generally possible to complete this kind of task adequately without devoting sufficient time to it.
- Many students appear to abandon early on any attempt to complete the task – among those who receive no credit, the fewer pages they visit, the lower their proficiency tends to be. This may be a sign of disengagement or frustration with the task, or of confusion about how to proceed.
- Careful reading of the information presented on the first pages is more strongly associated with students who receive credit. Simply continuing to navigate, without direction, does not appear likely to get students back on track.
- Many students do not navigate efficiently. The number of visits to irrelevant pages is high.
- Students need guidance in clarifying the task they face, in selecting relevant links and pages, and in avoiding irrelevant ones. This will improve the efficiency of their navigation efforts, reducing both the time and the effort they spend unproductively.

SMELL

SMELL – *QUESTION 1*

Go to the "Smell: A Guide" web page. Which of these statements best expresses the main idea on this page?

Questions for this task

This task allows for an investigation of how students react when presented with that commonest of digital texts, a set of search results. While the task directions are explicit, the possibility remains that students will explore, visiting pages that are irrelevant to completing the task. The text-processing demands of the task are considerably higher than the navigation demands.

- What proportion of students follows the most efficient (minimal) navigation pathway required for answering this question?
- To what extent do students explore the available pages?
- What differences are there between students who visit the target page, where the information necessary to answer the question can be found, and those who do not?
- What proportion of students guesses the answer to this question?
- How is time spent on the target page related to performance?

Essential features of the task

This question is the first in the unit. It explicitly directs students to navigate to the page, "Smell: A Guide" (P02), and identify the main idea of the text on this page. The question requires limited navigation. The starting page presents a list of six search results for the term "smell". Students need to select one link from the list (the first in the list) by making a literal match between the question wording and the search result. They then need to read the text on the page that opens in a new tab, scrolling down to read the entire text. Links from the search-results page to other pages allow a maximum of four tabs to open in this task: the "Global Search" (P01) page, plus the pages "Smell: A Guide", "Food in the news" and "Psychology Now". The links to the remaining three results lead to a page that states, "This page has no content available", and has a link back to the search-results page.

The text containing the necessary information is not short (over 230 words), relatively dense, and contains some terms commonly found in texts dealing with popular science. Students will typically need to spend a significant amount of time on this page; those who spend very little time on it are less likely to answer correctly. The task is relatively hard (digital reading scale score 572), with only 42.4% of students awarded credit (Table VI.3.21). The difficulty most likely stems from the need to read the text carefully, distinguishing between pieces of strongly distracting information (see Chapter 2, Examples of the PISA 2009 digital reading units), rather than from navigation demands.

Necessary pages

- P01: Global Search results
- P02: Smell: A Guide

Navigation to the target page

Students who visited P02 had much higher overall reading proficiency than those who did not, whatever their score for this question (Table VI.3.22). Almost all students who visited this page also responded to the question: only 0.8% gave no response.

Guessing

Those who did not visit P02 would have had to guess. In all, 18.6% of students guessed their response (Table VI.3.22). This type of information is not available in print-administered assessments. If a large proportion of students guessed correctly, this would undermine confidence in the assessment, but few of these students (fewer than 5% overall) were awarded credit. Among students receiving credit, there is a large difference in digital reading ability between those who *did* visit P02 (552) and those who *did not* (456). In all score categories, students who visited the necessary page show higher proficiency than those who did not. For those receiving credit, girls (39.8%) were more likely than boys (34.3%) to visit the page rather than guess, and a similar pattern was observed among those who attempted the question but received no credit. This again underscores the importance of learning how to search for relevant information.

Time spent on the relevant page

Students who answered the question successfully spent noticeably more time on P02 (12 or 13 seconds longer, on average) than those who answered incorrectly (Table VI.3.22). Girls spent slightly longer on the page than boys. The very small proportion (fewer than 1%) who visited P02 but gave no answer to the question spent much less time on the page.

Good readers tend to spend sufficient time on the relevant page to read and locate essential information.

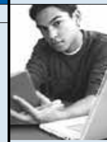
Exploring

This task does not invite exploring as some other tasks might. It starts with a list of search results, but the question explicitly directs students to visit a single page.

Table VI.3.23 shows figures for girls and boys who received credit for this question, according to the number of pages they visited, their digital reading score, and the time they spent on P02. The students with the highest mean ability are those who visited only two pages: the starting page and (in the great majority of cases) the target page, P02. Consistent with the demands of this task, the students who were awarded credit who visited only the necessary page were better readers than students who explored. This group accounted for one-third of all students, with girls (35.7%) more likely to follow this straightforward path than boys (29.1%). The lowest-performing group is composed of students who did not visit P02, but guessed correctly.

Students who visited between four and seven pages showed a higher level of proficiency than those who visited only three pages, or who visited eight or more pages. This suggests that many good readers make a deliberate decision to do a certain amount of exploring of the available material, but not too much. There is more evidence here of strategic behaviour by the better readers: a single click on one additional page will be insufficient for the good readers, among those who decide to explore the available pages, to be sure they have a good idea of the information that can be viewed; but they tend to be careful to limit their exploration and not waste time looking at a large number of pages. This finding corroborates the general trend showing that large numbers of page visits are not helpful, as indicated by the non-linear trends for the test as a whole.

In addition, students need to spend adequate time on the page where the target information is found, where there is a relatively long, fairly complex text to read, rather than click on other pages to see if they might provide useful information. More able readers act strategically, ensuring that they spend sufficient time on the target page, P02: around 80 seconds or slightly more, for most groups of both girls and boys. In contrast, those who visited three pages also spent the shortest amount of time on the target page of any sub-group (68 seconds on average, both girls and boys), and this is reflected in their (low) mean reading score.



Efficient reading

Most students visited P02 only once, suggesting that they did not feel the need or desire to explore the information available on additional pages that would most likely be irrelevant to the task. Behaviour seems to be influenced by the nature of the task, which is highly constrained, with explicit guidance on navigation.

Among students who were awarded credit for this question, any additional visits to P02 were associated with substantially lower proficiency for girls (Table VI.3.24). Among boys, there was not a large difference between those who visited P02 once and those who visited the page twice; lower proficiency was more marked for those who visited the page more than twice. The numbers making multiple visits to P02 were small, so caution is needed in drawing conclusions.

Among students who gained no credit for this question, relatively few visited the target page, P02, more than once. Here, boys who made two visits had higher reading scores than those who visited the page either only once or more than twice. This suggests that these students are engaged in the task, since they take multiple navigation steps, but they are unable to complete the reading task successfully. For girls, it seems that an increase in the number of visits to the page is equated with a reduction in reading proficiency. It is possible that students who make multiple visits to the page find the text-processing demands too great, and eventually decide to guess.

SUMMARY

- Navigating to the correct page more strongly suggests a good reader than guessing without reference to the critical material. There are no surprises here, but this analysis allows us to demonstrate that this is true.
- Those who find and view the material on offer, even if they don't read it carefully, tend to be better readers than those who do not visit the necessary page.
- The more proficient readers spend a substantial amount of time processing the necessary page, and do not waste too much time investigating irrelevant links or revisiting the necessary page. There is a suggestion that girls may be somewhat more likely to be "knowledge seekers" (Lawless and Kulikowich, 1996) than boys.
- Where the task is constrained, a focus on locating the relevant page and spending adequate time on careful reading, rather than exploring the available material, is typical of better readers. The most able readers are most likely to make a single, careful visit to the target page, rather than repeated visits interspersed with other exploration.

SMELL – *QUESTION 3*

There is information about the smell of lemon on the pages "Food in the news" and "Psychology Now".
Which statement summarises the conclusions of the two studies about the smell of lemon?

Questions for this task

This task allows for an investigation of how students' ability to locate the necessary pages relates to their proficiency.

- What proportion of students visited the two necessary pages, P03 and P07?
- How do students visiting only the relevant pages compare with other students?
- What evidence is there that visiting additional pages is a sign of high or low ability?
- Is there evidence that some students engage in navigation but do not find the necessary pages?
- Is there evidence that very good readers might remember essential information from earlier visits to one of the necessary pages, thus obviating the need for them to visit that page again?

Essential features of the task

Students need to compare information on two pages, P03 (Food in the news) and P07 (Psychology Now), in order to identify a conclusion common to the information presented on both pages. The Food in the news and Psychology Now pages represent the kind of texts found in popular scientific online publications, with a strong commercial element. Students are likely to have already viewed and read P03, in the process of responding to the previous question (Question 2). Nevertheless, since the reference to the smell of lemon is not in a prominent place on P03, it seems unlikely that students would have remembered this detail sufficiently closely to answer this task with confidence.

As a result, they are likely to need to engage in scanning of both texts for information relating specifically to the smell of lemon. This task (digital reading scale score 485) was easier than Question 1 in this unit (Table VI.3.25), likely because of this need to focus only on specific information, and possibly because some of the material may by now have been more familiar to students.

Necessary pages

- P01: Global Search results
- P03: Food in the news
- P07: Psychology Now

Visits to necessary pages

The data show that when answering this question, the great majority of students (70.3%) visit P07, to which they had not previously been directed, and which was irrelevant to the previous tasks in this unit (Table VI.3.26). A smaller majority (56.9%) visited P03, to which they were directed in the previous question, while a substantial minority (28.1%) visited P02, the page required for the first question in the unit, but irrelevant to this question.

It may be assumed that students who did not visit P07 would have guessed, since it is unlikely that they had both visited P07 on one of the two previous questions in this unit and recalled accurately the information necessary to answer a question they had not seen.

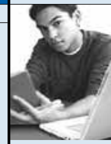
Of the students who were granted credit for this question, those who followed the pathway as directed in the question, visiting only the two relevant pages, P03 and P07, had a digital reading ability (563) substantially higher than the mean for all navigation pathways (534) (Table VI.3.27). Their digital reading ability was also much higher than that of students who visited only P07 (526) or P03 (495). Not surprisingly, those who were granted credit who visited neither P03 nor P07, and who therefore would have had to guess their answer, had much lower mean digital reading ability (439). Mean ability was similar in print and digital reading for groups with these navigation patterns. These results provide no evidence that good readers rely on their memory for information viewed during previous tasks in this unit: the highest reading ability among those awarded credit is shown by those who visit both P03 and P07.

Of students who answered the question unsuccessfully, the largest group (10.5%) either guessed (most likely) or relied on their memory of visits during previous questions, although this is unlikely since they would only have viewed P07 as part of an exploration irrelevant to those questions. That is, they clicked on no links, and did not visit either of the two necessary pages while completing this question. These observations suggest that these students made no real effort to answer the question; they were "apathetic users", in the terms of Lawless and Kulikowich (1996). A slightly smaller proportion (8%) visited P07 but not P03.

It is clear from Table VI.3.27 that there is a relationship between the proficiency of students and the amount of relevant navigation they engage in, regardless of the level of credit given. Those with higher proficiency tended to visit both the relevant necessary pages; the next proficient are those who visited only P07, the page not needed in previous questions in this unit. Below them are those who visited P03, but not P07; and the weakest are those who did not navigate beyond the search results page displayed at the start of the question.

SUMMARY

- The majority of students visited the necessary pages, but a significant number did not, which required them to guess. Those who guessed were unlikely to receive credit.
- Students who restricted themselves to visiting only the two pages containing the necessary information tended to have higher reading proficiency.
- A significant minority of students visited a page relevant to an earlier question in the unit, but irrelevant to this question.
- It is clear that significant numbers of students are not able to navigate efficiently in a task of this kind, with specific and restricted navigation demands.



JOB SEARCH

JOB SEARCH – *QUESTION 2*

You have decided to apply for the Juice Bar job. Click on the link and read the requirements for this job. Click on "Apply Now" at the bottom of the Juice Bar job details to open your résumé page. Complete the "Relevant Skills and Experience" section of the "My Résumé" page by choosing four experiences from the drop down lists that match the requirements of the Juice Bar job.

Questions for this task

This task allows for the examination of how the number of visits to relevant pages relates to proficiency.

- Is a single visit to the page containing the necessary information (the job advertisement, P03) indicative of a good reader, or are multiple visits more likely to be a sign of good readers?
- Is there a single efficient pathway commonly used by better readers?
- Do students become distracted by irrelevant pages? What does this tell us about their reading ability?
- What behaviours are demonstrated in this task by weaker readers?

Essential features of the task

This question is an example of a task that requires several navigation steps, which are explicitly described in the task instructions. Students need to locate and use information from one web page to make four decisions on another page, by selecting from drop-down menus. It is therefore to be expected that many students will need to switch between these two pages, but there are numerous possibilities for variation in navigation pathways chosen.

The task instructions are explicit in directing students to the pages to be visited, and are intended to prevent students from getting lost. There are two necessary pages for this task: P03 (Juice Bar job advertisement) and P13 (Relevant Skills and Experience drop-down menus).

Students are directed to refer first to P03 for the job specifications, to inform their choices when completing the drop-down lists.

For *JOB SEARCH* Question 2, approximately 30% of all students received full credit (digital reading scale score 624); 40% partial credit (digital reading scale score 462); and 30% no credit, with approximately equal proportions producing a no-credit answer and giving no response (Table VI.3.28).

Necessary pages

- P02: Job Search: Current Job
- P03: Juice Bar advertisement
- P13: My Résumé

In addition to the necessary pages P02, P03, and P13, there is one additional page that is highly relevant but not, strictly speaking, necessary, as students may be already familiar with the term and concept of a résumé.

- P04: What is a Résumé?

Digital versus print reading

Those who were awarded full credit on this item have a higher mean score (by about 17 points) for digital reading (570) than for print reading (553) (Table VI.3.29). There is no substantial difference in the mean digital reading (506) and print reading (508) score of those with partial credit. Those who received no credit for this task tended to score about 20 scale points better for print than digital reading. Students who made no attempt to answer the question had an even larger difference (over 40 scale points) between mean digital (363) and print (409) reading scores. The patterns are similar for boys and girls.

This task requires students to locate two different pages and compare information on these pages. Since it was probably necessary to switch between the pages more than once, the navigation demand may be considered to be fairly high. It may also be considered to be representative of many real-life digital reading tasks, where multiple comparisons of information on multiple pages is required. The results here suggest that these kinds of navigation requirements allow good readers to perform better (that is, where the navigation demand is relatively high, the students who complete them successfully will tend to demonstrate higher reading proficiency in this medium), while adding to the difficulty of the item for weaker digital readers, that is, the reading ability that they demonstrate in print may not help them to achieve similar proficiency in digital reading.

Efficient reading

Students may read P03 once, or may switch between P03 and P13 a number of times. Many students (42.7%) followed the straightforward path, as directed in the task instructions (Table VI.3.30). Of these students, 13% received full credit, almost 20% received partial credit, and almost 10% were awarded no credit or gave no response. Girls were more likely (44.8%) than boys (40.7%) to follow exactly this sequence.

However, the 13% who received full credit using this navigation path are not the most proficient readers. Students following this navigation sequence and visiting no other pages have a mean overall test score no better, and in fact slightly lower (564), than the average (570), although this difference is only 6 points. A similar difference between overall and average digital reading score was observed with students who were awarded partial credit.

Students who visited only the necessary pages (the home page, P02; the job ad page, P03; and the résumé page where the drop-down menus are completed, P13), but made more than one visit to the page with the job advertisement (P03), showed higher overall proficiency, as measured by total test score, regardless of their success on this item, than other students (Table VI.3.30).

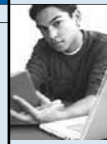
There is no evidence to support the idea that students who can remember what they have read on a single reading of a text are better readers than those who refer to the relevant pages enough times to make the numerous comparisons necessary. It seems that better readers tend to use more than a single visit, and do not rely on memory following a single reading. The navigation data show that of the students who scored full credit on this task, the higher their reading proficiency, the more they were likely to switch between the job advertisement page and the page where they completed the task of selecting relevant résumé experiences. As Table VI.3.31 shows, the girls with the highest mean proficiency were those who visited the page four times (2.5% of girls; mean of 598). For boys, the highest-performing were those who visited P03 four times or more (6.8% of boys; mean scores ranging from 580 to 588). This number of visits makes sense, given that there are four drop-down menus to complete. The résumé-completion task requires explicit comparisons of requirements in one text with a list of qualifications and experience in another. This sort of task lends itself to careful checking, so it is not surprising that repeated visits to the necessary pages were typical of the more proficient readers.

This is in keeping with the notion that in some tasks, the deliberate re-visiting of pages can be a good navigation strategy, as already outlined in the section "Indicators used to describe navigation". Here, revisits can be assumed to be helpful because not all the information required from a page can be memorised at once. Thus, while revisiting pages is often regarded a sign of disorientation and has negative associations with comprehension, there are examples where revisits are fruitful. This also means that task demands must be taken into account when analysing revisits as an indicator of navigation across different tasks.

Minimal reading

It is possible to get to P13 without consulting the Juice Bar job advertisement (P03), by ignoring the task instructions and the prominent hyperlink on the open Job Search page ("View details of job: Juice Bar Team Members"), and clicking instead on the link, "My Résumé". Some students by-pass instructions they may regard as intermediate, and navigate directly and swiftly to the final page, where the task is completed. They may not refer to critical relevant pages, but complete the task anyway. These students may miss crucial information, and therefore not gain maximum credit. Alternatively, they may be more interested in simply finishing the task without checking whether they have found and used (all) the available information.

Full credit can be received without referring to the job ad (P03), by inferring and guessing. Only 11.2% of students failed to visit P03 (Table VI.3.32). Boys (12.1%) were slightly more likely than girls (10.3%) *not* to visit this page.



The 150 students (0.7%) awarded full credit who did *not* visit P03 had a substantially lower level of reading proficiency (532) than those who did consult the advertisement (571), which suggests that guessing played a part in their responses. Similar differences in the overall level of reading proficiency between those who did and did not visit P03 were observed among students who received partial credit (509 v. 465) or no credit (434 v. 393).

Ineffective navigation

A number of students visited multiple pages, but did not find the critical page or pages required to complete the task. Those who engage in apparently undirected exploration are likely to be poor readers, and this notion receives some support in the data (Table VI.3.32). A small number of students (1.5%) who gave no response to the question visited at least three different pages, but failed to find P03.

Among students who answered the question, whatever level of credit they received, those who visited irrelevant pages showed lower reading proficiency than those who did not (Table VI.3.33), consistent with what was described earlier in this chapter. There is little difference in proficiency between those who visited only one irrelevant page and those who visited multiple irrelevant pages. The issue appears to be whether or not students visit *any* irrelevant pages: more able readers tend not to visit irrelevant pages.

A small proportion of students (2.1%) followed the minimum described sequence, visiting no other pages, but did not answer the question (Table VI.3.30); their mean digital reading score was 380, substantially higher than the mean of *all* students who gave no response (mean score of 363). They appear able to manage the navigation component of the reading task (locating the target pages), but unable to synthesise information from the two pages.

SUMMARY

The behaviour of students overall suggests various strategies used for this task:

- Students visiting the Juice Bar advertisement page multiple times tended to demonstrate the highest overall proficiency in the assessment.
- Students who did not visit the Juice Bar advertisement page tended to have the lowest overall proficiency. Better readers locate and use the information provided on this page.
- Students who visited no irrelevant pages tend to demonstrate higher reading proficiency than those who visited irrelevant pages.

The implication is that good readers are selective in the links they choose and do not waste time on irrelevant pages. This approach minimises the number of pages and amount of text they expose themselves to. They also take as much care as is needed in visiting and revisiting the pages with the information critical to the task, to verify that they have used it correctly. This task, which requires students to select only the most relevant information from a fairly long list of similar possibilities, demands careful integration of information across two texts. It is not surprising, then, that better readers tend to recognise the need to check that they have interpreted correctly all the demands of the task, and make the most suitable selection of résumé features.

CONCLUSIONS

This chapter has shown that successful reading in the digital medium requires effective navigation, and that it cannot be assumed that students can simply transfer reading skills learned in print reading to this medium. Effective navigation requires students to construct pathways to pages with information relevant to the task.

The overall picture that emerges from the case studies is that stronger readers tend to choose strategies suited to the demands of the individual tasks. Where no navigation is required (see *IWANTTOHELP* Task 1), better readers tend not to become distracted by the availability of irrelevant pages. Where the task requires them to compare information on different pages (see *SMELL* Task 3), the better students will locate these pages and navigate between them as many times as they feel necessary. When the navigation demands are complex (see *IWANTTOHELP* Task 4), better readers will spend more time on the task and visit more of the relevant pages than they do for simpler tasks. Better readers tend to minimise their visits to irrelevant pages and locate necessary pages efficiently. They also monitor their time, so that they are able to complete all the reading tasks in the time allocated.

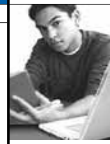
There is evidence that when a set of stimuli is first presented to students (for the first question in a unit), a small percentage of stronger readers (boys slightly more often than girls) will explore the available navigation space (see *IWANTTOHELP* Task 1). This is not common behaviour; but for those who select and engage in it as a deliberate strategy, exploring to discover the range of available information, there is no indication that it impedes their likelihood of performing well. Good readers are expected to use a variety of strategies.

In contrast to careful, deliberate exploration, there is evidence that minimal exploration, such as clicking on a single additional page, but without follow-up, is an ineffective digital reading strategy (see *IWANTTOHELP* Task 1, *JOB SEARCH* Task 2). Navigation needs to be carefully directed. Students who make many visits to irrelevant pages tend to be poorer readers, as do students who fail to locate necessary pages. There is some evidence to suggest that good readers are those who start the reading task with an efficient navigation path (see *IWANTTOHELP* Task 4).

The digital reading assessment necessarily presents extremely constrained options for navigation – far less than the almost infinite range of navigation possibilities readers face when they use the Internet, whether for personal, educational or occupational purposes (see discussion in *IWANTTOHELP* Task 4). Nevertheless, what does emerge from this analysis is that the tasks included in the assessment offer enough navigation and text-processing challenges to measure and describe the digital reading proficiency of 15-year-olds from the 19 participating countries. Indeed, the tasks, as a whole, allow analysts to discriminate successfully among students at all proficiency levels.

Although the navigation demands of the digital reading assessment are modest, many students find it hard to cope with them. Even when the guidance is quite explicit, significant numbers of students still fail to locate crucial pages. Thus teachers and policy makers should not assume that students can navigate successfully or methodically in the vast realm of possibilities that the Internet offers them. The digital reading assessment offers powerful evidence that today's 15-year-olds, the "digital natives", do not automatically know how to operate effectively in the digital environment, as has sometimes been claimed. Simply turning students loose in the digital medium, without clear direction, is likely to increase the risk that they will waste time, become frustrated, and fail to engage productively as readers.

Students should be encouraged to define their reading task before they start to navigate. They need clear purposes for reading, encouragement to clarify these purposes before embarking on navigating, and practice in evaluating and selecting both the links they choose to follow and the material they will then be able to read. They should learn to recognise and use whatever guidance is available to help them to locate relevant or critical pages. Before embarking on a navigation path, students should determine why they are reading and what information they are looking for, to reduce the likelihood that they will become disoriented or waste time by visiting irrelevant pages. To use navigational tools and features effectively readers need to exercise discrimination and critical reasoning. Once they have navigated to necessary pages, they should ensure that they spend sufficient time on these pages to process the critical information. When information is to be compared across pages, students should be encouraged to understand that more than a single visit to each page is necessary. Students should be encouraged to avoid undirected navigation – clicking on numerous pages in the hope that one of them might yield useful information. Given that digital texts are not limited in size and scope the way print texts are, students need guidance in judging how much time is enough to spend on a task and how much navigation is necessary. The Internet is an almost infinite space, and if students are to use it productively, they need strategies to direct their navigation choices.



Notes

1. As a result of a technical problem, data for page visits could not be collected with complete accuracy in all cases. This means that there are some minor inaccuracies in some of the figures provided for the numbers of page visits, or number of visits to relevant pages, which do not influence the overall picture of the results presented here. For the same reason, the figures are not always exactly aligned between the aggregated data and the case-study data presented in this chapter.

2. In case of heavily right-skewed frequency distribution, sometimes a logarithmic transformation is applied to the data to normalise the distribution before using the data in further statistical analyses, such as regression. As the skew was only moderate in the present case, this was not done. In the regression models reported in the next section, however, residuals were distributed normally (see *e.g.* Cohen, *et al.,* 2003).

3. The fact that the effect size f^2 for Korea is to some degree an outlier is partly due to the comparatively low overall proportion of variance explained by print reading and navigation together in this country, as f^2 for a predictor is given as:

$$f^2 = \frac{\Delta R_A^2}{1 - R_{Tot}^2}$$

, where ΔR^2_{A} is the variance uniquely explained by predictor A, and R^2_{tot} is the total variance explained in the model. Thus, f^2 will not only increase as ΔR^2_{A} increases, but also as R^2_{tot} increases.

4. Each page within a unit is identified using the convention P plus a two-digit number (so, P01, etc.).

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4

Relationships between Digital Reading Performance and Student Background, Engagement and Reading Strategies

This chapter examines the extent to which proficiency in both print and digital reading is associated with certain variables, including students' socio-economic background, immigrant status, the degree of students' engagement in reading, and students' awareness of effective learning strategies.

This chapter examines how a number of variables relate to print and digital reading proficiency. The first part of the chapter investigates student background variables, such as economic, social and cultural status; and immigrant background. The second part examines engagement in reading activities and awareness of effective reading strategies. The chapter focuses on how these aspects are related to print and digital reading proficiency.

An explanatory model, based on students' background characteristics, engagement and reading strategies, is presented at the end of the chapter. This model shows the strength of the relationship between each of the variables and digital reading performance.

Unless otherwise noted, the countries described in this chapter are the 19 countries that conducted the digital reading assessment. OECD averages mentioned here are for the 16 OECD countries that participated in both the print and digital reading assessments.

FAMILY BACKGROUND

The aim of education systems around the globe is to encourage students to achieve at the highest possible levels and to provide equitable opportunities for all students. As discussed in Volume II of this report, inequities may arise as a result of gender, socio-economic status, ethnicity or even geographic location. A weak relationship between a student's family background and his or her performance at school is an indication of an equitable distribution of educational opportunities. The variables discussed in this section are described in greater detail in Annex A1a.

Socio-economic background

Most schools are populated by students from a range of socio-economic backgrounds; and teachers and parents appreciate that the interaction of family background and the educational setting can enhance learning. As was true in the case of print reading proficiency, PISA results show that there is a positive association between socio-economic background and digital reading proficiency.

In PISA, a student's socio-economic background is indicated by the *PISA index of economic, social and cultural status* (ESCS). This index captures several aspects of a student's family background, including information on parents' education and occupations, and home possessions.[1] The index is standardised to have an average value of 0 across all the participating OECD countries in the print reading assessment and a standard deviation of 1.

An examination of the average value of the index for each of four student performance categories gives an indication of the impact of socio-economic background (Table VI.4.1). In digital reading, students who are top performers (*i.e.* those who perform at PISA proficiency Level 5 or above) have an average socio-economic index score of 0.65 – well above the overall average of 0.06 (Table VI.4.2) – while students who are the lowest performers (*i.e.* those who perform at PISA proficiency Level 1 or below) have an average socio-economic index score of -0.45 – well below the average. The average difference in the socio-economic index scores between the top performers and the lowest performers across OECD countries was 1.10 index points. For print reading, the results are similar, with the top performers having an average socio-economic index score of 0.66 and the lowest performers -0.43: a difference of 1.09. The largest difference observed in both digital and print reading is in Chile, which has a difference of 1.84 index points between the top performers and the lowest performers in digital reading, and a larger difference between these two groups of 1.96 index points in print reading. The smallest variation between top performers and lowest performers is found in the partner economy Macao-China, with a 0.61 index point difference in digital reading and 0.56 index point in print reading. Both across and within countries, then, differences between the top and the lowest performers tend to be similar in both the digital and print reading assessments.

Another way of looking at the association between socio-economic background and student performance is to see if there are measurable differences in performance scores between students from socio-economically advantaged and disadvantaged backgrounds (the top and bottom quarters of the *PISA index of economic, social and cultural status*). In the digital reading assessment, the difference, on average across the relevant OECD countries, is 85 score points, compared to a difference of 89 score points for print reading (Table VI.4.2). In both cases, this would be regarded as equivalent to over two years of schooling (one school year is estimated to be equivalent to 39 score points in PISA; see Table A1.2 in *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science* for an explanation of this calculation). The smallest difference in performance between socio-econonimically advantaged and disadvantaged students is seen in the partner economy Macao-China, with a 23 score point difference in digital reading and a 25 score point difference in print reading.

The largest performance difference between socio-economically advantaged and disadvantaged students occurs in Hungary, with 135 and 118 score points difference, respectively, in digital and print reading. While 12 of the 19 countries have smaller differences between advantaged and disadvantaged students in print reading, in Poland and Chile the differences are larger by 19 and 18 score points, respectively, suggesting that in these two countries the impact of socio-economic background is greater on digital reading than on print reading.

The method for comparing the scores of students from different socio-economic backgrounds used above can be extended to look at a range of student backgrounds. The change in student performance associated with each single unit change of the *PISA index of economic, social and cultural status* is known as the socio-economic gradient (a unit is defined as one standard deviation). The slope of the socio-economic gradient line is an indication of the extent of inequity. Steeper gradients indicate a greater impact of socio-economic background on student performance; gentler gradients indicate less of an impact.

On average across the 16 OECD countries that participated in the digital reading assessment, the slope of the gradient line is 38 score points, which is similar to what is observed for print reading (Table VI.4.3). The OECD countries with the steepest slopes for digital reading are Hungary, Austria, New Zealand, Poland, Belgium and Australia. In these countries, a one-unit change of the index is associated with a performance difference of between 54 (Hungary) and 43 score points (Australia) on the digital reading scale. Countries and economies with slopes of less than 30 score points are Japan, Korea, Norway, Iceland, and the partner economies Macao-China and Hong Kong-China.

For print reading in PISA 2009, the average slope across the 16 OECD countries that participated in the digital reading assessment is 40 score points. The countries with steep slopes in digital reading also tend to have the steepest slopes in print reading. For example, Hungary has a slope of 54 score points for digital reading and 48 score points for print reading, and Austria has slopes of 49 and 48 score points, respectively – all significantly above the OECD averages. At the same time, the countries with gentle slopes in digital reading also tend to have the gentlest slopes in print reading. For example, the partner economy Macao-China has a slope of 11 score points for digital reading and 12 score points for print reading, and the partner economy Hong Kong-China has slopes of 19 and 17 score points, respectively – all significantly below the OECD averages. The largest discrepancy between the gradients for digital and print reading occurs in Japan, with a 14 score point difference: the slope of 26 score points for digital reading is much less than the 40 score points for print reading. Thus, in Japan, there appears to be greater equity in the digital reading results than in the print reading results.

While the steepness of the gradient is an indicator of how many score points are associated with a one-unit change in the *PISA index of economic, social and cultural status,* it does not necessarily show the strength of the relationship. As explained in Volume II, this is better revealed by examining the amount of variance in student performance that is explained by a variable. If this number is low, relatively little of the variance in student performance is explained by students' socio-economic background; if it is high, a large part of the performance variation is explained by socio-economic background. On average across OECD countries, 14.1% of the variation in student performance in digital reading within each country is associated with the *PISA index of economic, social and cultural status* (Table VI.4.3). For print reading, across the 16 OECD countries that participated in the digital reading assessment, the average variance explained by socio-economic background was 14.4%. In Poland, both the slope and the variance explained were noticeably greater for digital reading than for print reading, indicating that socio-economic background in that country has a greater impact on digital reading proficiency than it does on print reading.

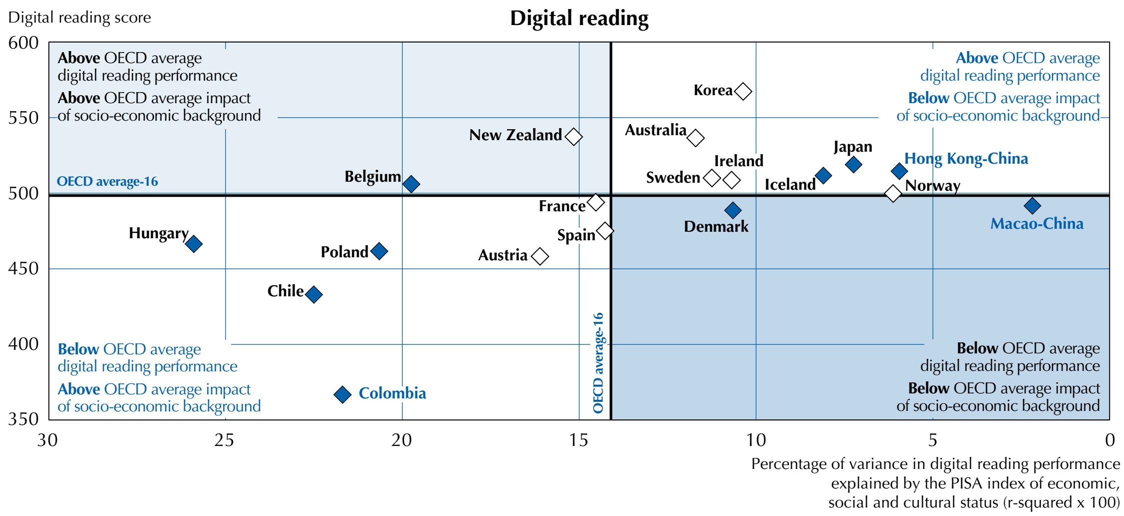
Countries with a lower-than-average impact of socio-economic background are regarded as high-equity countries. Using the information in Table VI.4.3 countries are categorised into four groups: *i)* high performance/low socio-economic impact; *ii)* high performance/high socio-economic impact; *iii)* low performance/high socio-economic impact; and *iv)* low performance/low socio-economic impact (see Figure VI.4.1). Among the countries and economies that participated in the digital reading assessment, Japan, Iceland and the partner economy Hong Kong-China constitute the group of high performance/low socio-economic impact countries; Belgium is the high performance/high socio-economic impact country; and Hungary, Poland, Chile and the partner country Colombia are the low performance/high socio-economic impact countries. Other countries and economies show around average performance and/or around average impact of socio-economic background.

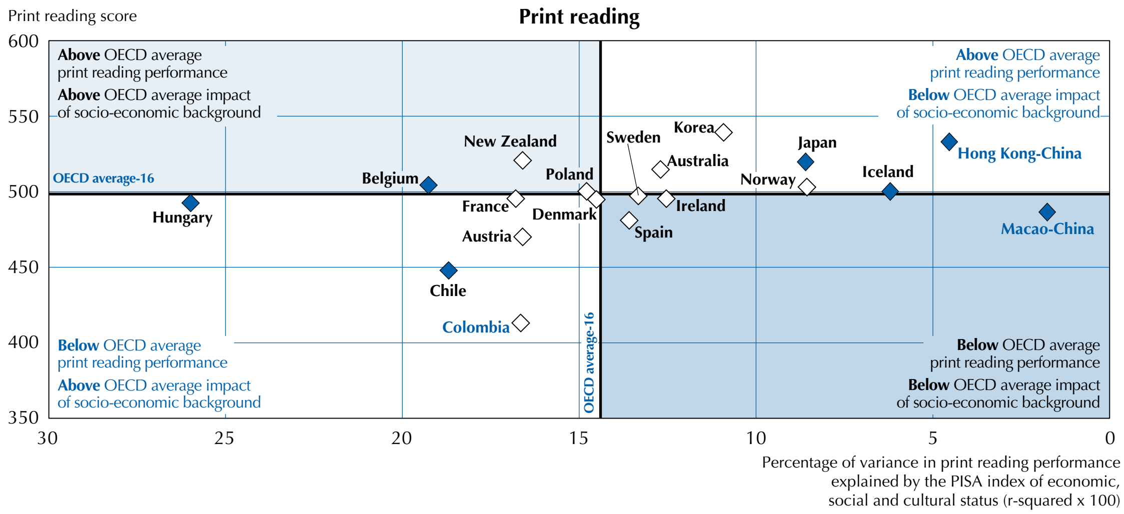
■ Figure VI.4.1 ■

Strength of socio-economic gradient and reading performance

◆ Both, the digital reading performance **and** the strength of the relationship between performance and socio-economic background are **significantly different** from the OECD average.

◇ The digital reading performance **and/or** the strength of the relationship between performance and socio-economic background are **not significantly different** from the OECD average.





Source: OECD, *PISA 2009 Database*, Table VI.4.3.

StatLink http://dx.doi.org/10.1787/888932435416

A comparison of the two graphs shows that there is a greater diversity in the equity of results for digital reading than for print reading. The average socio-economic background of the countries considered varies widely. Table VI.4.3 shows the mean score obtained by each country in the digital reading assessment and also a score that is adjusted for each country's average socio-economic background. In this hypothetical analysis, the South American countries, Chile and Colombia, have adjustments of 22 and 37 score points, taking their scores from 435 to 456 and from 368 to 405 score points, respectively. Countries with higher socio-economic status, such as Iceland and Norway, have their scores adjusted downwards from 512 to 493 and from 500 to 487 score points, respectively. These differences are similar to those observed in print reading, where Chile and Colombia have adjustments of 19 and 32 score points upwards, respectively, while Iceland and Norway have adjustments of 18 and 16 score points downwards, respectively.

Immigrant status

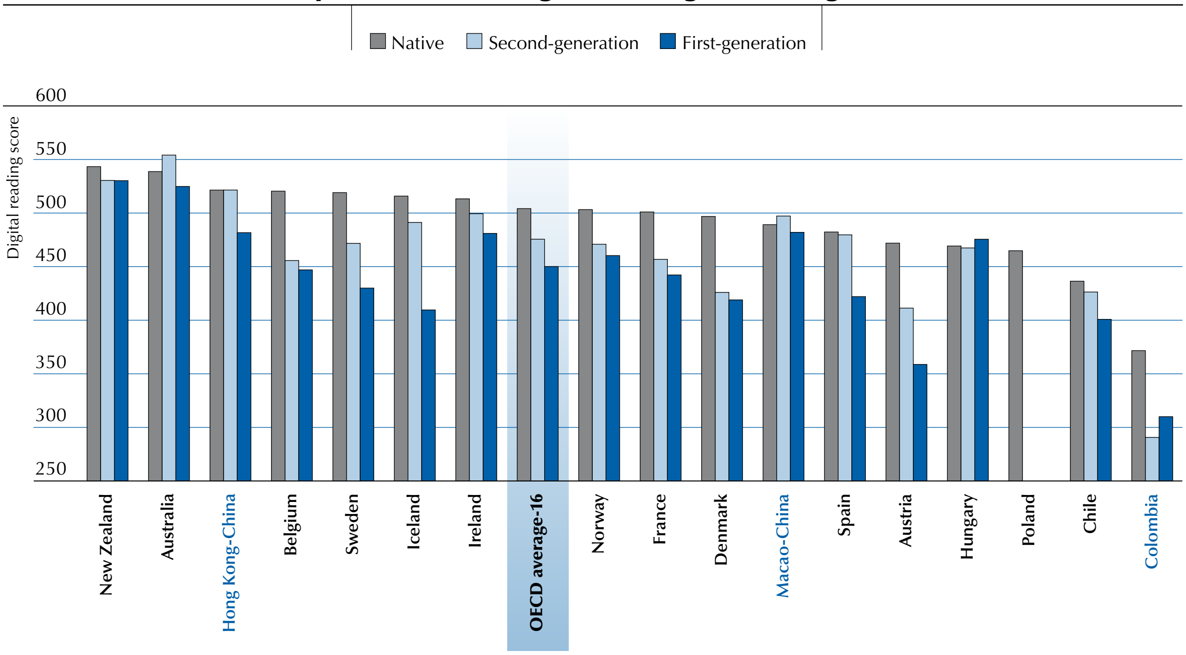
As a result of increased global migration and population mobility, governments are often called upon to provide integration programmes at schools and in the community at large. PISA uses three categories to define the immigrant status of students: *i)* native students, *ii)* second-generation students, and *iii)* first-generation students (see Annex A1a for a detailed description). Generally, students with an immigrant background are defined as first- or second-generation immigrants.[2]

Across OECD countries, the pattern of results indicates that native students perform at a higher level than their immigrant counterparts. Table VI.4.4 shows that, on average, native students score 504 points, compared to 475 for second-generation students and 450 for first-generation students. In print reading, the averages for the same groups are 504, 474 and 449, respectively.

As can be seen in Figure VI.4.2, this pattern is not repeated in all countries. In Australia, for example, second-generation students score at the highest level in digital reading, with 554 score points, followed by native students (539 score points) and then first-generation students (525 score points).

■ Figure VI.4.2 ■

Student performance in digital reading and immigrant status



Countries are ranked in descending order of the mean score of native students.
Source: OECD, *PISA 2009 Database*, Table VI.4.4.
StatLink http://dx.doi.org/10.1787/888932435416

Languages spoken at home

In print reading, students who speak a language at home that is different from the language of the assessment generally perform at a lower level than those whose language is the same. In PISA 2009, the average score in print reading among students whose language is different from the assessment language was 455 points compared to 506 points for those students whose language is the same as the assessment language (see Table VI.4.5). In digital reading, the pattern is similar: the average score for students whose language at home is different from the assessment language was 452 points compared to 504 points for students whose language is the same as the assessment language.

The two largest gaps between print and digital reading are in Norway, where the difference between the language groups is 63 score points for print reading and 40 score points for digital reading, and in the partner economy Hong Kong-China, where these differences are 70 and 35 score points, respectively.

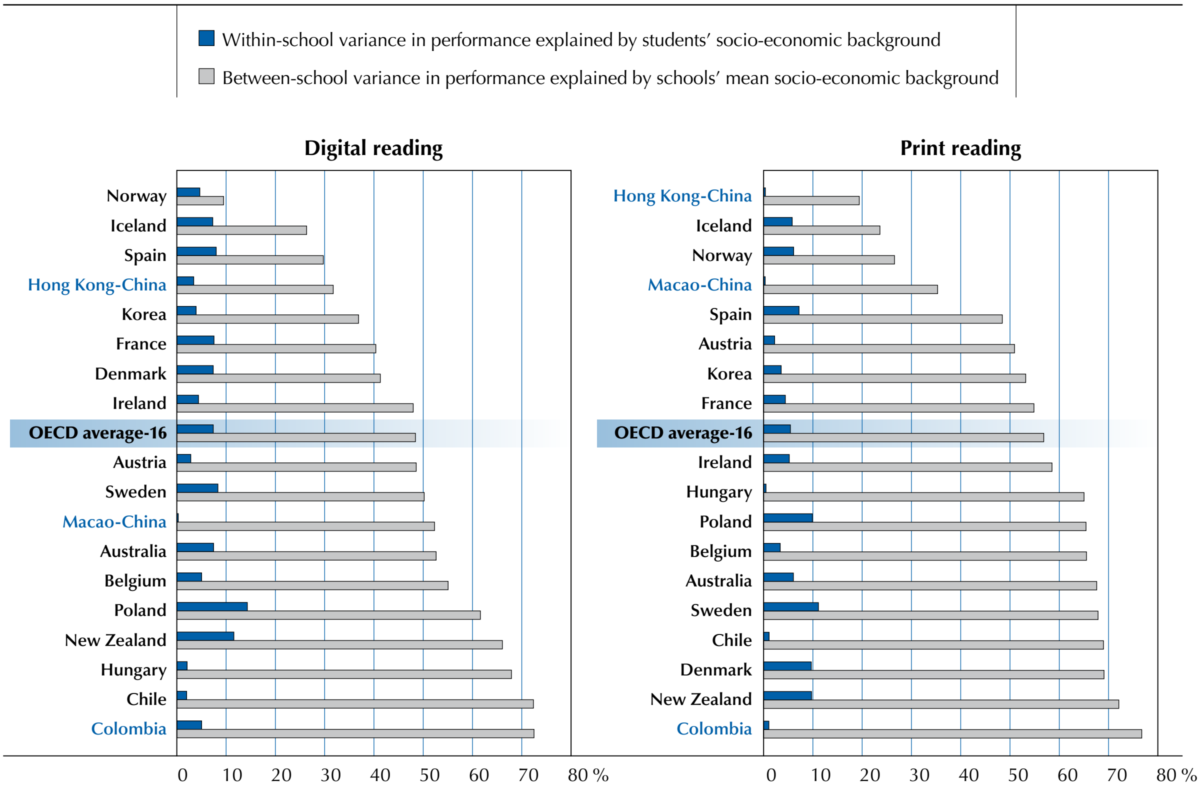
Performance differences within and between schools

Figure VI.4.3 shows the proportion of the between- and within-school variance in performance in digital and print reading that can be attributed to differences in socio-economic background within and between schools. Digital reading is shown on the left, while print reading is shown on the right. The grey part of the bar represents the between-school variation that is explained by schools' socio-economic background; the blue part of the bar represents the within-school variation that is explained by the socio-economic background of students within schools (see Table VI.4.6).

On average, between schools, the percentage of the variance in student performance explained by a school's socio-economic background is smaller in digital reading (48.4%) than in print reading (56.8%). In contrast, within schools, the percentage of the variance in student performance explained by students' socio-economic background is larger in digital reading (7.4%) than in print reading (5.5%).

■ Figure VI.4.3 ■

Variation in performance in digital and print reading explained by students' and schools' socio-economic backgrounds



Countries are ranked in ascending order of the between-school variance in performance explained by schools' socio-economic background.
Source: OECD, *PISA 2009 Database*, Table VI.4.6.
StatLink http://dx.doi.org/10.1787/888932435416

STUDENT ENGAGEMENT AND ATTITUDES

Do engagement in reading and awareness of reading strategies have the same kind of relationship with digital reading proficiency as they do with print reading proficiency? As shown in Chapters 2 and 3, the skills required to succeed in the digital reading tasks are both general, that is, applicable to print reading as well, and specific, usually associated with navigating through online texts. As it could be expected that engagement in online reading is likely to have a closer link with proficiency in digital reading than with print reading, online reading practices are closely examined below.

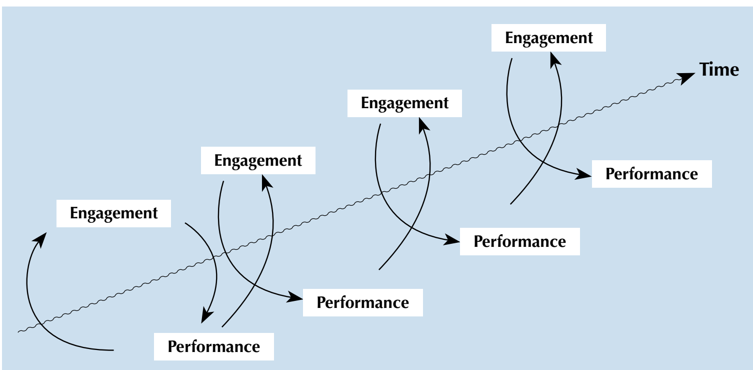
Box VI.4.1 **A cycle of engagement in reading activities, reading strategies and reading performance**

Students who are highly engaged in diverse reading activities and who are aware of what strategies work best for reading and understanding texts perform better in the PISA reading assessment. However, this finding cannot be interpreted as direct evidence of a causal relationship between being engaged in reading, adopting effective reading strategies and achieving high levels of reading proficiency. Evidence presented in *PISA 2009 Results: Learning to Learn (Volume III)* for print reading, and in this chapter for digital reading, reflects the cumulative observed association between how engaged students are, the reading strategies they adopt and how well they do.

What does cumulative association mean? Studies in education and applied psychology suggest that reading proficiency is the result of multiple developmental cumulative cycles (see Aunola, *et al.,* 2002 for a review). Attitudes towards reading and learning, motivation, engagement in reading activities and reading proficiency are mutually reinforcing. Positive reinforcement operates at two levels. The first reflects the fact that the future depends on the past. Past engagement matters for current and future engagement, and past reading performance is also a very good predictor of future reading performance (Fredericks, Blumenfeld and Paris, 2004; Stanovich, 2004). This suggests that a student's past reading activities will influence his or her future reading activities. Similarly, how effectively the student applied learning strategies in the past is one of the aspects that determine how well he or she will apply reading strategies in the future.

The second level indicates that associations among engagement, reading strategies and performance are circular. Engaging in reading activities, adopting effective reading strategies and being a proficient reader are mutually dependent: as students read more they become better readers; and when they read well and expect good performance in reading, they tend to read more and enjoy reading (Nurmi, *et al.,* 2003).

The graph below illustrates how results of associations between how engaged in reading activities students are, the reading strategies they adopt, and how well they read should be interpreted in the context of the two levels of reinforcement.



The evidence that emerges from PISA on the positive interplay between engagement in reading activities, the adoption of particular reading strategies and reading performance suggests that preparing students to read well and promoting a passion for reading and effective reading is very important. Students who are highly engaged and are effective learners are most likely to be proficient readers; proficient readers are also the students most engaged and interested in reading.

Engagement in reading and digital reading proficiency

This section focuses on three different aspects of how students engage in reading activities:

- how much students enjoy reading (positive or negative attitudes towards reading);
- which kinds of print material they read and how often; and
- which kinds of online reading activities they engage in and how often.

Box VI.4.2 **The association between reading engagement, awareness of reading strategies and reading performance**

Results presented in this chapter can be used to answer two main policy questions:

1. How strong is the association between digital reading performance, reading engagement and reading strategies?

- One indicator used to answer this question is the inter-quartile range, which represents the difference between the top and bottom quarters of different indicators, such as reading enjoyment, diversity of print reading material, online reading practices, and awareness of reading strategies. This indicator can reveal the extent of the differences in reading performance between, for example, enthusiastic and unenthusiastic readers.

2. Are reading engagement and reading strategies good predictors of performance?

- The proportion of the variation in digital reading performance that is accounted for by engaging in reading and reading strategies, or explained variance, helps to answer this question by identifying the proportion of the observed variation in student performance that can be attributed to reading engagement and reading strategies.
- If this number is low, knowing the students' reading engagement and level of awareness of reading strategies says very little about their digital reading performance. If this number is high, one can associate students' performance in digital reading reasonably well with their engagement in reading and awareness of reading strategies.

Box VI.4.3 **Interpreting PISA indices**

- Indices allow for comparisons of countries that are above or below the OECD[a] average in certain variables: indices used to characterise students' engagement in reading activities (either print or online) and awareness of reading strategies were constructed so that the average OECD student would have an index value of zero and about two-thirds of the OECD student population would be between the values of -1 and 1 (*i.e.* the index has a standard deviation of 1). Negative values on the index do not imply that students responded negatively to the underlying question. Rather, students with negative scores are those who responded less positively than the average response across OECD countries. Likewise, students with positive scores are those who responded more positively than the average student in the OECD area (see Annex A1a for a detailed description of how indices were constructed).
- Most of the indicators of engagement-in-reading activities are based on students' self-reports. They can thus suffer from a degree of measurement error because students are asked to assess their level of engagement in reading activities retrospectively. Apart from potential measurement error, cultural differences in attitudes towards self-enhancement can influence country-level results in engagement-in-reading activities and the use of learning strategies (Bempechat, *et al.*, 2002). The literature consistently shows that response biases, such as social desirability, acquiescence and extreme response choice, are more common in countries with low GDP than in more affluent countries, as they are, within countries, among individuals from more disadvantaged socio-economic backgrounds and with less education.
- As in the first PISA cycle and as for print reading performance (Volume III, *Learning to Learn*), many of the self-reported indicators of engagement in reading are strongly and positively associated with digital reading performance within countries, but show a weak or negative association with performance at the country level. This may be due to different response biases across countries or the fact that country-level differences in reading performance are due to many factors that go beyond levels of engagement in reading activities and that are negatively associated with reading performance and positively associated with engagement in reading.

....

- PISA 2009 used two indicators aimed at assessing the extent to which students are aware of effective strategies to understand, memorise and summarise information. These measures are less subject to self-reported biases because they gauge whether students agree with education experts on what strategies work best to achieve certain goals (see Annex A1a for a detailed description of how these indices were constructed). Analyses presented in Volume III, *Learning to Learn,* and this volume confirm that these indicators are strongly associated with print and digital reading performance both within and across countries.
- The *PISA 2009 Technical Report* (OECD, forthcoming) contains a detailed description of all the steps that were taken in PISA 2009 to ensure the highest possible level of cross-country comparability and to assess the validity of cross-country comparisons based on the indices featured in the report.[b]

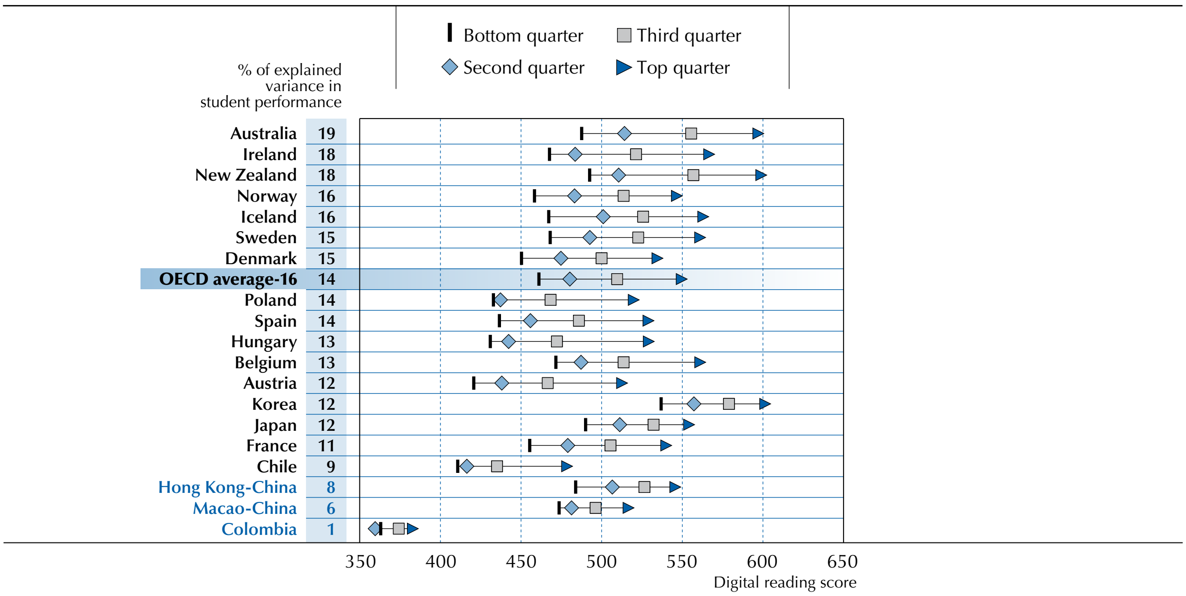
a. As indices are derived from the core student questionnaire, the OECD average is computed using all the OECD countries that participated in PISA 2009.

b. In PISA 2009, several tests were conducted to determine whether the use of country-specific item parameters improved cross-country comparability of indices. For example, simulation studies indicated that using country-specific item parameters in regression models did not lead to improvements in the comparability of indices across countries. During the estimation procedure, an index of differential item functioning (DIF) across countries is produced that can be used to gauge the amount of DIF for each item across countries. If necessary, the impact of DIF on items can then be tackled using country-specific item parameters. However, simulation studies have shown that introducing country-specific item parameters for DIF items has a negligible impact on the regression coefficients in a two-level regression (students within countries) of background variables (with and without country-specific items) on cognitive scores in reading, mathematics and science.

Do students who enjoy reading read better on line?

Enjoyment in reading was measured in PISA 2009 as well as in PISA 2000.[3] Volume III, *Learning to Learn,* shows that within countries, enjoyment of reading is closely linked to print reading proficiency in all the 65 participating countries and economies, except in the partner country Kazakhstan.

■ Figure VI.4.4 ■
Relationship between enjoyment of reading and digital reading performance



Note: All differences between the top and bottom quarters of this index are statistically significant.
Countries are ranked in descending order of the percentage of explained variance in student performance.
Source: OECD, *PISA 2009 Database,* Table VI.4.7.
StatLink http://dx.doi.org/10.1787/888932435416

Is enjoyment of reading as strongly linked to digital reading proficiency as it is to print reading proficiency? Again, in all countries that participated in the digital reading option, enjoyment of reading is significantly and positively related to performance in digital reading (Figure VI.4.4). On average,[4] 14% of variation in performance in digital reading can be explained by differences in the extent to which students enjoy reading. The explained variation in digital reading performance is higher than 15% in Australia (19%), Ireland (18%), New Zealand (17%) and Iceland (16%). In four other countries and economies, it is below 10%: Chile (9%), the partner economies Hong Kong-China (8%) and Macao-China (6%), and the partner country Colombia (1%) (Table VI.4.7).

The difference between the students least and most enthusiastic about reading (the bottom and top quarters of the index) is striking in most countries: 88 score points, on average, on the digital reading scale. On average, the least enthusiastic students are twice as likely to perform poorly in digital reading (in the bottom quarter of the national reading performance distribution) as the most enthusiastic readers.

As some variation could be expected by gender, analyses were performed to estimate whether the relationship between enjoyment of reading and digital reading performance varies according to gender. In most countries, there is no significant variation related to gender.[5] In four countries the relationship between enjoyment and performance is significantly greater for boys than for girls: Poland and Australia, where the gender difference is 9 score points; and Sweden and Japan, where the gender difference is 8 and 7 score points (Table VI.4.8).

Enjoyment of reading explains less variation in digital performance (14%) than in print reading performance (20%).[6] This is not surprising, as the enjoyment of reading scale involves 6 out of 11 items that specifically mention books and explicitly or implicitly refer to print material. Although no causal relationship can be established, enjoyment of reading is closely linked with reading performance in both media. But, as illustrated in Box VI.4.1, there is a virtuous circle linking enjoyment of reading and reading proficiency: students who enjoy reading engage more in reading activities and provide themselves with more opportunities to become better readers. At the same time, the better they read, the more they feel confident about their own reading abilities, the more they read and choose to engage with challenging reading tasks or texts that will allow them to grow as readers.

The association between the diversity of print material students read and digital reading proficiency

PISA 2000 and 2009 asked students to indicate how often they read magazines, newspapers, comic books, fiction and non-fiction books because they want to (that is, not because they are required to for school).[7] Kirsch, *et al*. (2003) and Volume III, *Learning to Learn,* have shown extensively that students who read a wide variety of materials perform better in reading print texts.

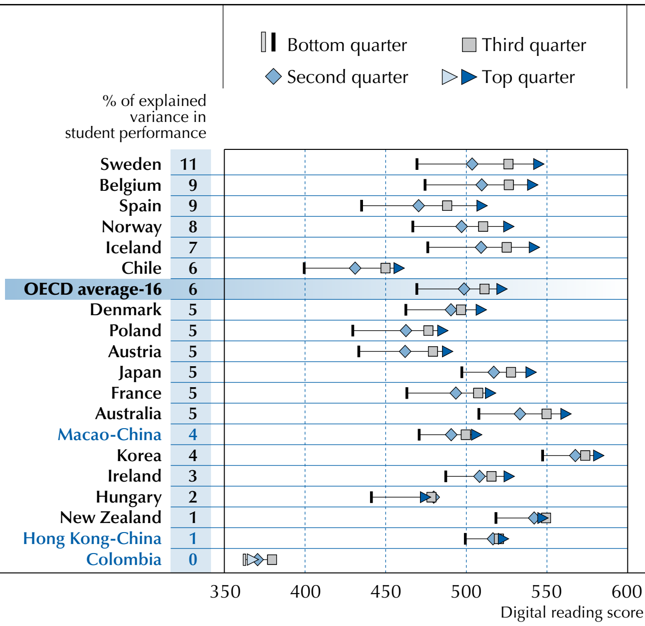
Does this relationship between "diversity of (print) reading" and reading proficiency also apply to digital reading proficiency? And, if so, how strong is the relationship?

In most countries that took part in the digital reading option, proficient online readers are also those students who regularly read a diversity of print material (Figure VI.4.5). As stated in Volume III, *Learning to Learn*, results appear "to contradict commonly held beliefs about how what one reads influences reading proficiency. While it is true that regularly reading some materials, such as fiction, is associated with better reading proficiency, reading other materials, such as newspapers and magazines, does so too if it complements other types of texts" (OECD, 2010a). What was true for print reading is also true for digital reading proficiency. However, for both print and digital proficiency, the percentage of variation in student performance explained by diversity of reading is low. On average, 7% of variation in print reading performance[8] can be explained by differences in the extent to which students regularly read diverse print material. Some 6% of variation in digital reading performance can be explained by differences in diversity of reading. Higher percentages of explained variation are observed in Sweden (11%), Belgium (9%) and Spain (9%). In contrast, explained variance is close to zero in New Zealand, the partner economy Hong Kong-China (1%), and the partner country Colombia (0%).

The relationship between print and digital reading proficiency and diversity of reading is noticeably weaker than that for enjoyment of reading.

■ Figure VI.4.5 ■

Relationship between diversity of reading and digital reading performance



Note: Countries in which differences between the top and bottom quarters of this index are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the percentage of explained variance in student performance.
Source: OECD, *PISA 2009 Database,* Table VI.4.9.
StatLink http://dx.doi.org/10.1787/888932435416

The difference between students who reported that they regularly read diverse material and those who reported that they infrequently did so is, on average, 53 score points on the digital reading scale. On average, the least diverse readers (students in the bottom quarter) are 1.8 times more likely to perform poorly in digital reading (in the bottom quarter of the national reading performance distribution) than the most diverse readers (students in the top quarter).

In most countries, the relationship between diversity of reading material and digital reading performance does not vary according to gender. Indeed, gender explains variation in only three countries. The largest difference is seen in Spain, where the score point difference associated with a change of one unit in the index of diversity of reading is equal to 23 score points for boys and 37 for girls (Table VI.4.10).

Online reading practices

Students' engagement in reading also encompasses students' online reading practices, including the amount of time they spend accessing online reading material. Digital reading activities are becoming increasingly popular, especially among teenagers (Mills, 2010) and many literacy practices that previously involved print material, such as reading books, documents and newspapers, increasingly involve the use of electronic devices.

Volume III, *Learning to Learn,* examines how frequently students in each country report reading on line. On average across OECD countries, the most common type of online reading activity reported by students is chatting on line, with almost three-quarters of the students reporting that they engaged in this activity at least several times a week. This is followed by reading e-mails (64%) and searching online information (51%). Results suggest that in most countries, boys and girls do not differ, or differ only marginally, in how much they use the Internet for reading for enjoyment.

Analyses investigating the extent to which online reading practices are related to print reading proficiency show that reading on line is associated with better performance in all PISA participating countries and economies, excluding Liechtenstein. However, the amount of variation in the print reading score explained by the online index is small.

Not surprisingly, the amount of variance in the digital reading score explained by online practices is somewhat higher (6%)[9] than it is for print reading (3% on average among the 16 OECD countries that took part to the digital reading option).

More in-depth analyses[10] applied to the set of online reading activities reveal that there are two distinct kinds of online reading activities: searching for information and social activities. By analysing the two separately, it is possible to obtain a more nuanced view of which online reading activities are related to proficiency in digital reading.

Searching for information on line involves such activities as reading news, using a dictionary, searching online information to learn about a particular topic and searching for practical information on line. Social activities on line involve, among other activities, reading e-mails and chatting.[11]

The amount of time students spend in activities aimed at searching for information varies from country to country. Students in Poland, Korea, Hungary and the partner economy Hong Kong-China reported frequent online activities aimed at searching for information. In Ireland, Belgium, Japan and the partner economy Macao-China, students reported below-average frequency of online searching-information activities (index below - 0.20) (Table VI.4.11).

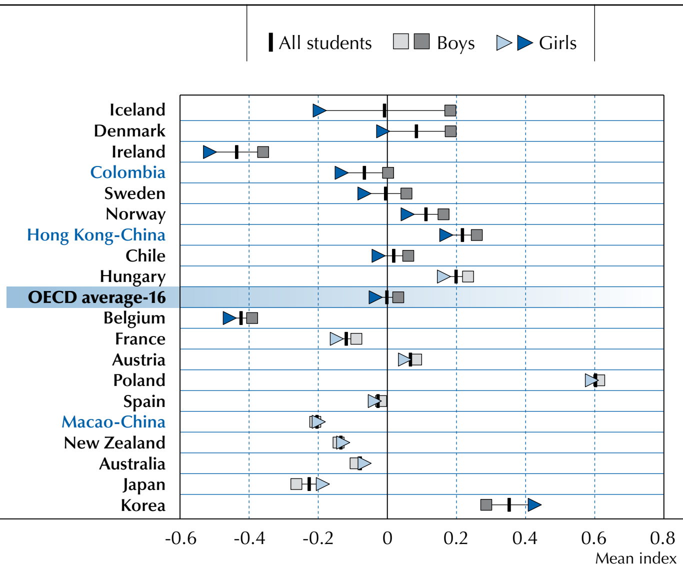
The pattern for online social activities is very different. Students in Iceland, Hungary, Denmark, Belgium, Norway and Austria reported frequent and above-average online social activities, while those in Korea, Colombia, Ireland, Chile, Japan and New Zealand reported below-average frequency of online social activities (Table VI.4.12).

Gender differences in online reading practices

The amount of time students reported spending in online searching-information activities (Table VI.4.11) is somewhat shorter for girls (average -0.03) than for boys (+0.03). On average, the gender difference is limited (0.07). Nevertheless, in a few countries, the gender difference is close to or above 0.10 – Iceland (0.38), Denmark (0.20), Ireland (0.15), Colombia (0.13), Sweden (0.12) and Norway (0.10). In each of the northern European countries that participated in the digital reading option, boys reported more frequent online searching-information activities. In Korea, Japan, Australia, New Zealand and the partner economy Macao-China, girls reported more frequent online searching-information activities than boys. But, in those countries, the difference is usually close to zero; only in Korea (-0.14) is the difference significant.

■ Figure VI.4.6 ■

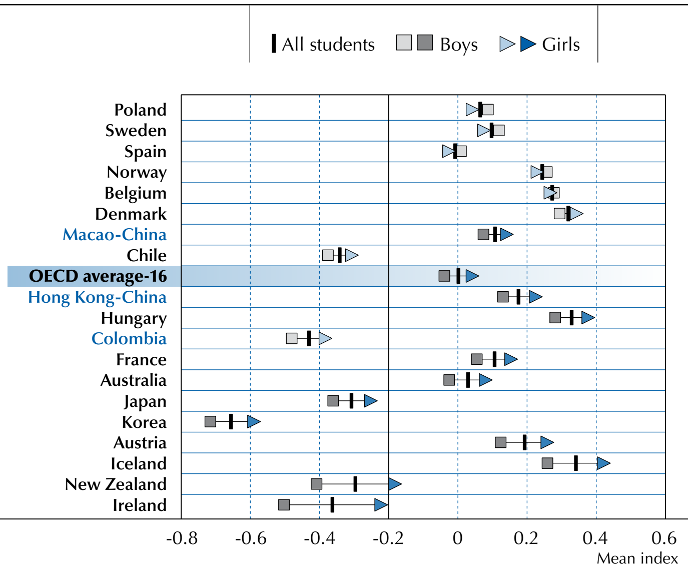
Index of online searching-information activities, by gender



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the difference between boys and girls in the mean index of online searching-information activities.
Source: OECD, *PISA 2009 Database*, Table VI.4.11.
StatLink http://dx.doi.org/10.1787/888932435416

■ Figure VI.4.7 ■

Index of online social activities, by gender



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the difference between boys and girls in the mean index of online social activities.
Source: OECD, *PISA 2009 Database,* Table VI.4.12.
StatLink http://dx.doi.org/10.1787/888932435416

The amount of time students reported spending on social activities on line is somewhat shorter for boys (average -0.04) than for girls (+0.04). The gender difference is about the same magnitude (-0.08), on average, as for searching for information; only in Ireland (-0.28) and New Zealand (-0.23) is the gender difference above -0.20, and students in both countries reported infrequent online social activities. In Iceland, Austria, Korea, Japan, Australia, France, Hungary and the partner economy Hong Kong-China, the difference between boys and girls is at or slightly above 0.10 and statistically significant, with girls reporting more frequent social activities on line. In Poland, Sweden, Spain, Norway and Belgium, boys reported more frequent online social activities than girls, but in each case, the difference is small (< 0.04) and not statistically significant.

Online reading practices and digital reading proficiency

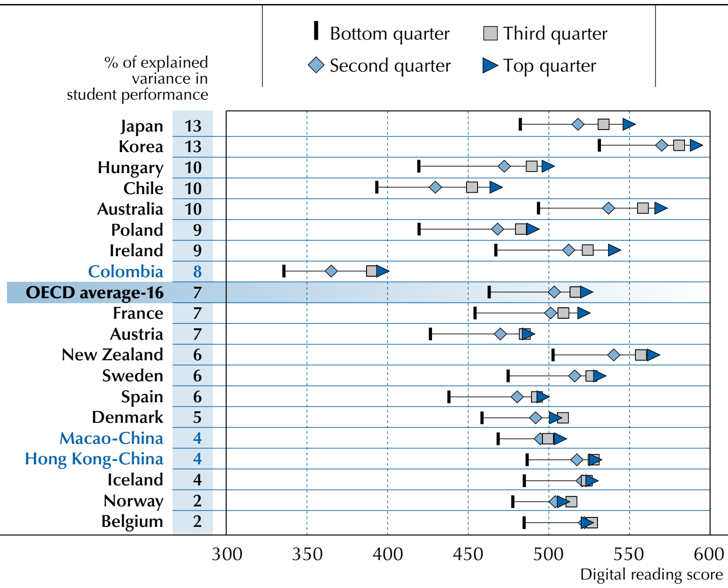
To what extent is the amount of time students reported spending on online searching-information or social activities related to digital reading proficiency?

In each of the 19 countries that took part in the digital reading option, more frequent online searching-information activities are related to better performance in digital reading. On average, the percentage of explained variation in the digital reading score is 7.5% (Table VI.4.11).

The difference between the students who reported being the least engaged in online searching-information activities and those who are most engaged is 60 score points, on average. The least engaged students (those in the bottom quarter) are 2.1 times more likely to perform poorly (in the bottom quarter of the national digital reading distribution) than the most engaged (those in the top quarter). In almost all countries, as students' engagement in searching information on line increases, their performance improves. Indeed, the average performance of each subsequent quarter is higher than the average performance of the previous quarter. On average across OECD countries, students in the first quarter attain a score of 463; in the second quarter, they attain a score of 503; in the third, a score of 516; and in the fourth quarter, they attain a score of 523. The average difference between the third and the fourth quarters is small. In many countries, only the difference between the least engaged students and the rest is meaningful. In all participating countries, the relationship between online searching-information activities and digital proficiency is non-linear.[12] This means that students who reported frequent online searching-information activities do not perform better than moderately engaged students; but they perform much better than the least-engaged students.

■ Figure VI.4.8 ■

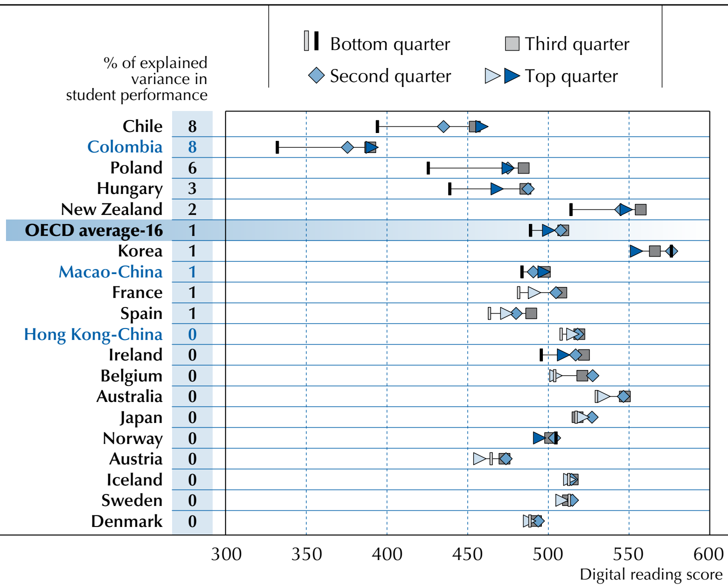
Relationship between online searching-information activities and digital reading performance



Note: All differences between the top and bottom quarters of this index are statistically significant.
Countries are ranked in descending order of the percentage of explained variance in student performance.
Source: OECD, *PISA 2009 Database*, Table VI.4.11.
StatLink http://dx.doi.org/10.1787/888932435416

■ Figure VI.4.9 ■

Relationship between online social activities and digital reading performance



Note: Countries in which differences between the top and bottom quarters of this index are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the percentage of explained variance in student performance.
Source: OECD, *PISA 2009 Database*, Table VI.4.12.
StatLink http://dx.doi.org/10.1787/888932435416

In 14 out of 19 countries, the relationship between online searching-information activities and digital reading proficiency does not vary significantly according to gender. In New Zealand, Poland, Australia, Belgium and Japan, the relationship between those activities and digital reading proficiency is stronger and more positive for boys than for girls. In New Zealand, for instance, the score point difference associated with a change in one unit in the index of online searching-information activities is equal to 30 score points for boys and 19 score points for girls (Table VI.4.13).

Box VI.4.4 **Relationship between online reading, print reading and enjoyment of reading**

Do students who read more often on line also read a diversity of print material more frequently? Or is the reverse true? Contrary to common expectations, students who read more frequently on line also frequently read a diverse array of printed material. Moderate correlations (0.28 on average) are observed between online reading practices and a diversity of print reading material – ranging from 0.20 (Colombia) to 0.33 (Australia) (Table VI.4.20).

More precisely, the average correlation of print reading diversity with online searching-information activities is 0.33, while it is only 0.05 with online social activities. Correlations are noticeably high in the English-speaking countries Australia (0.39) and New Zealand (0.38); in the Nordic countries of Denmark (0.37), Norway (0.34) and Sweden (0.34); in Belgium (0.35) and in France (0.38). Thus, while students who spend more time searching for information on line also spend more time reading a diversity of print material, there is virtually no relationship between the time spent socialising on line and the time spent reading a diversity of print material.

Do students who spend more time reading on line also report more enjoyment in reading? Correlations between online reading practices and enjoyment of reading (attitudes towards reading) are, on average, weak (0.12) and close to zero in Iceland, Austria, Hungary, Poland, Sweden, the partner country Colombia and the partner economy Hong Kong-China. Correlations are somewhat stronger (equal to or higher than 0.20) in the three English-speaking countries of Ireland (0.23), New Zealand (0.21) and Australia (0.20). In these countries, students who read more on line have slightly more positive attitudes towards reading than students who read less on line.

Again, the relationship between enjoyment of reading and online searching-information activities (0.24) is, on average, stronger than its relationship with online social activities (-0.09). There is, in fact, a negative relationship between enjoyment of reading and online social activities: students who are frequently involved in online social activities have, on average, a less positive attitude towards reading.

In short, it appears that students who reported frequent online searching-information activities also read a diversity of print material more frequently, and more often reported enjoying reading. In contrast, students who reported intensive online social activities read neither more nor fewer kinds of print material than students who reported less frequent online social activities. Moreover, they show slightly less positive attitudes towards reading. Online social activities, then, seem to be independent of print reading and online searching-information practices; they are also weakly related to digital reading performance, especially for girls.

In most of the 19 countries that took part in the digital reading option, online social activities are weakly related to digital reading proficiency. The average amount of variation explained in the digital score is only 1.4%. Only in a few countries is the percentage of variation in the digital reading score somewhat more consistent, namely in Chile and the partner country Colombia (both with 8% of variation explained), and in Poland (6% of variation explained). Online social activities are thus less related to digital reading performance than online searching-information activities. Most of the digital reading tasks call for searching-information strategies and navigation, skills that can be developed or reinforced by repeated contact with online searching-information practices. Some tasks more related to online social practices are also included in the digital reading tasks, but those tasks require basic skills that are now familiar to almost all 15-year-olds.

Students who are among the least engaged in online social activities are only 1.35 times more likely to perform poorly (in the bottom quarter of the national distribution of digital reading performance) than students in the most-engaged quarter. The difference between students who reported being the least engaged in such activities and those who reported being most engaged is only 11 score points, on average. Only in Chile, Poland, Hungary, New Zealand, the partner country Colombia and the partner economy Macao-China are the differences between students in the least-engaged (bottom) quarter and students in the other three (more engaged) quarters somewhat greater. In fact, a unique pattern arises here: the least engaged (first quarter) and the most engaged (fourth quarter) attain, on average, the weakest scores: 489 and 500, respectively (OECD average). Meanwhile, moderately engaged (second and third quarters) students attain, on average, slightly better scores: 508 for those in the second quarter and 509 for those in the third quarter.

Thus, online searching-information activities are linked more linearly to better digital reading performance: the more the students are involved in searching information on line, the better they perform on digital reading tasks, even if the difference between the third and the fourth quarters is small. For online social activities, there is a kind of "optimum threshold" of involvement in those activities.[13] Students who are below this threshold are at risk of performing less well on digital reading tasks than students who reach this threshold. Being unfamiliar with online social practices seems to be associated with low digital reading proficiency; but students who frequently e-mail and chat on line also perform less well than students moderately involved in these activities.

In 11 out of the 19 countries, the relationship between online social activities and digital performance is not significantly different for boys and girls. In Austria, Ireland, Hungary Iceland, New Zealand, Australia, Denmark and Sweden, the relationship between online social activities and digital reading proficiency is stronger and more positive for boys than for girls. In Hungary, for instance, the score point difference associated with a change in one unit in the index of online social activities is equal to 22 score points for boys and 11 score points for girls. In most of the above-mentioned countries, the score point difference associated with a change in one unit in the index of online social activities is positive for boys and negative for girls (for instance: -9 for girls, +3 for boys in Austria, -6 for girls, +4 for boys in Iceland, and -5 for girls, +3 for boys in Sweden) (Table VI.4.14).

READING STRATEGIES

Students employ different reading techniques and processes to help them to learn. The PISA 2009 student questionnaire included a number of questions to find out which strategies students favour the most and which strategies are effective. Analyses have focused on two strategies: those to understand and remember information, and those to summarise what they have read. This volume asks whether there is an association between these strategies and digital reading proficiency, and whether there is any difference in how they are associated with digital and print reading proficiency.

Awareness of strategies to understand and remember information

Students were asked to rate different strategies for understanding and remembering information that they had read. The extent to which their ratings corresponded to those of experts determined their score on this index (see Annex A1a for a full description of how this index was constructed).

For both print and digital reading, students in Belgium, Austria, France, Denmark and Ireland, among OECD countries, reported to be most knowledgeable about effective strategies to understand and remember information they have read. Students in Norway, Iceland, Sweden, Poland, the partner country Colombia and the partner economy Hong Kong-China reported to be least knowledgeable about these strategies (Table VI.4.15).

This index is associated with proficiency in both digital and print reading. The relationship appears to be stronger for print reading than for digital reading. The change in score associated with a one standard deviation change in the index is 31.9 points for digital reading and 36.5 points for print reading. The variance explained by this index is 13.1% for digital reading and 15.7% for print reading.

Students with lower levels of awareness of these strategies were more likely to attain lower levels of proficiency in the digital reading assessment: 73% of the students at Level 1a or lower have a low awareness of these strategies (see Table VI.4.16).

Awareness of effective strategies to summarise information

Students were asked to rate different strategies for summarising information that they had read (see Annex A1a for a full description of how this index was constructed).

For both print and digital reading, students in France, Denmark, Belgium, Ireland, and Norway, among OECD countries, reported to be most knowledgeable about effective strategies for summarising information. Students in Iceland, Chile, the partner country Colombia and the partner economies Hong Kong-China and Macao-China reported to be least knowledgeable about these stratetgies.

This variable is associated with proficiency in both digital and print reading. The relationship appears to be stronger for print reading than for digital reading. The change in score associated with a one standard deviation change in the index is 38.4 points for digital reading and 43.0 points for print reading. The variance explained by this index is 19.0% for digital reading and 21.9% for print reading (Table VI.4.17).

MODEL FOR THE RELATIONSHIP BETWEEN READING PERFORMANCE AND STUDENT BACKGROUND CHARACTERISTICS

By combining these variables into a single-level regression model it is possible to examine the amount of variance explained by each of the variables after the effects of the other variables have been accounted for. Since this is a single-level model, it only considers student-level background characteristics (see Table VI.4.19).

Chapter 7 of this report presents a multilevel model that considers student and school aspects together.

■ Figure VI.4.10 ■

Single-level model to explain performance in digital and print reading, OECD average-16

	Variance explained by:										
	Highest occupational status of parents (HISEI)	Highest level of parents' education	Index of cultural possessions	Index of home educational resources	Number of books at home	Index of family wealth	Single-parent family	Immigrant background (first- and second-generation)	Non-native	Language spoken at home	Total explained variance
	%	%	%	%	%	%	%	%	%	%	%
Digital reading	0.7	0.9	0.6	0.7	2.9	0.4	0.1	0.2	0.3	0.2	19.0
Print reading	2.0	0.4	0.8	0.6	3.6	0.8	0.1	0.1	0.2	0.3	22.7

Source: OECD, *PISA 2009 Database*, Table VI.4.19.
StatLink http://dx.doi.org/10.1787/888932435416

Parents' occupation

PISA obtains information about parents' occupations from student responses to the questionnaire. These are then coded using the ISCO88 coding of occupations. PISA uses the higher of the two parents' occupations (labelled HISEI). In the 16 relevant OECD countries, parents' occupation, by itself, explained 0.7% of the variance in digital reading performance and 2.0% of the variance in print reading performance as shown in Figure VI.4.10.

Parents' education

PISA obtains information about parents' education from responses in the student questionnaire, then converts the responses to years of schooling. The higher value of the two parents is used in the analysis. Parents' education, by itself, accounted for just 0.9% of the variance in digital reading performance and 0.4% of the variance in print reading performance.

Number of books in the home

Students were asked to estimate the number of books in their homes to determine whether that has any relationship with student performance. Table VI.4.19 shows that, on average across OECD countries, the number of books at home explains 2.9% and 3.6% of the variance in student performance in digital reading and print reading, respectively.

The fact that the number of books (*i.e.* printed reading material) at home is associated with performance in digital reading underscores the importance of reading as the foundation for lifelong learning.

Cultural possessions

The *index of cultural possessions* is based on students' responses to whether they had the following at home: classic literature, books of poetry, and works of art. In the model, cultural possessions accounted for less than 1% of the variance in student performance in both digital and print reading.

Home educational resources

The *index of home educational resources* is based on the items that measure the level of educational resources at home, such as a desk and a quiet place to study, a computer that students can use for schoolwork, educational software, books to help with students' school work, technical reference books, and a dictionary. In the model, home education resources accounted for less than 1% of the variance in student performance in both digital and print reading.

CONCLUSIONS

Results of previous PISA surveys have shown that one of the most important aspects related to student performance in print reading is students' enjoyment of reading. This was also true in PISA 2009, as the *index of enjoyment of reading* explained 20% of the variation in student performance in print reading, with a 103 score point difference between the least enthusiastic and the most enthusiastic students. In digital reading, the relationship is not quite as strong, with the index explaining 14% of the variation and an 89 score point difference between the least enthusiastic and the most enthusiastic students.

Students who read widely also tend to be more proficient in print reading and in digital reading, with a 53 score point difference on the digital reading scale between those who read a narrow range of materials and those who read a more diverse mix of materials. Online reading practices account for more of the variation in digital reading (6%) than in print reading (3%).

The socio-economic background of students, as expressed in the *PISA index of economic, social and cultural status*, influences both print and digital reading. When examining the social gradient, or the extent to which socio-economic background affects performance, it was found that, across participating OECD countries, a one unit difference in the index was associated with a 38 score point difference in digital reading performance and a 40 score point difference in print reading performance. PISA results also show that 14.1% of the variation in student performance in digital reading is explained by socio-economic background – a percentage almost identical to that in print reading (14.4%).

What seems most remarkable about this set of results is the similarity in the relationship between these aspects and student performance in both print and digital reading. Students' attitudes and family backgrounds seem to have much the same effects on reading proficiency in both media.

Notes

1. For full details of the calculation of the *PISA index of economic, social and cultural status*, see the *PISA 2009 Technical Report* (OECD, forthcoming).

2. Japan and Korea are not represented in this figure because they have insufficient numbers of immigrant students.

3. For a detailed description of the index, see Annex A1a and the *PISA 2009 Technical Report* (OECD, forthcoming).

4. When analyses refer to the countries that took part in the digital reading option (19 countries), the average is computed for the 16 OECD countries out of the 19 countries. The partner countries and economies Colombia, Hong Kong-China and Macao-China are not included in the average.

5. The variation of the relationship between reading enjoyment and digital reading proficiency related to gender is not statistically significant in 15 out of 19 countries.

6. In order to allow for the comparison, the percentage of variation explained for print reading has been computed for the same set of 16 OECD countries that participated in the digital reading option. Results from this volume are comparable with those for print reading in Volume III.

7. For a detailed description of the index, see Annex A1a.

8. It is calculated based on the 16 OECD countries that administered the digital reading assessment.

9. The proportion of the variance explained by the index of online reading activities was complutered based on the *PISA 2009 Database* (*www.pisa.oecd.org*).

10. A factor analysis performed on equally weighted countries extracts two factors. The first explains 22% of the total variance and the second explains 14% of the total variance.

11. The proportion of the variance in performance explained by the index of online reading activities was computed based on the *PISA 2009 Database* (*www.pisa.oecd.org*)

12. An analysis aimed at estimating whether the curvilinear relationship between online searching information and digital proficiency is significant shows that curvilinearity is statistically significant in each of the participating countries.

13. An analysis aimed at estimating whether the curvilinear relationship between online social practices and digital proficiency is significant shows that curvilinearity is statistically significant in each of the participating countries.

5

Students' Familiarity with Information and Communication Technologies

Which students benefit from information and communication technologies (ICT) and which are being left behind on the analogue side of the digital divide? This chapter examines students' access to and use of ICT and explores their attitudes towards and self-confidence in using computers. Findings are also discussed in relation to students' gender and socio-economic background. Trends in access to ICT and in students' self-confidence in using computers over the past decade are also examined.

Information and communication technologies (ICT) can support and enhance learning. With access to computers and the Internet, students can acquire knowledge beyond that which is available through the teachers and physical resources at their school. ICT provide students with new ways to present what they are learning through such tools as word processing, spreadsheets and multimedia presentations, or by creating online blogs and websites. ICT also allow students to collaborate, communicate and share their knowledge through e-mail, online chat and web forums. How do students use ICT at school and at home? Which students benefit from ICT and which students are being left behind on the analogue side of the digital divide?

The digital divide can separate people by national borders, socio-economic background, gender or geographic factors. Prior studies have shown that there is a digital divide in access to ICT between developed and less-developed countries (Dewan, *et al*., 2005; Carsten and Charles, 2003). Another study, which compares Asian and non-Asian countries (Wong, 2002), shows that Asian countries are lagging behind in adopting ICT compared with non-Asian countries with a similar level of GDP per capita.

The digital divide has also been examined within countries. Socio-economically disadvantaged students who have no or limited access to ICT at home have to spend more time looking for them outside the home. As a result, they have that much less time to finish the tasks required of them (Robinson and Laura, 2009). These disadvantages, in turn, make such students less efficient ICT users. They generally have few skills in searching for information on line, and are also less able to identify information that is relevant to the task at hand and to determine whether that information is credible.

Schools could play a more important role in bridging the digital divide. Studies have shown that public libraries and after-school lessons are frequently the places where disadvantaged students can gain access to and training in ICT (Gordon and Gordon, 2003; Sullivan and Vander, 2009).

The digital divide is no longer only about having physical access to a computer and the Internet at home and at school. While it is still true that students without or with only limited access to ICT at home and at school will not reap the same benefits as those with unrestricted access, a second digital divide is emerging between those who have the skills to benefit from ICT use and those who do not. Understanding how and where students use ICT, and their attitudes towards and confidence in using them, is essential for assessing the extent to which students are being prepared for full participation in the knowledge-based economy.

This chapter first presents and analyses data on students' access to ICT from PISA 2009, and examines changes in access to ICT from PISA 2000 to PISA 2009. The analysis is followed by the examination of students' use of ICT and students' attitudes towards and confidence in using computers. Changes in students' confidence in using computers between PISA 2003 and 2009 are also discussed.

Throughout the chapter, the relationship between gender and socio-economic background and student access, use and attitudes towards ICT is examined. These analyses offer a snapshot of the digital divide between and within countries and economies. This chapter also lays the groundwork for Chapter 6, in which the relationship between students' familiarity and engagement with ICT and performance in digital reading is discussed.

STUDENTS' ACCESS TO ICT

Do students have access to a computer and the Internet at home and/or at school? Is the digital divide among countries and socio-economic groups widening or narrowing? Does investing in ICT resources for schools mean that more students are using computers and connecting to the Internet at school? PISA tries to answer these and other questions by comparing students' access to ICT across countries and monitoring changes in that access over time. This chapter extends the analysis of ICT access beyond the physical presence of a computer or Internet connection and examines the extent to which students can actually use ICT at home and school.

The number of students who have never used a computer

The most basic measure of students' access to and familiarity with ICT is whether or not they have used a computer. In 2009, on average across OECD countries, fewer than 1% of students reported that they had never used a computer. In Greece, Turkey, Japan and Israel, between 2% and 3% of students so reported, while the partner countries Panama and Jordan showed the highest levels of non-use, with 10% and 7% of students, respectively, reporting that they had never used a computer (Figure VI.5.1 and Table VI.5.1).

Box VI.5.1 How information on students' familiarity with ICT was collected

PISA offers internationally comparable information on students' access to and use of computers and their general attitudes towards and self-confidence in using computers. In PISA 2009, 29 OECD countries and 16 partner countries and economies chose to administer the optional ICT familiarity component for the student questionnaire. This questionnaire was not designed to assess the quality of ICT use at school and the integration of ICT in pedagogy to enhance students' higher-order thinking skills; rather, it focuses on students' use of ICT to access, manage and present information.

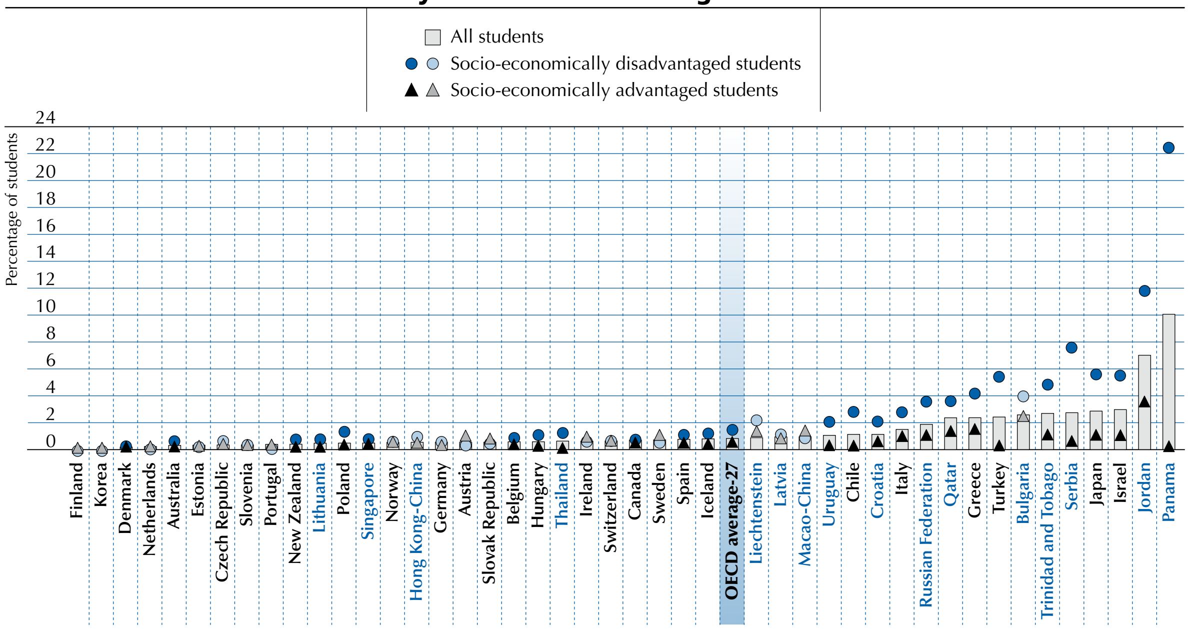
The OECD countries that participated were Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland and Turkey.

The partner countries and economies that participated were Bulgaria, Croatia, Hong Kong-China, Jordan, Latvia, Liechtenstein, Lithuania, Macao-China, Panama, Qatar, the Russian Federation, Serbia, Singapore, Thailand, Trinidad and Tobago and Uruguay.

In the ICT familiarity questionnaire, students provided information on how often they used a computer, and what type of computer they used at home and at school. Students also reported on their attitudes towards using a computer and their self-confidence in computer use and technical proficiency. Additional information on student ICT access at home and school was derived from particular items within the student and school questionnaires. In the student questionnaire, students answered questions on whether or not they had a home computer to use for schoolwork, educational software, a link to the Internet or other educational resources. As part of the school questionnaire, principals provided information on the availability of computers at their schools and on whether they felt that a lack of computers hindered instruction in their school. Given the availability of PISA data since 2000, it was possible to analyse trends in students' access to, attitudes towards and self-confidence in using computers for some of the participating countries.

■ Figure VI.5.1 ■

Percentage of students who reported that they have never used a computer, by socio-economic background



Note: Countries in which the difference between socio-economically advantaged and disadvantaged students (top and bottom quarters of the *PISA index of economic, social and cultural status*) is statistically significant are marked in a darker tone.
Countries are ranked in ascending order of the percentage of all students who reported that they have never used a computer.
Source: OECD, *PISA 2009 Database*, Table VI.5.1.
StatLink http://dx.doi.org/10.1787/888932435435

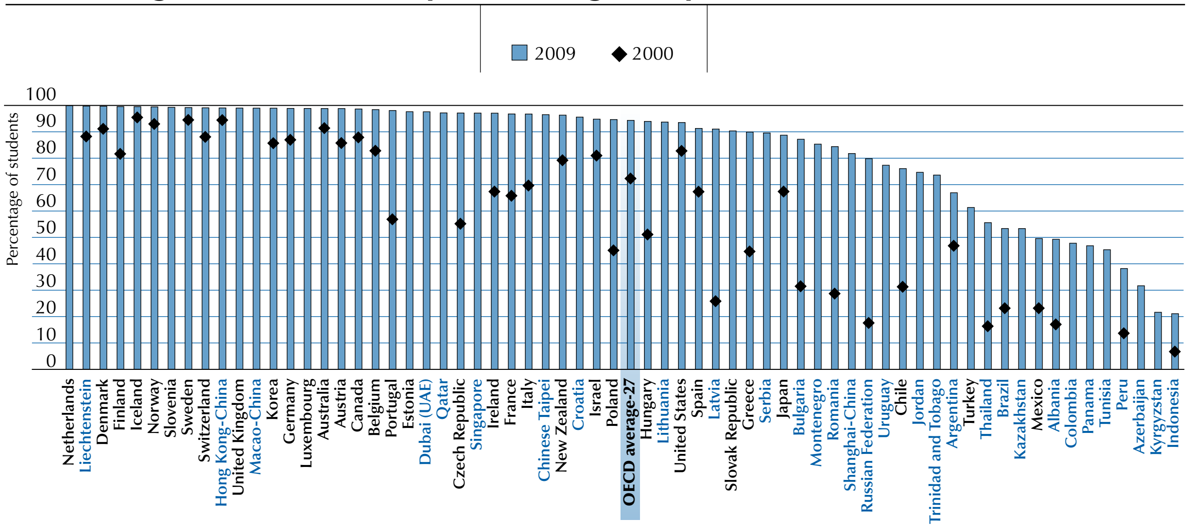
Students' access to a computer and the Internet at home

Access to a home computer

In the 2000 and 2009 PISA student questionnaires, students were asked to report how many computers they had at home. Figure VI.5.2 shows the percentage of students in each country who have at least one computer at home in 2009. This percentage is also shown for countries that took part in PISA 2000.

■ Figure VI.5.2 ■

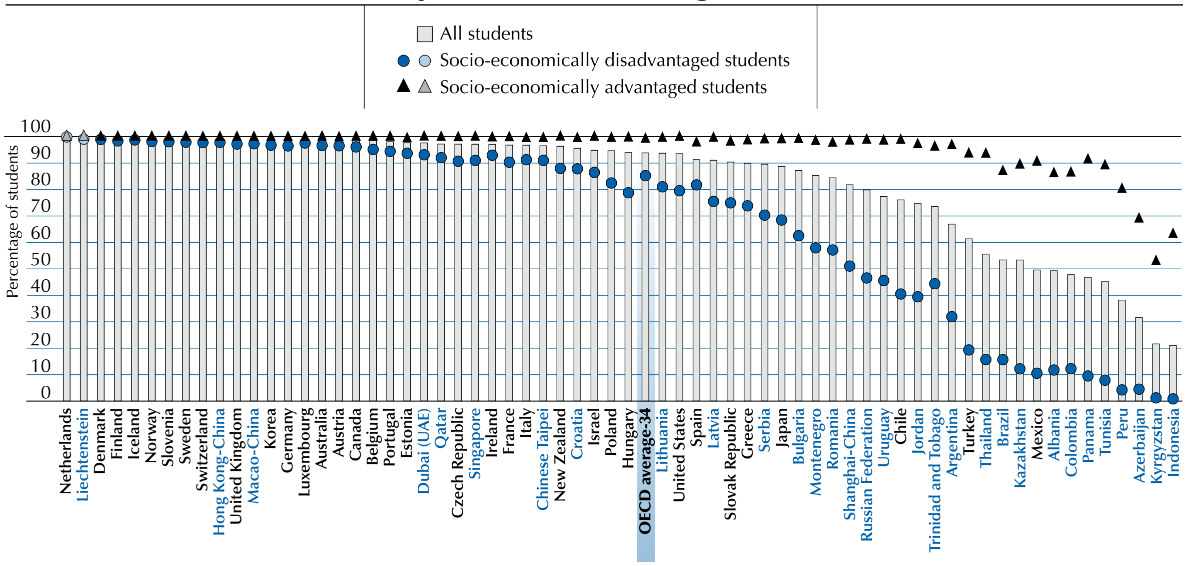
Percentage of students who reported having a computer at home in PISA 2000 and 2009



Notes: All differences between 2000 and 2009 are statistically significant.
OECD averages in 2000 and 2009 for 27 countries. OECD average in 2009 for 34 countries is 93.8%.
Countries are ranked in descending order of percentage of students who reported having a computer at home in PISA 2009.
Source: OECD, *PISA 2009 Database*, Tables VI.5.2 and VI.5.3.
StatLink http://dx.doi.org/10.1787/888932435435

■ Figure VI.5.3 ■

Percentage of students who reported having a computer at home, by socio-economic background



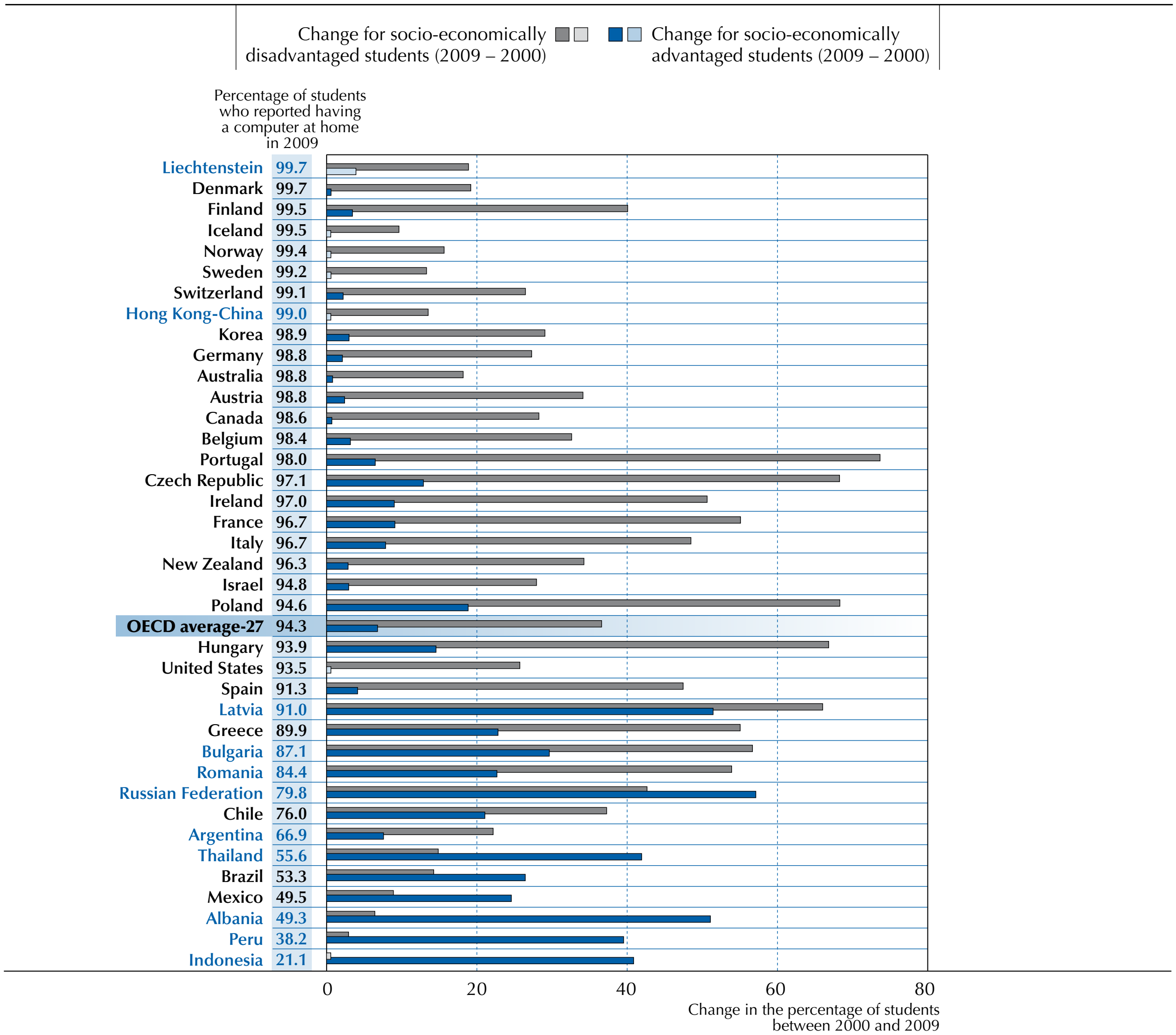
Note: Countries in which the difference between socio-economically advantaged and disadvantaged students (top and bottom quarters of the *PISA index of economic, social and cultural status*) is statistically significant are marked in a darker tone.
Countries are ranked in descending order of the percentage of all students who reported having a computer at home.
Source: OECD, *PISA 2009 Database*, Table VI.5.3.
StatLink http://dx.doi.org/10.1787/888932435435

On average across OECD countries, 94% of students reported that they had a computer at home. In 17 OECD countries and the partner countries and economies Liechtenstein, Hong Kong-China and Macao-China, at least 98% of students reported having a computer at home. Student access to a home computer was below 80% only in Chile (76%), Turkey (61%) and Mexico (50%) among OECD countries. Among the partner countries, fewer than 50% of students reported having a computer at home in Albania (49%), Colombia (48%), Panama (47%), Tunisia (45%), Peru (38%), Azerbaijan (31%), Kyrgyzstan (22%) and Indonesia (21%) (Figure VI.5.2 and Table VI.5.3).

On average across the OECD countries that took part in PISA 2000 and 2009, the percentage of students who reported having at least one computer at home increased from 72% in 2000 to 94% in 2009. Iceland, Sweden, Norway and the partner economy Hong Kong-China showed small gains to 99% in 2009, from levels of 93% or more in 2000. Between 2000 and 2009, Poland and the partner countries Latvia, the Russian Federation, Bulgaria and Romania showed gains of 50 percentage points or more in the proportion of students who reported that they had access to a computer at home (Figure VI.5.2 and Table VI.5.2).

■ Figure VI.5.4 ■

Change in the percentage of students who reported having a computer at home between 2000 and 2009, by socio-economic background



Note: Changes that are statistically significant are marked in a darker tone.
Socio-economically disadvantaged students are those in the bottom quarter of the *PISA index of economic, social and cultural status* (ESCS) and socio-economically advantaged students are those in the bottom quarter of this index.
Countries are ranked in descending order of the percentage of students who reported having a computer at home in 2009.
Source: OECD, *PISA 2009 Database,* Table VI.5.4.
StatLink http://dx.doi.org/10.1787/888932435435

Figure VI.5.3 shows the relationship between student socio-economic background and access to a computer at home. Students who were in the top quarter of the *PISA index of economic, social and cultural status* (ESCS) in their country were categorised as being relatively advantaged, and those in the bottom quarter were categorised as being relatively disadvantaged. In all countries and economies, other than the Netherlands and Liechtenstein, socio-economically advantaged students showed higher levels of access to a computer at home than disadvantaged students. The gap between advantaged and disadvantaged students is largest in countries with lower overall levels of access to home computers. A gap of 70 percentage points in favour of advantaged students is evident in Mexico, Turkey and the partner countries Panama, Tunisia, Thailand, Kazakhstan, Peru, Albania, Columbia and Brazil (Table VI.5.3).

Figure VI.5.4 shows the change from 2000 to 2009 in the proportion of socio-economically advantaged and disadvantaged students who reported having access to a computer at home. This can be seen as a measure of the extent to which countries have made progress in reducing the digital divide of physical access to a computer. On average across OECD countries, the increase in access to a home computer between 2000 and 2009 was larger for disadvantaged students (37 percentage points) than for advantaged students (7 percentage points). Countries that have narrowed the digital divide between advantaged and disadvantaged students are also those that show nearly universal access to computers. In contrast, in Mexico and the partner countries Albania, Indonesia, Peru, Thailand, the Russian Federation and Brazil, the digital divide between advantaged and disadvantaged students has widened since 2000, as more advantaged than disadvantaged students reported having access to home computers (Figure VI.5.4 and Table VI.5.4).

Home Internet access

Access to the Internet can represent a qualitative, as well as quantitative, difference in the educational resources available to students. Developing skills to navigate and use the Internet effectively is increasingly important for full participation in a knowledge-based society. Figure VI.5.5 shows the percentage of students in each country who reported having access to the Internet at home. On average across OECD countries, 89% of students reported that they have access to the Internet at home. The Netherlands, Norway, Finland, Denmark, Iceland, Sweden, Switzerland, the partner country Liechtenstein and the partner economy Hong Kong-China showed levels of home Internet access of 98% or more. In Mexico and 11 partner countries, less than 40% of students reported having a link to the Internet at home. The lowest levels were reported in Kyrgyzstan (14%) and Indonesia (8%) (Table VI.5.6).

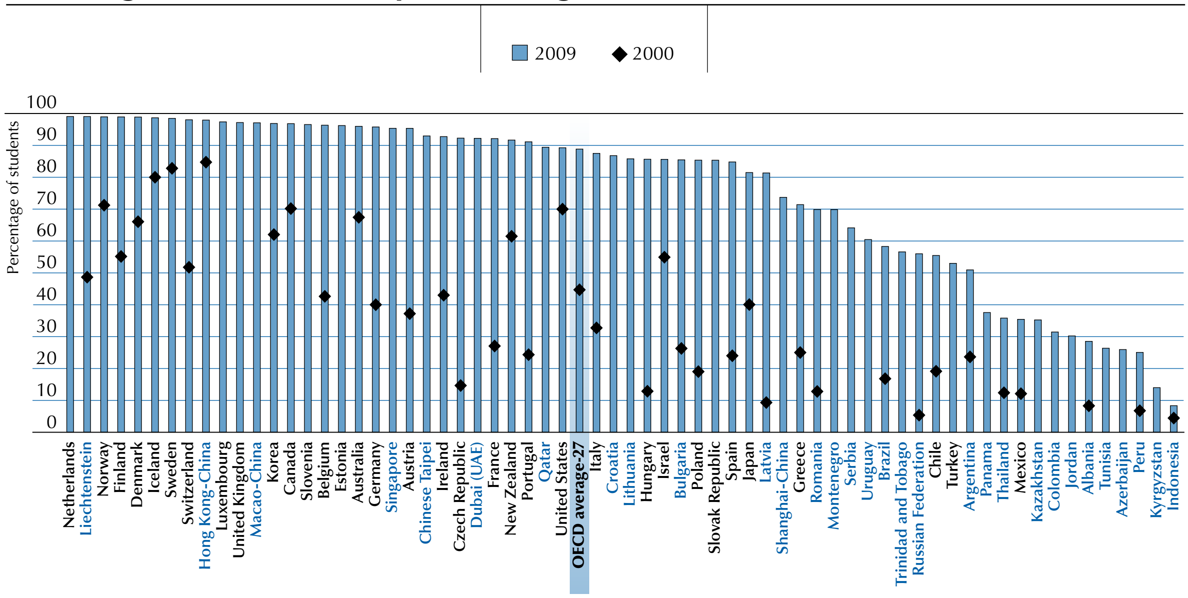
In the countries for which data from PISA 2000 is available, the opportunities for 15-year-old students to access the Internet have improved dramatically. On average across OECD countries, the proportion of students who reported having the Internet at home doubled from 45% to 89% between 2000 and 2009. There was notable growth in home Internet access in the Czech Republic, Hungary, Poland and the partner country Latvia, from less than 20% of students in 2000 to more than 80% of students in 2009 (Figure VI.5.5 and Table VI.5.5).

As shown in Figure VI.5.6, the relationship between students' socio-economic background and access to the Internet at home is more pronounced than that for computer access (Figure VI.5.3). In all countries and economies other than the partner country Liechtenstein, socio-economically advantaged students reported higher levels of Internet access at home than disadvantaged students. In general, countries with lower overall levels of Internet access have larger gaps in access to the Internet at home that are related to socio-economic background. The gap between advantaged and disadvantaged students in home Internet access is more than 70 percentage points in Chile, Mexico and the partner countries Panama, Thailand and Argentina (Table VI.5.6).

On average across OECD countries, the proportion of disadvantaged students with Internet access at home increased by 54 percentage points – from 22% in 2000 to 76% in 2009 – while home Internet access for advantaged students rose from 71% to 98% during the same period (Figure VI.5.7). While there is still a socio-economic gap of 22 percentage points, that gap has narrowed. In contrast, in Mexico, Chile, Hungary and the partner countries the Russian Federation, Albania, Thailand, Peru, Romania, Latvia, Indonesia, Argentina and Brazil, the increase in Internet access at home since 2000 was mainly seen among advantaged students, indicating a widening of the socio-economic gap (Table VI.5.7).

■ Figure VI.5.5 ■

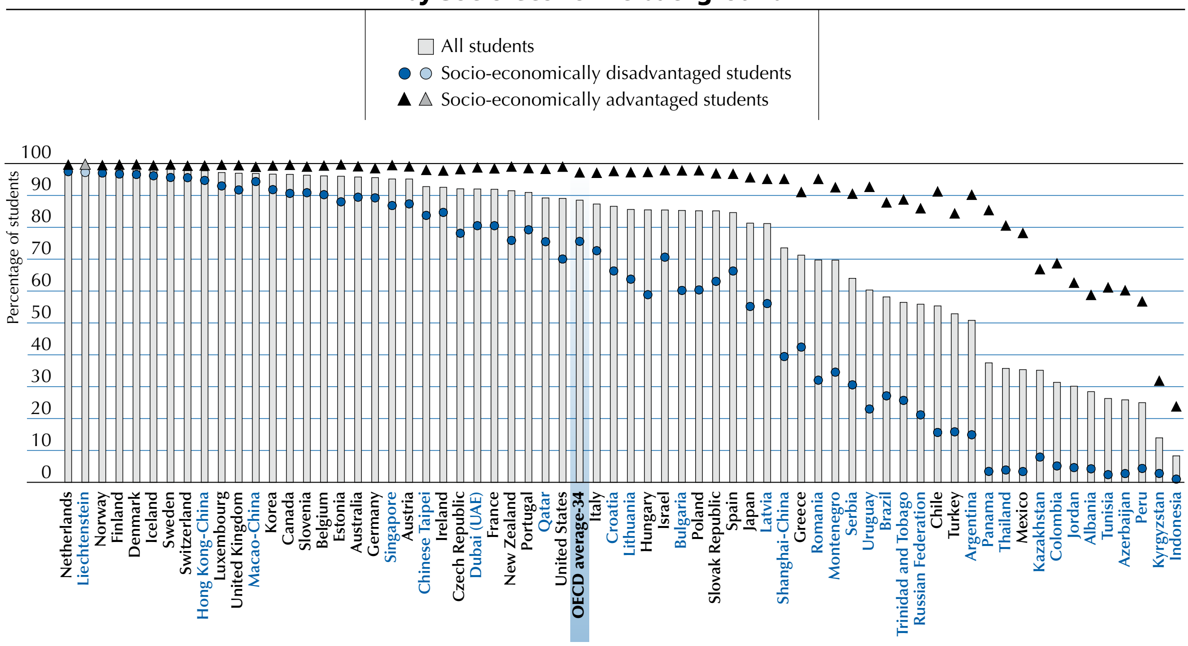
Percentage of students who reported having access to the Internet at home in 2000 and 2009



Notes: All differences between 2000 and 2009 are statistically significant.
OECD averages in 2000 and 2009 include 27 countries. The OECD average in 2009 for 34 countries is 88.7%.
Countries are ranked in descending order of the percentage of students who reported having access to the Internet at home in 2009.
Source: OECD, *PISA 2009 Database,* Tables VI.5.5 and VI.5.6.
StatLink http://dx.doi.org/10.1787/888932435435

■ Figure VI.5.6 ■

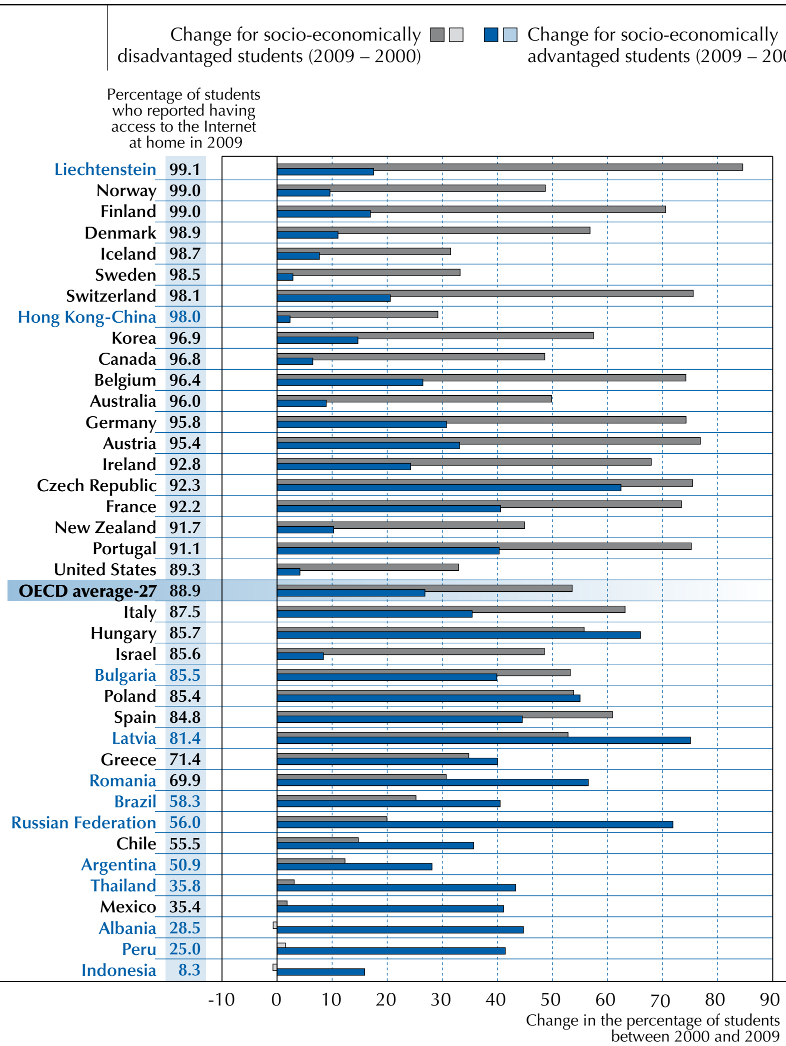
Percentage of students who reported having access to the Internet at home, by socio-economic background



Note: Countries in which the difference between socio-economically advantaged and disadvantaged students (top and bottom quarters of the *PISA index of economic, social and cultural status*) is statistically significant are marked in a darker tone.
Countries are ranked in descending order of the percentage of students who reported to have access to the Internet at home.
Source: OECD, *PISA 2009 Database,* Table VI.5.6.
StatLink http://dx.doi.org/10.1787/888932435435

■ Figure VI.5.7 ■

Change in the percentage of students who reported having access to the Internet at home between 2000 and 2009, by socio-economic background

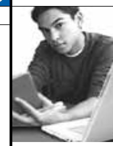


Note: Changes that are statistically significant are marked in a darker tone.
Socio-economically disadvantaged students are those in the bottom quarter of the *PISA index of economic, social and cultural status* (ESCS) and socio-economically advantaged students are those in the bottom quarter of this index.
Countries are ranked in descending order of the percentage of students who reported having access to the Internet at home in 2009.
Source: OECD, *PISA 2009 Database,* Table VI.5.4.
StatLink http://dx.doi.org/10.1787/888932435435

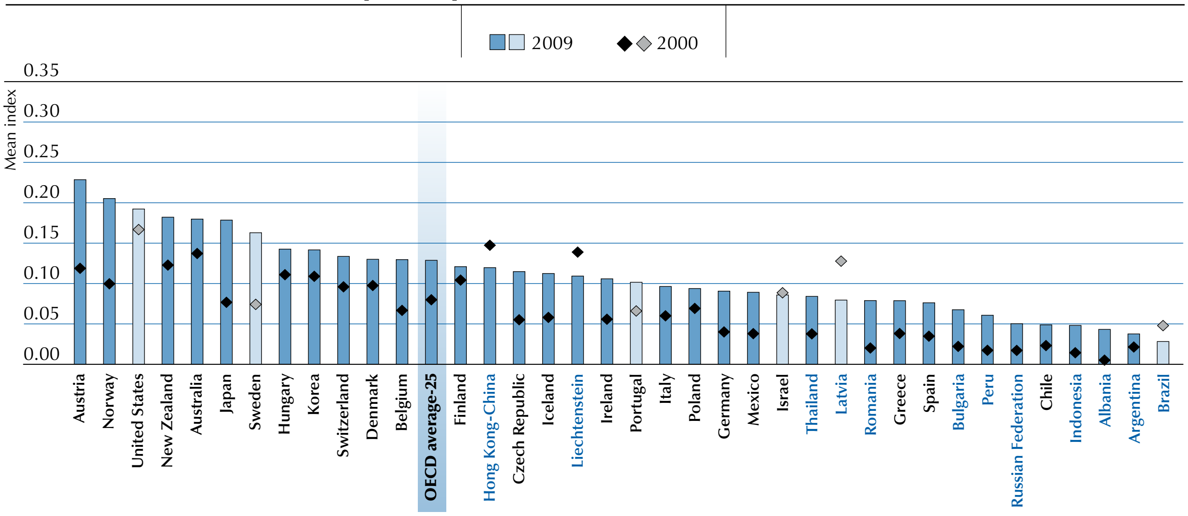
Students' access to computers and the Internet at school

The number of computers available per student

A key indication of students' physical access to ICT resources is the number of computers available per student at school and access to the internet. Access to ICT is important, as students' use of ICT for learning partly depends on the extent to which they can gain individual access to a computer. Two types of computer-student ratios were calculated from information provided by school principals in the PISA school questionnaire. The first type of ratio is the number of computers available for students in the modal grade for 15-year-olds, divided by the number of students in the modal grade for 15-year-olds. The second type of ratio is the number of computers available for students in the modal grade for 15-year-olds divided by the total number of students in school. The first ratio is the more precise indicator of the computers-per-student ratio, as both the denominator and numerator consider the same group of students. The second ratio is developed as a proxy only to examine the change in the ratios over time, since the number of students in the modal grade for 15-year-olds was not asked in PISA 2000. As expected, these two types of the ratios in PISA 2009 are highly correlated.[1]



■ Figure VI.5.8 ■
Computers-per-student ratio in 2000 and 2009



Notes: Countries where differences between 2000 and 2009 are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the computers-per-student ratio in 2009.
Source: OECD, *PISA 2009 Database,* Table VI.5.8b.
StatLink http://dx.doi.org/10.1787/888932435435

On average across OECD countries, the computers-per-student ratio – the ratio of computers available for students in the modal grade for 15-year-olds to students in that grade – was 0.56 (Table VI.5.8a). Countries with the highest levels of computers per student in 2009 were Australia, New Zealand, the United Kingdom, Austria, Denmark, Canada, the United States and Norway, all with computer-student ratios above 0.72. The lowest levels were reported in the partner countries Tunisia, Indonesia, Montenegro, Brazil and Kyrgyzstan, with only one computer available per five or more students (Table VI.5.8).

In all 25 OECD countries for which data are available for both PISA 2000 and 2009, there was an increase in the computer-per-student ratio, which is evidence of substantial investment in school ICT resources. Austria and Norway showed the largest increases, with an improvement of 0.11 ratio index points. Only in the partner country Liechtenstein and the partner economy Hong Kong-China was there a small decrease of 0.03 ratio index point in the number computers per student since 2000 (Figure VI.5.8 and Table VI.5.8). This change may have been the result of an increase in the student population during this period rather than a reduction in the number of computers available (OECD, 2003).

The number of students who have access to a computer at school

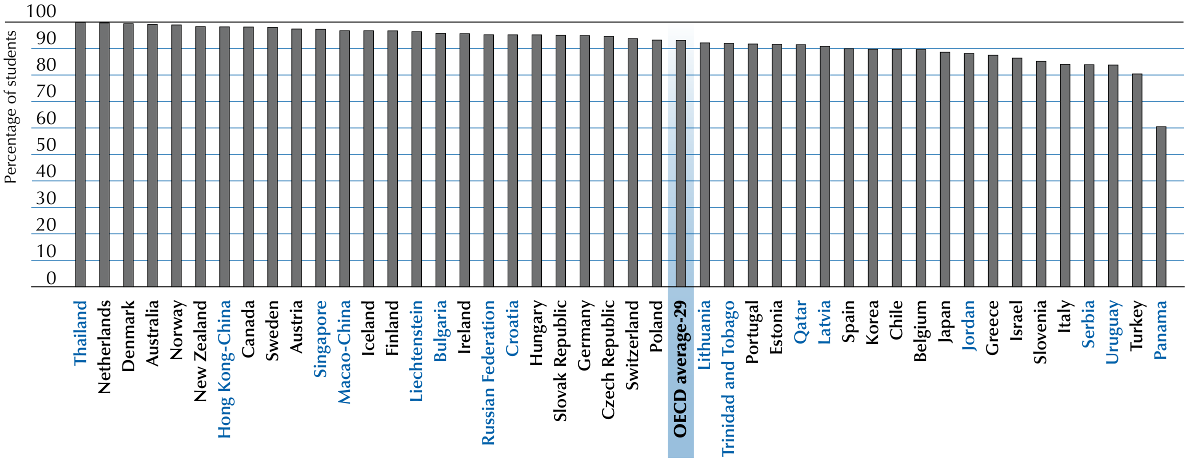
As part of the ICT familiarity questionnaire, students were asked if there are computers available to use at school. On average across OECD countries, 93% of students reported that they have access to a computer at school (Figure VI.5.9). More than 98% of students in the Netherlands, Denmark, Australia, Norway, New Zealand, Canada, Sweden, the partner country Thailand and the partner economy Hong Kong-China reported having access to a computer at school. In all OECD countries and the partner countries, except Panama, more than 80% of students reported having access to a computer at school. Only 61% of students in Panama, the lowest proportion among all participating countries, reported having access to a computer at school (Table VI.5.9).

The number of computers available that are connected to the Internet

On average across OECD countries, in 2009, 93% of students reported having access to computers connected to the Internet at school (Figure VI.5.10). Fewer than 85% of students reported having access to school computers that were connected to the Internet in Italy (72%), Turkey (77%), Japan (84%) and Israel (84%) and in the partner countries Serbia (65%), Qatar (73%), Jordan (73%), Uruguay (79%) and Trinidad and Tobago (83%). Fewer than 50% of students in the partner country Panama reported having access to school computers connected to the Internet (Table VI.5.9). This lack of Internet connectivity could deny students the benefits of educational resources available through the World Wide Web.

■ Figure VI.5.9 ■

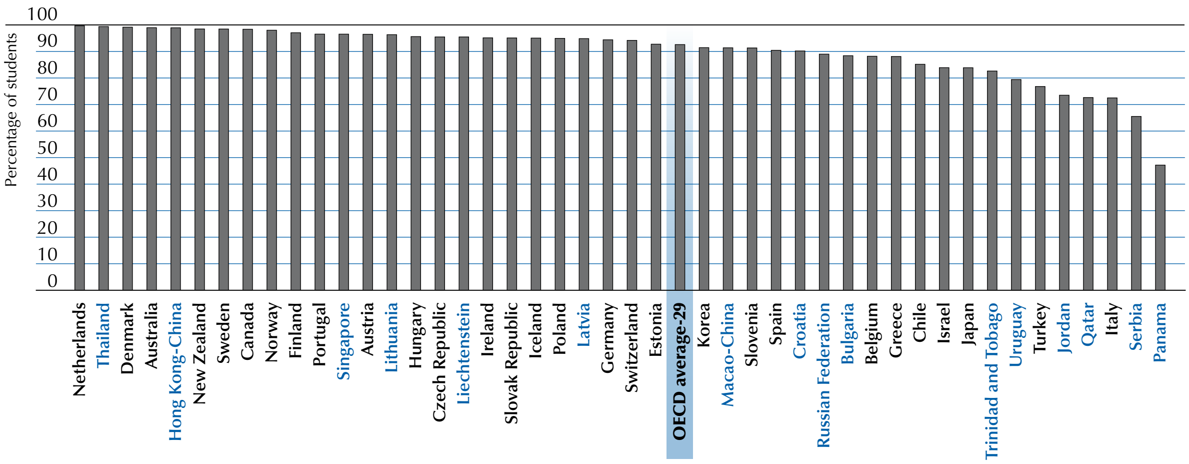
Percentage of students with access to computers at school



Countries are ranked in descending order of the percentage of students with access to computers at school.
Source: OECD, *PISA 2009 Database,* Table VI.5.9.
StatLink http://dx.doi.org/10.1787/888932435435

■ Figure VI.5.10 ■

Percentage of students with access to the Internet at school



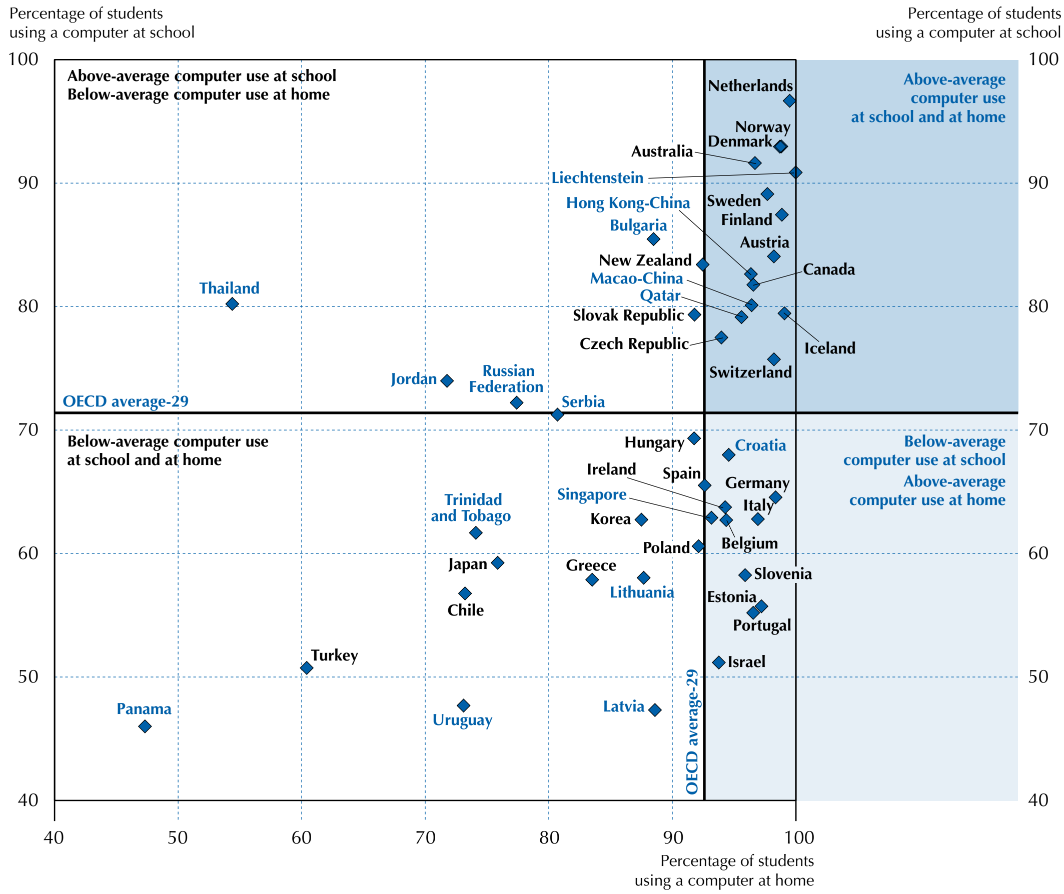
Countries are ranked in descending order of the percentage of students with access to the Internet at school.
Source: OECD, *PISA 2009 Database,* Table VI.5.9.
StatLink http://dx.doi.org/10.1787/888932435435

A comparison of computer use at home and at school

Students in PISA 2009 were asked whether or not they had a desktop or laptop computer available and used it, at home and/or at school. On average across OECD countries, a greater proportion of students reported that they use a computer at home (93%) than at school (71%). The proportion of students who reported that they use a computer at home and at school varied substantially across countries and economies (Figure VI.5.11 and Table VI.5.10a). Figure VI.5.11 shows the relationship between the percentage of students who use a computer at home (horizontal axis) and the percentage of students who use a computer at school (vertical axis). The top-right corner shows those countries that have a high percentage of students who use computers both at home and at school compared with the OECD average; the top-left corner shows those that are below the OECD average for home computer use but above the average for school computer use; the lower-left corner shows those with low levels of home and school computer use when compared to the OECD average; and the lower-right corner shows those countries where a high percentage of students use computers at home but a below-average proportion of students use them at school.

■ Figure VI.5.11 ■

Percentage of students who reported using a computer at home and at school



Source: OECD, *PISA 2009 Database*, Table VI.5.10a.

StatLink http://dx.doi.org/10.1787/888932435435

The proportion of students who reported that they use a computer at school varies substantially across countries and economies. Across OECD countries, an average of 71% of students reported that they use a computer at school. In the Netherlands, Denmark, Norway, Australia and the partner country Liechtenstein, more than 90% of students reported using a computer at school. In contrast, less than 60% of students reported doing so in Japan, Slovenia, Greece, Chile, Estonia, Portugal, Israel, Turkey and the partner country Lithuania. Less than 50% of students reported doing so – the lowest levels – in the partner countries Uruguay, Latvia and Panama.

The proportion of students who use a computer at home was greater, and varies less, across all participating countries and economies than that of students who use a computer at school. On average across OECD countries, 93% of students reported that they use a computer at home. In 16 OECD countries, and the partner country and economies Liechtenstein, Macao-China and Hong Kong-China, at least 95% of students reported that they use a computer at home. Among OECD countries, Japan (76%), Chile (73%) and Turkey (60%) show the lowest proportions of 15-year-olds who use a computer at home. The partner countries Thailand and Panama show the lowest levels of student computer use at home: 54% and 47% of students, respectively. Across OECD countries, the difference between students who reported using a computer at home and those who reported using a computer at school averages 21 percentage points; in 8 OECD countries and 2 partner countries, the difference is between 30 and 43 percentage points. This indicates that the adoption of ICT for learning in schools has not kept pace with the use of ICT at home. As data show that most students have access to a computer at school, it is likely that the low level of ICT use at school indicates that ICT has not yet been fully integrated into pedagogical practices. Only in the partner countries Thailand and Jordan is the proportion of students who reported using a computer at school larger than that of those who reported using a computer at home. In Thailand, an average of 26% more students reported using a computer at school than reported using a computer

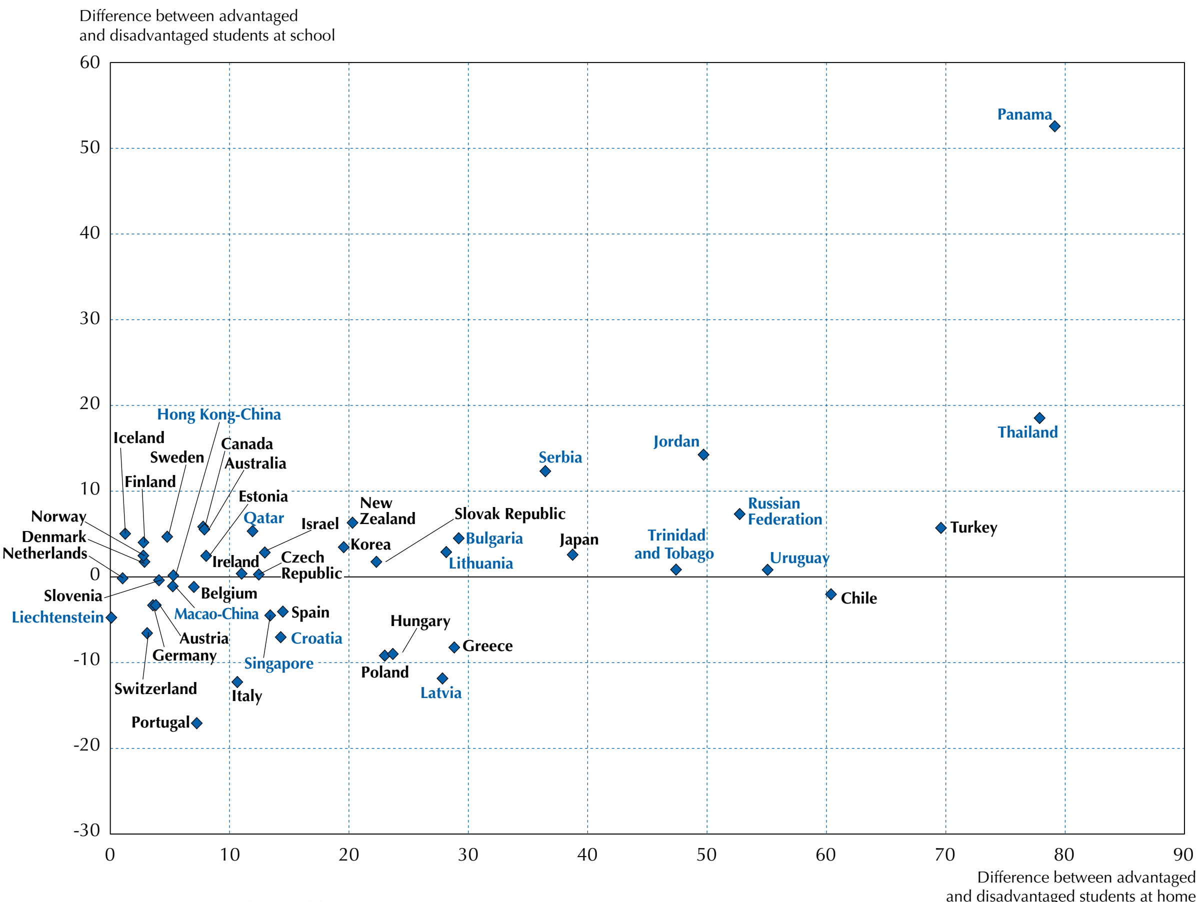
at home (Table VI.5.10a). The use of a computer at school may help to compensate for comparatively low levels of computer use at home. In fact, in Thailand, 46% of students reported that they do not use computers at home, but 67% of these students reported that they use computers at school (Table VI.5.10b).

Are there any digital divides in computer use among socio-economic groups? While in most countries and economies students' computer use at school is not related to their socio-economic background, students' computer use at home is linked to their socio-economic background in all countries and economies except Liechtenstein (Table VI.5.10a). Across OECD countries, 71% of both socio-economically advantaged and disadvantaged students reported that they use computers at school. However, 98% of socio-economically advantaged students reported that they use computers at home, while 83% of disadvantaged students reported that they do so. The gap between advantaged and disadvantaged students in the proportion who use computers at home is largest in countries with lower overall levels of computer use at home. The difference is 50 percentage points or higher in favour of advantaged students in Turkey, Chile, and the partner countries Panama, Thailand, Uruguay, and the Russian Federation. The difference is over 35 percentage points but less than 50 percentage points in Japan, and the partner countries Jordan, Trinidad and Tobago and Serbia.

Would students' use of computers at school help to compensate for comparatively low levels of computer use at home among disadvantaged students? As presented in Figure VI.5.12, in Portugal, Italy, Poland, Hungary, Greece, Switzerland, and the partner countries Latvia, Croatia and Singapore, socio-economically disadvantaged students are more likely to use computers at school than advantaged students. The differences vary between 4 and 17 percentage points. In these countries, disadvantaged students, who are less likely to use computers at home, are given more opportunities to use computers at school than advantaged students are.

■ Figure VI.5.12 ■

Percentage of students who reported using a computer at home and at school, by socio-economic background



Source: OECD, *PISA 2009 Database,* Table VI.5.10a.
StatLink http://dx.doi.org/10.1787/888932435435

In contrast, in New Zealand, Canada, Australia, Iceland, Sweden, Finland and the partner countries Panama, Thailand, Jordan, Serbia, the Russian Federation, Qatar and Bulgaria, socio-economically advantaged students are more likely to use computers at school than disadvantaged students. In these countries, inequities in the levels of computers use at home between disadvantaged and advantaged students are further widened by computer use at school.

In the remaining 17 OECD countries and 6 partner countries and economies, there is no difference between disadvantaged and advantaged students in the proportion who use a computer at school. In all of these 23 countries and economies except Liechtenstein, schools fail to reduce inequities in the levels of computer use at home. But in some countries, such as the Netherlands, Denmark and Norway, no difference is observed between socio-economically advantaged and disadvantaged students in the proportion of those who use a computer at school. This is partly due to the fact that over 90% of students, regardless of their socio-economic background, use computers at school. These analyses, however, do not examine types of ICT usage. That is discussed in the next section.

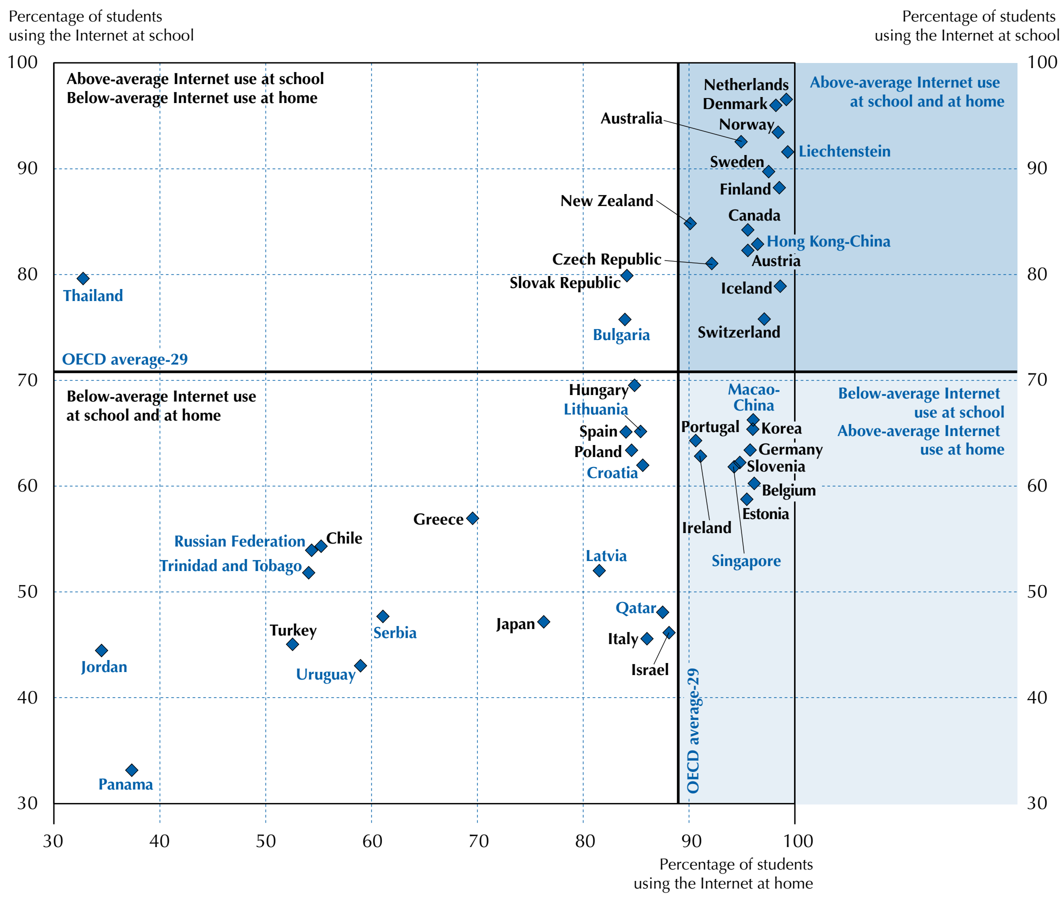
Comparison of Internet use at home and at school

PISA 2009 also sought to determine whether students used the Internet. While students may use a computer, many ICT tasks, such as searching for information, e-mailing and engaging in a social network, require connection to the Internet. Students were asked whether they have an Internet connection available, and use it, at home and/or at school.

As illustrated in Figure VI.5.13, across the vast majority of countries, the proportion of students who reported that they use the Internet at home was greater than that of students who reported using the Internet at school (Table VI.5.11). Across OECD countries, an average of 71% of students reported that they use the Internet at school.

■ Figure VI.5.13 ■

Percentage of students who reported using the Internet at home and at school



Source: OECD, *PISA 2009 Database*, Table VI.5.11.

StatLink http://dx.doi.org/10.1787/888932435435

In the Netherlands, Denmark, Norway, Australia, Sweden, Finland and the partner country Liechtenstein, at least 88% of students reported using the Internet at school. The lowest levels of Internet use at school were reported in Turkey, Italy, Israel, Japan, and the partner countries and economy Panama, Uruguay, Jordan, Serbia and Qatar, where at most 48% of students reported using the Internet at school.

The proportion of students who reported that they use the Internet at home was much greater, and varied less across countries and economies, than that of students who reported that they use the Internet at school. On average across the OECD area, 89% of students reported that they use the Internet at home. In 19 OECD countries and 4 partner countries and economies, at least 90% of students reported using the Internet at home. Meanwhile, Internet use at home is nearly universal in the Netherlands and the partner country Liechtenstein. In Chile, Turkey and three partner countries, between 50% and 60% of students reported using the Internet at home. Students in the partner countries Thailand, Jordan and Panama reported the lowest levels of home Internet use, with less than 40% of students so reporting.

Across OECD countries, the proportion of students who reported using the Internet at home is 18 percentage points greater than that of students who use the Internet at school. The difference between home and school Internet use was less than 10 percentage points in 9 OECD countries and 5 partner countries, but more than 30 percentage points in Israel, Italy, Estonia, Belgium, Slovenia, Germany, Korea and two partner countries and economies. Only in the partner countries Thailand and Jordan is the proportion of students who use the Internet at school larger than that of students who use the Internet at home – by 47 and 10 percentage points, respectively.

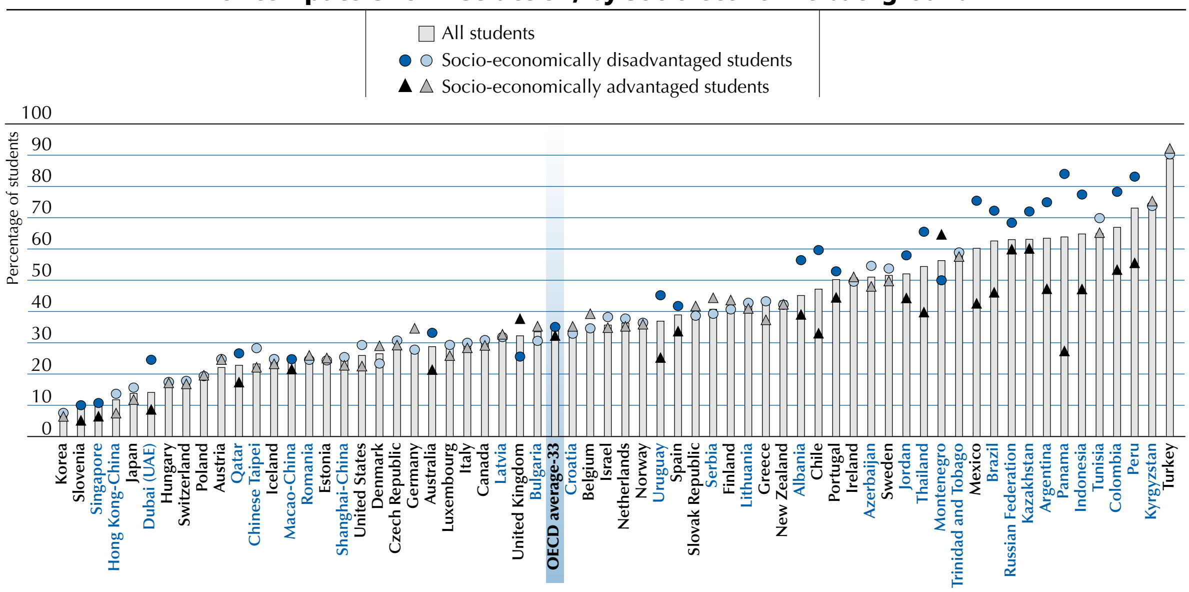
The use of computers and the Internet is not restricted to the home or school. Students might also use computers at the homes of relatives or friends or in public spaces, such as libraries or Internet cafes.

Principals' perceptions of the adequacy of ICT resources for instruction

School principals' perceptions offer another way of looking at student access to ICT resources. In the PISA 2009 school questionnaires, principals reported on whether their school's capacity to provide instruction was hindered by a shortage of computers for teaching. The principals' subjective perceptions of shortages should be interpreted with some caution, because cultural factors and expectations, along with pedagogical practices, may influence the degree to which principals consider shortages a problem. Perceptions of inadequacy may be related to higher expectations among principals for ICT-based instruction rather than fewer computers available for learning.

■ Figure VI.5.14 ■

Percentage of students in schools where the principal reported shortage or inadequacy of computers for instruction, by socio-economic background



Note: Countries in which the difference between socio-economically advantaged and disadvantaged students (top and bottom quarters of the *PISA index of economic, social and cultural status*) is statistically significant are marked in a darker tone.

Countries are ranked in ascending order of the percentage of students in schools whose principals reported a shortage or inadequacy of computers for instruction.

Source: OECD, *PISA 2009 Database*, Table VI.5.12.

StatLink http://dx.doi.org/10.1787/888932435435

When taken on average at the country level, principals' perception of a shortage of computers for instruction can indicate the quality of student access to computers at school. For this analysis, schools are considered to have a shortage or inadequacy of computers for instruction when school principals reported that this situation was hindering the instruction "to some extent" or "a lot".

Figure VI.5.14 illustrates principals' perceptions of computer shortages for instruction. On average across OECD countries, one-third of students are in schools whose principals reported that a computer shortage hindered instruction. Less than 10% of students are in such schools in Korea, Slovenia and the partner countries Liechtenstein and Singapore. In contrast, in Mexico, Turkey and 10 partner countries, more than 60% of students attend schools whose principal reported that instruction was hindered by a shortage of computers. Across OECD countries, students from socio-economically disadvantaged backgrounds are slightly more likely – by three percentage points – to be in schools whose principals reported a shortage. In Mexico, Chile and the partner countries Panama, Indonesia, Peru, Argentina, Brazil, Thailand and Colombia, disadvantaged students are at least 25 percentage points more likely than advantaged students to be in schools whose principals reported a shortage of computers (Table VI.5.12). It can thus be inferred that students from disadvantaged backgrounds in these countries are less likely to benefit from ICT-enhanced teaching.

HOW STUDENTS USE TECHNOLOGY AT SCHOOL AND AT HOME

Once more and more students have access to computers and the Internet, how, in practice, are they using these ICT resources at home and at school? The PISA 2009 ICT familiarity questionnaire collected information on the frequency of computer use (daily/weekly) at home and school, the tasks students do on computers at home and school, and the duration (minutes/hours) of computer use during classroom lessons for some core subjects. This section examines the patterns of student use of ICT at home and at school.

Box VI.5.2 **Indices to analyse frequency of ICT use**

Three indices were generated to analyse how frequently students complete different types of ICT activities either at home or at school: an *index of computer use at home for leisure;* an *index of computer use at home for schoolwork;* and an *index of computer use at school.*

Each index combines student responses to several questions in a composite score. These indices were constructed so that the average OECD student would have an index value of zero, and about two-thirds of the OECD student population would be between -1 and 1. Country and economy index points above 0 indicate a frequency of ICT use above the OECD average. Each index is self-contained: it is designed to show only the relative use made of that particular set of ICT functions by different groups of students. A country's score on one index cannot be directly compared with its score on another index.

Students' use of ICT at home

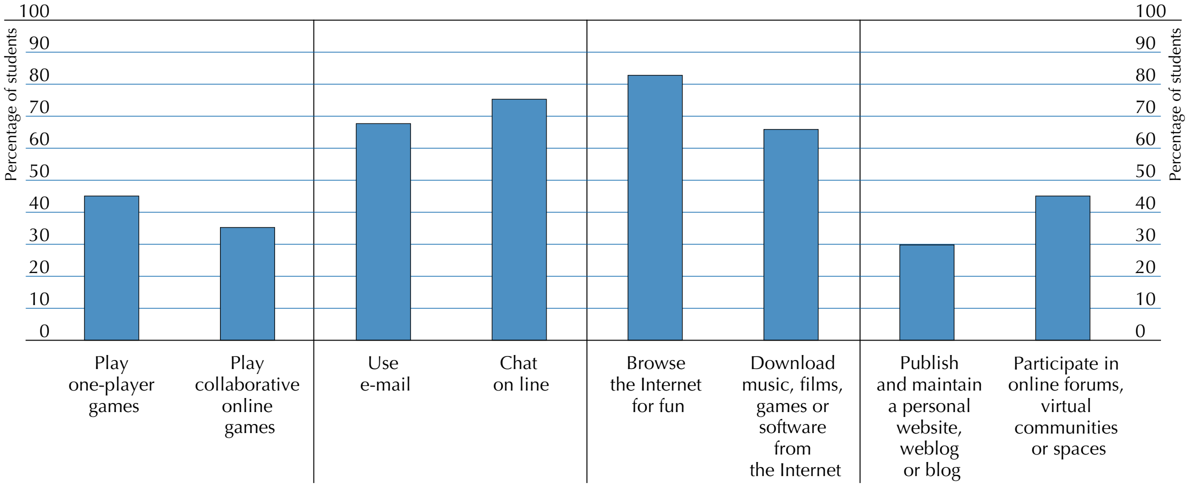
How do students use computers at home? And how does this vary by gender and socio-economic background? In PISA 2009 students were asked how often they use a computer at home for 14 different ICT tasks. These tasks can be divided into two groups: eight leisure-related activities and six schoolwork-related activities. There were four possible responses: "never or hardly ever", "once or twice a month", "once or twice a week", and "everyday or almost every day". Those who reported doing the task at home at least once per week are considered frequent users for that task. Two indices were generated to summarise the results for ICT task-frequency at home: one for leisure-related activities and one for schoolwork-related activities.

Students' use of computers at home for leisure

Students reported how frequently they perform various Internet and entertainment activities using computers at home. The activities included in the PISA questionnaire were: play one-player games; play collaborative online games; use e-mail; chat on line; browse the Internet for fun; download music, films, games or software from the Internet; publish and maintain a personal website, weblog or blog; and participate in online forums, virtual communities or spaces. If students reported that they use computers for these activities "every day or almost every day" or "once or twice a week", they were considered frequent users of computers for this activity.

■ Figure VI.5.15 ■

Percentage of students who reported that they did the following activities at home for leisure at least once a week, OECD average-28



Source: OECD, *PISA 2009 Database,* Table VI.5.13.
StatLink http://dx.doi.org/10.1787/888932435435

Across OECD countries, more than 80% of students reported that they frequently browsed the Internet for fun, and around two-thirds of students reported frequently downloading music, films, games or software (Figure VI.5.15). Over two-thirds of students reported chatting on line and using e-mail at least once a week, yet a greater proportion of students reported that they chat on line (75%) than reported that they use e-mail (68%). A large minority of students frequently use their computers at home to participate in online forums, virtual communities or spaces (45%), while a little less than one-third reported that they frequently publish and maintain personal websites and blogs (30%). Meanwhile, 45% of students reported frequently playing one-player games, while 35% reported playing collaborative online games.

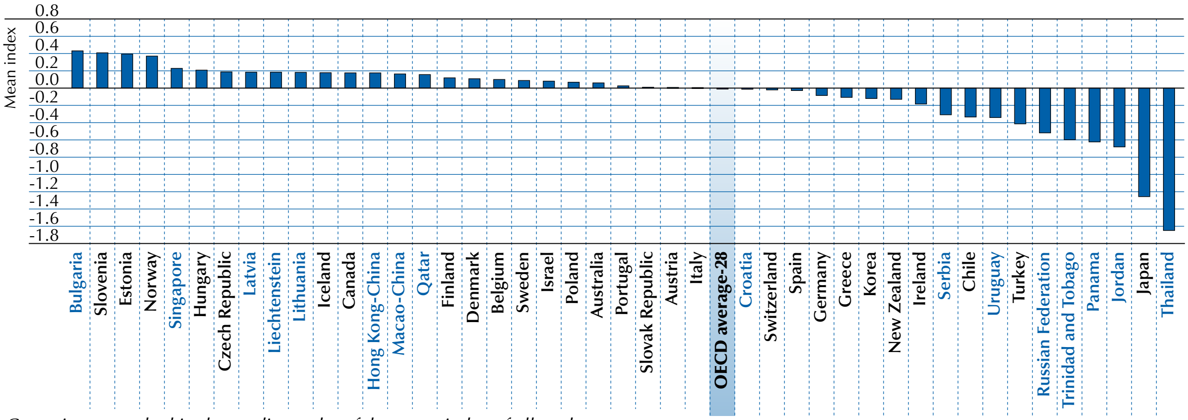
Students in Slovenia, Estonia, Norway and the partner country Bulgaria use computers at home for leisure more frequently than those in other countries (Figure VI.5.16 and Table VI.5.14). Students in Japan, Turkey and the partner countries Thailand, Jordan, Panama, Trinidad and Tobago, and the Russian Federation use computers at home for leisure the least frequently; however in some of these countries, such as Thailand and Panama, over 45% of students do not use computers at home at all (Table VI.5.10a).

The results for individual countries for each activity are listed in Table VI.5.13. The frequency of using computers to browse the Internet and download content varies substantially across countries. In Norway, Sweden, Finland, Iceland, Estonia, Denmark, Slovenia and the partner country Liechtenstein, more than 90% of students reported that they frequently browse the Internet for fun, while in Turkey and Japan, fewer than 60% of students reported doing so. More than 80% of students in Slovenia and the partner countries Bulgaria and Lithuania reported that they frequently download content from the Internet.

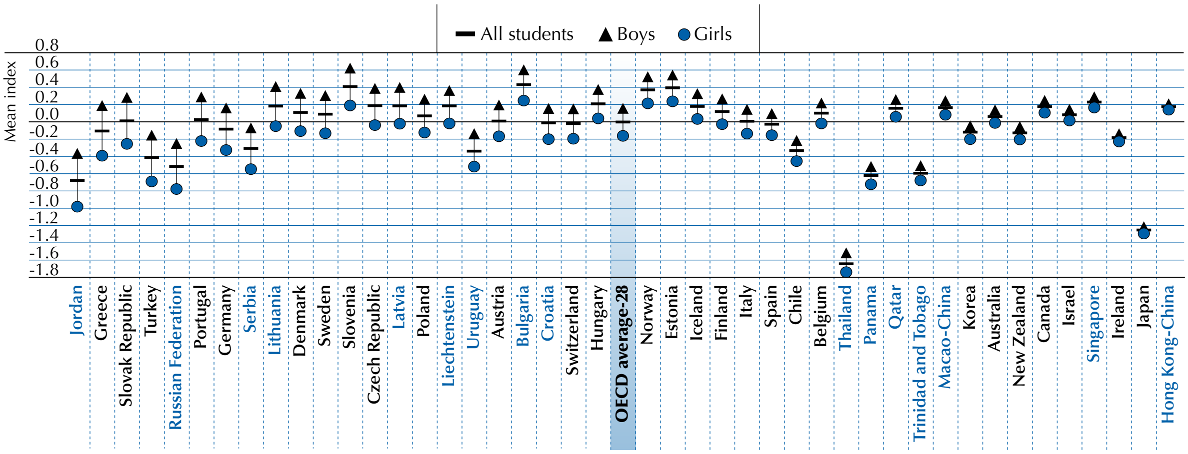
The frequency of computer use for communicating also varies substantially across countries. At least 90% of students in Estonia, Iceland and Norway reported that they chat frequently on line while more than 80% of students in Canada, the Czech Republic, Slovenia, Estonia and the partner country Liechtenstein reported that they frequently use e-mail. More than 70% of students in Norway, Estonia, Iceland, Canada, and the partner country Latvia reported participating in forums and virtual communities frequently, while only in Belgium did more than 50% of students use the computer for publishing and maintaining websites or blogs. No more than 20% of students in Japan reported using the computer frequently for e-mail or for maintaining a personal website or blog, and 10% or fewer reported using a computer frequently for chatting or participating in forums or virtual communities on line.

■ Figure VI.5.16 ■

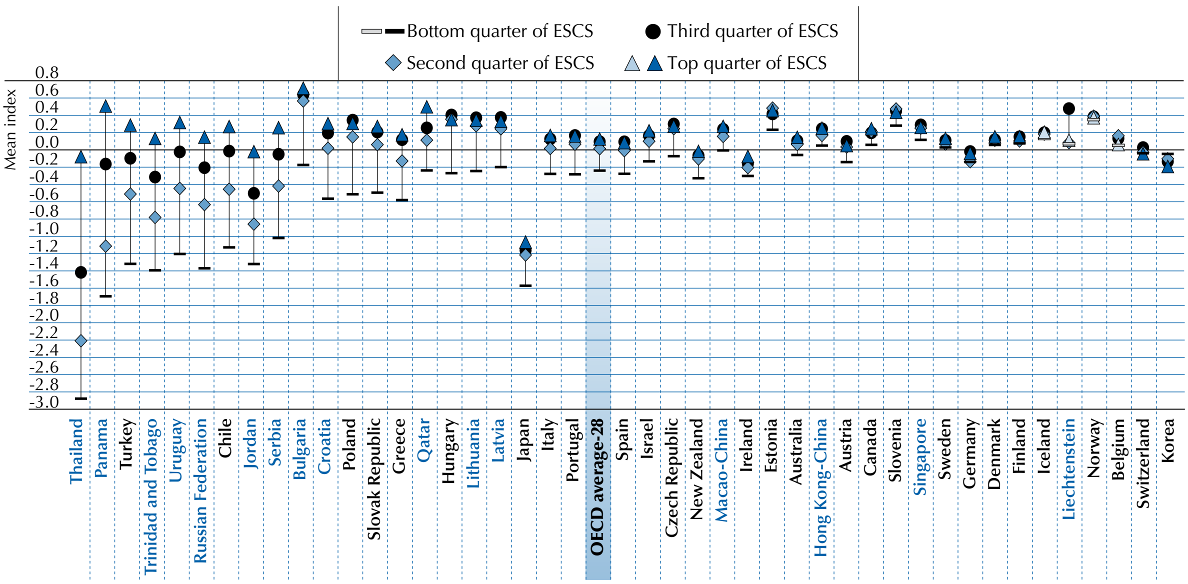
Index of computer use at home for leisure, by gender and socio-economic background



Countries are ranked in descending order of the mean index of all students.



Note: All gender differences are statistically significant.
Countries are ranked in descending order of the gender differences (B – G).



Note: Countries in which differences between the top and bottom quarters of the *PISA index of economic, social and cultural status* (ESCS) are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the differences between the top and bottom quarters (top – bottom) of ESCS.
Source: OECD, *PISA 2009 Database*, Table VI.5.14.
StatLink http://dx.doi.org/10.1787/888932435435

The frequency with which students play games is more homogeneous across OECD countries, except in Japan, where students use computers at home for this activity infrequently. In most OECD countries, the proportion of students who reported that they frequently play one-player games ranged from 30% to 60%; in Japan, fewer than 20% of students reported doing so. A similar pattern was shown for collaborative online games. In most OECD countries, some 20% to 50% of students reported that they play those games frequently, but fewer than 10% of students in Japan so reported. Some 69% of students in the partner country Serbia reported playing one-player games frequently, and in the partner country Bulgaria more than 50% of students reported frequently playing collaborative games on line.

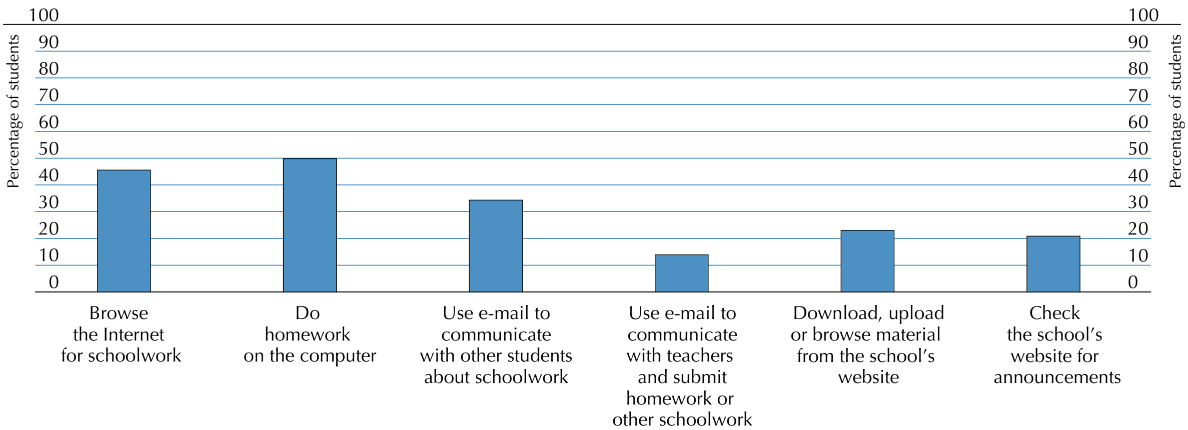
Students' use of computers at home for schoolwork

Students reported how frequently they performed six schoolwork-related activities using computers at home: do homework on the computer; browse the Internet for schoolwork; use e-mail to communicate with other students about schoolwork; use e-mail to communicate with teachers and submit homework or other schoolwork; download, upload or browse material from the school's website; and check the school's website for announcements. If students reported that they use computers for these activities "every day or almost every day" or "once or twice a week", they were considered frequent users of computers.

Figure VI.5.17 shows that across OECD countries, about a half of students reported that they frequently do homework (50%) or browse the Internet for schoolwork (46%) on a computer at home. One-third of students reported that they frequently use their computers to communicate with other students (34%) and 14% reported communicating with teachers by e-mail. Some 23% of students upload or download material frequently from their school's website, and 21% of students reported that they frequently check the school's website for announcements.

■ Figure VI.5.17 ■

Percentage of students who reported that they did the following activities at home for schoolwork at least once a week, OECD average-29



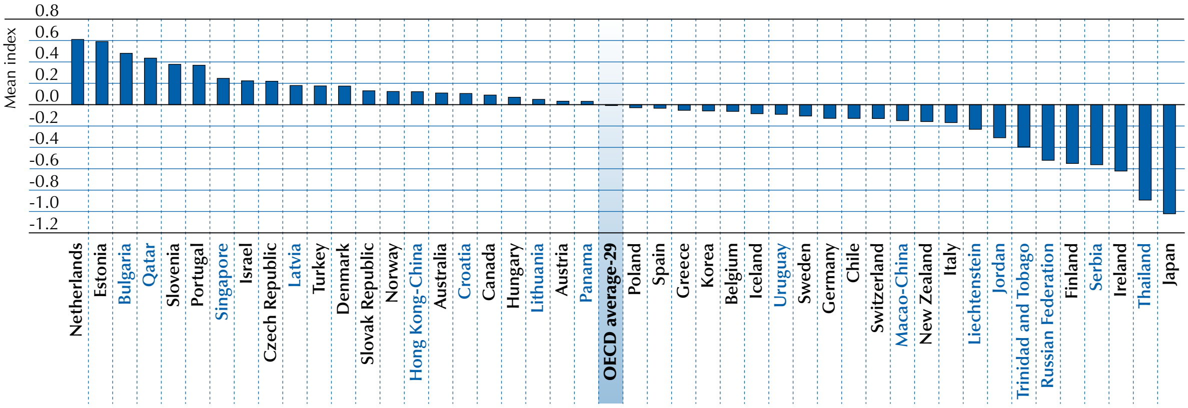
Source: OECD, *PISA 2009 Database,* Table VI.5.15.
StatLink http://dx.doi.org/10.1787/888932435435

Across countries, only in Denmark, Australia and Norway did more than 70% of students report that they frequently do homework, and more than 60% report that they browse the Internet for schoolwork on a home computer (Table VI.5.15). In contrast, fewer than 20% of students in Finland and fewer than 10% of students in Japan reported that they do either of these tasks frequently.

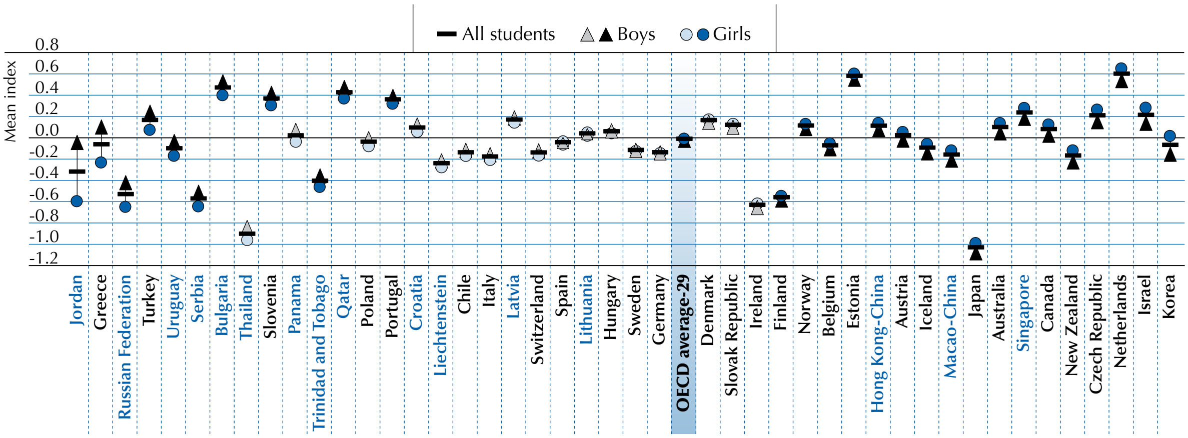
Students tend to communicate by e-mail more frequently with other students than with teachers about schoolwork. At least 50% of students in the Slovak Republic, Portugal, Chile and the partner economy Qatar reported that they communicate frequently with their peers by e-mail about schoolwork. Only 11% of students in Finland reported doing so. In Turkey, Portugal, the partner countries and economy Bulgaria, Singapore and Qatar, more than 25% of students reported frequently communicating with teachers by e-mail about schoolwork.

■ Figure VI.5.18 ■

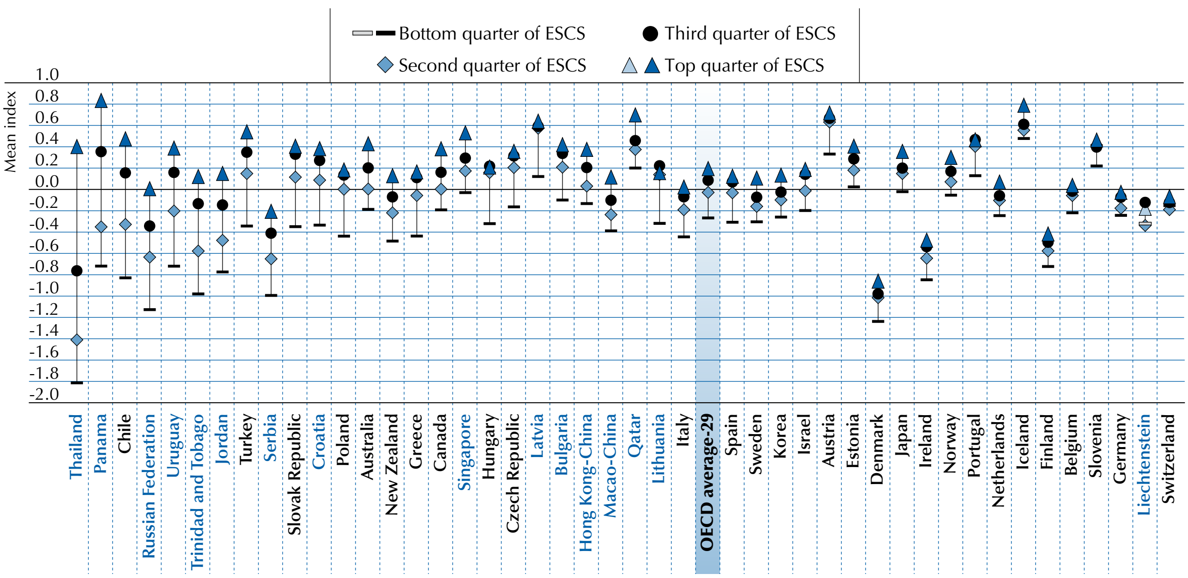
Index of computer use at home for schoolwork-related tasks, by gender and socio-economic background



Countries are ranked in descending order of the mean index of all students.



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the gender differences (B – G).



Note: Countries in which differences between the top and bottom quarters of the *PISA index of economic, social and cultural status* (ESCS) are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the differences between the top and bottom quarters (top – bottom) of ESCS.
Source: OECD, *PISA 2009 Database,* Table VI.5.16.
StatLink http://dx.doi.org/10.1787/888932435435

Most students rarely use home computers to access their school's websites. The reasons for this may include no or little access to a computer and the Internet, no school website, few homework assignments, or assignments that do not require ICT use. Estonia and the Netherlands are the exceptions, however; in these countries, more than 45% of students reported that they frequently use a computer at home to check the school's website for announcements or to download or upload material.

Figure VI.5.18 shows the cross-country differences in the *index of computer use at home for schoolwork*. This index was generated using all activities outlined above, other than doing homework on the computer. The frequency of students' computer use at home is highest in the Netherlands, Estonia, Slovenia, Portugal, the partner country Bulgaria and the partner economy Qatar. Students in Japan, Ireland, Finland and the partner countries Thailand, Serbia, the Russian Federation and Trinidad and Tobago use home computers for schoolwork the least frequently, yet Finland scores above the OECD average on the *index of computer use at home for leisure*. This might be because Finnish students have less homework overall or fewer computer-based homework assignments.

Are boys more leisure-oriented than girls when using home computers?

As shown in Figure VI.5.16, on average across the OECD, more boys than girls (0.16 and -0.16 index points, respectively) reported that they frequently use home computers for leisure, and this holds across all participating countries and economies. The countries with the largest gender differences are Greece (0.58), the Slovak Republic (0.54), Turkey (0.54), Portugal (0.51), and the partner countries Jordan (0.62) and the Russian Federation (0.53). Japan (0.08), Ireland (0.09), and the partner economy Hong Kong-China (0.07) show the narrowest gender differences for these activities (Table VI.5.14).

On the other hand, on average across OECD countries, more girls than boys (0.01 and -0.02 index points, respectively) reported that they frequently use home computers for schoolwork; however, the difference between boys and girls is only 0.03 (Figure VI.5.18). Korea, Israel, the Netherlands, the Czech Republic, New Zealand, Canada, Australia, Japan, the partner country Singapore and the partner economy Macao-China show the largest gender gap in favour of girls, with more than 0.1 score point difference. But in Greece, Turkey and the partner countries Jordan, the Russian Federation, Uruguay, Serbia and Bulgaria, boys use home computers for schoolwork more frequently than girls (Table VI.5.16).

Does socio-economic background influence the way students use computers at home?

On average across OECD countries, students from socio-economically advantaged backgrounds use their home computers for leisure more frequently than disadvantaged students, with 0.13 and -0.24 index points, respectively. This pattern is evident in all countries and economies apart from Norway, Belgium, Switzerland and the partner country Liechtenstein, which showed no socio-economic difference, and Korea, where disadvantaged students use home computers for leisure more frequently than advantaged students. The countries with the widest gap in favour of advantaged students include Turkey (1.61), Chile (1.40), and the partner countries Thailand (2.80), Panama (2.20), Uruguay (1.52), the Russian Federation (1.53) and Jordan (1.31) (Figure VI.5.16 and Table VI.5.14).

On average across OECD countries, students from socio-economically advantaged backgrounds use home computers for schoolwork more frequently than disadvantaged students, with 0.20 and -0.26 index points, respectively. This pattern is evident in all countries and economies apart from Liechtenstein, which showed no socio-economic difference, and Switzerland and Germany, where disadvantaged students use home computers for schoolwork more frequently than advantaged students. The countries with the widest gap between the top and bottom quarters of this index are Chile (1.30) and the partner countries Thailand (2.21), Panama (1.55), the Russian Federation (1.13), Uruguay (1.11) and Trinidad and Tobago (1.10) (Figure VI.5.18 and Table VI.5.16).

Students' use of ICT at school

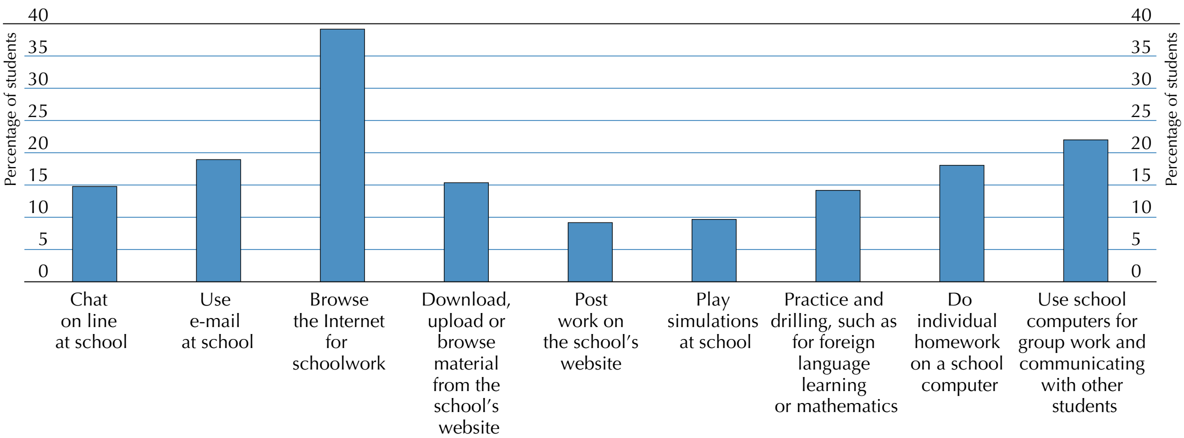
What do students most frequently use school computers for?

Students reported how frequently they perform nine activities using computers at school: chat on line; use e-mail; browse the Internet for schoolwork; download, upload or browse material from the school's website; post work on the school's website; play simulations at school; practice and drilling, such as for learning a foreign language and mathematics; do individual homework on a school computer; and use school computers for group work and to communicate with other students. Figure VI.5.19 shows how students use computers at school. Students who reported that they do a listed activity at least once a week were considered frequent users. Across OECD countries,

39% of students reported that they frequently browse the Internet for schoolwork and 22% reported that they frequently use school computers for group work and communicating with other students. At least 14% of students reported that they frequently use e-mail (19%), do individual homework on a school computer (18%), chat on line (15%) or use a computer for drill and practice (14%). Some 15% of students reported that they frequently download, upload or browse material from the school's website, while 9% reported that they frequently post work on the school's website. Some 10% of students reported that they frequently play simulations on a computer at school. These results should be interpreted in the context that only 71% of students across OECD countries reported that they use a computer with a link to the Internet at school (Table VI.5.11).

■ Figure VI.5.19 ■

Percentage of students who reported that they did the following activities at school at least once a week, OECD average-29



Source: OECD, *PISA 2009 Database*, Table VI.5.17.

StatLink http://dx.doi.org/10.1787/888932435435

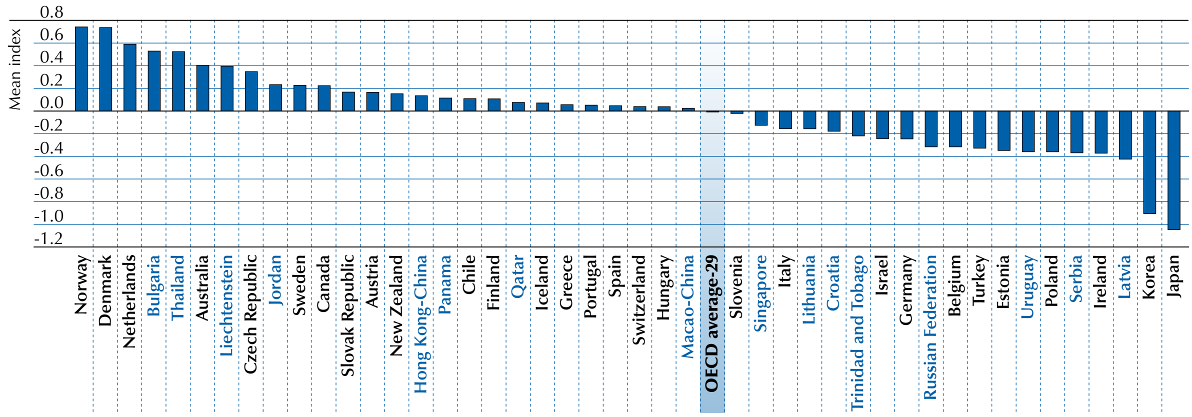
Browsing the Internet gives students access to a vast store of information that no school can physically accommodate. At least 60% of students in Denmark, Norway, the Netherlands, Australia and Sweden reported that they frequently browse the Internet at school (Table VI.5.17). In the partner country Liechtenstein, 57% of students reported doing so. In contrast, fewer than 20% of students in Japan, Korea, Belgium, and the partner countries the Russian Federation, Latvia and Serbia reported that they frequently browse the Internet at school.

Using computers and the Internet for communicating and collaborating varies across countries. Some 56% of students in Denmark and 40% in Norway reported that they frequently use computers at school for group work and communicating with other students, while fewer than 6% of students in Korea and Japan reported doing so. Over 30% of students in Denmark, the Czech Republic, the Slovak Republic, Austria and the partner country Bulgaria reported that they frequently chat on line at school, well above the OECD average of 15%. E-mail can also be viewed as a key communication tool, yet in Japan and Korea, fewer than 5% of students reported frequently using e-mail, and in Poland, Italy, Germany, Belgium and the partner country Uruguay, fewer than 10% did.

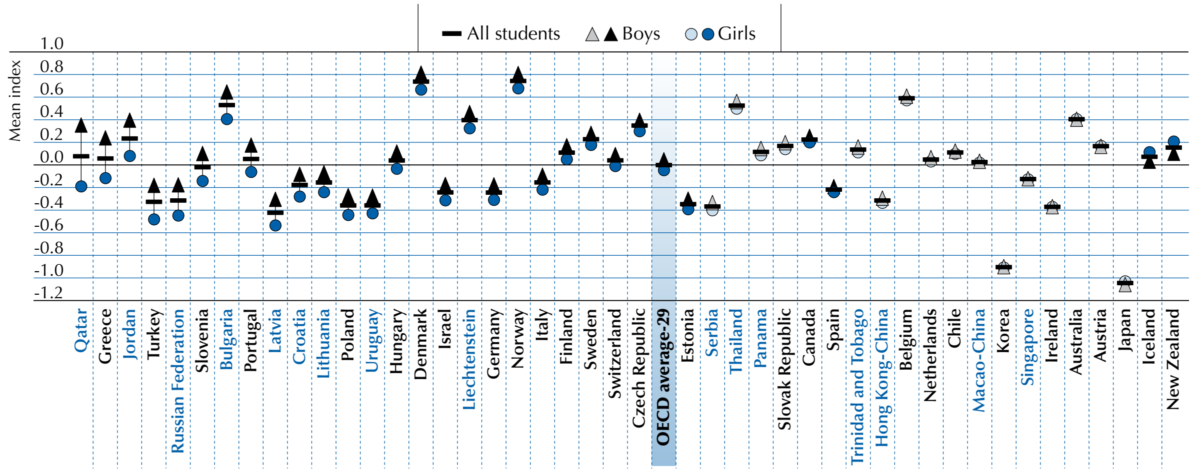
Most students in OECD countries do not access their school's website frequently. Among OECD countries, Norway shows a relatively high use of school websites, with 30% of students reporting that they use the school site to download, upload or browse material (the OECD average was 15%) and 42% reporting that they frequently post work to the site (the OECD average was 9%). In the Netherlands, 36% of students reported using the school website to download, upload or browse material, although only 13% reported that they frequently post work to the site. The differences may be due to how the schools use their websites. More than 20% of students in the partner countries Bulgaria, Thailand and Jordan reported frequently using school websites for both activities. Meanwhile, 57% of students in Denmark, and over 30% of students in Norway, Australia, Canada, Chile and the partner countries Panama and Thailand reported that they do homework on a computer at school.

■ Figure VI.5.20 ■

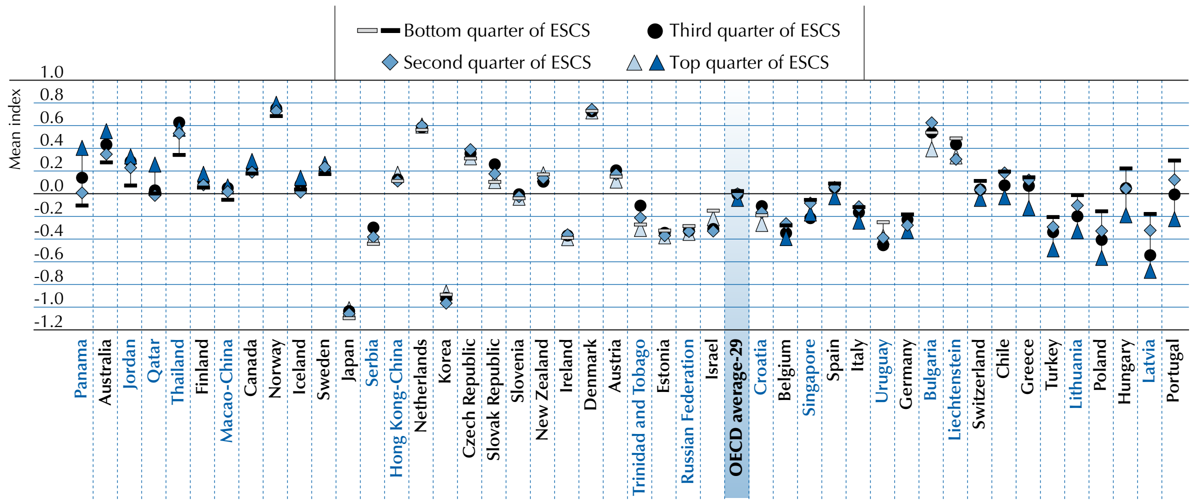
Index of computer use at school, by gender and socio-economic background



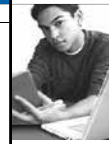
Countries are ranked in descending order of the mean index of all students.



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the gender differences (B – G).



Note: Countries in which differences between the top and bottom quarters of the *PISA index of economic, social and cultural status* (ESCS) are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the differences between the top and bottom quarters (top – bottom) of ESCS.
Source: OECD, *PISA 2009 Database,* Table VI.5.18.
StatLink http://dx.doi.org/10.1787/888932435435



In order to analyse the data, an *index of computer use at school* was constructed using the nine proposed ICT activities. As shown in Figure VI.5.20, the frequency of students' computer use at school is greatest in Norway, Denmark, the Netherlands and the partner countries Bulgaria and Thailand, while the frequency is the least in Japan and Korea. Comparatively low levels of ICT use at school were also evident in Ireland, Poland, Estonia and the partner countries Latvia, Serbia and Uruguay (Table VI.5.18).

Do gender and socio-economic background influence the way students use computers at school?

As shown in Figure VI.5.20, on average across the OECD area, more boys than girls (0.04 and -0.05 index points, respectively) use school computers frequently. In 18 OECD countries and 9 partner countries, the difference is significant in favour of boys. This gender gap is widest in Greece, Turkey, the partner countries Jordan and Qatar. In contrast, in New Zealand and Iceland, more girls than boys reported that they frequently use computers at school (Table VI.5.18).

On average across OECD countries, students from socio-economically advantaged backgrounds use school computers less often than disadvantaged students, with -0.04 and 0.03 index points, respectively. However, this pattern was not replicated everywhere. In Australia, Finland, Canada, Norway, Iceland, Sweden and the partner countries and economies Panama, Jordan, Qatar, Thailand and Macao-China, advantaged students use computers at schools more frequently than do disadvantaged students. The opposite pattern was evident in 11 OECD countries and 3 partner countries (Figure VI.5.20 and Table VI.5.18).

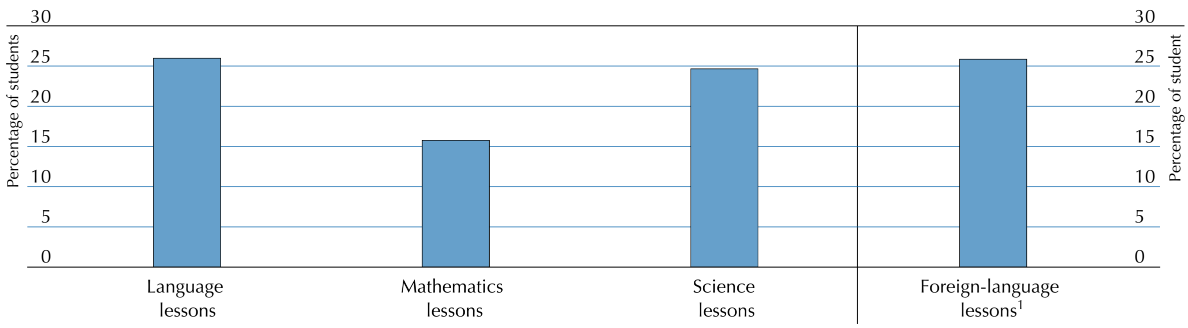
Do students use computers more intensively for some subjects than for others?

For the first time, PISA 2009 asked students how much time they spend using the computer in language-of-instruction, mathematics, science and foreign-language classroom lessons during a typical school week. There were four possible responses: no time; 0-30 minutes; 30-60 minutes; or 60 minutes or more. If students reported that they use a computer for 0-30 minutes per week or more, they were considered to use computers during lessons. Interpretation of ICT use in classroom lessons, measured by minutes and hours, is one way researchers can determine the extent to which ICT has been included in classroom activities.

As it is possible that some students are not enrolled in particular subjects at age 15, the analysis for language-of-instruction, mathematics and science lessons only included those students who indicated in their PISA questionnaire that they regularly attend lessons in those subjects. The percentages represent those students who regularly attend lessons in the subject and use a computer during the lesson for at least some time in a typical week. For foreign-language classes, no information is available on whether or not students regularly attend lessons. As a result, it is possible that the data under-reports the proportion of students who take foreign-language classes and use a computer during those lessons. In addition, the number of foreign-language classes on offer varies across countries.

■ Figure VI.5.21 ■

Percentage of students who reported that they use a computer during regular classroom lessons at least some time during a typical week, OECD average-29



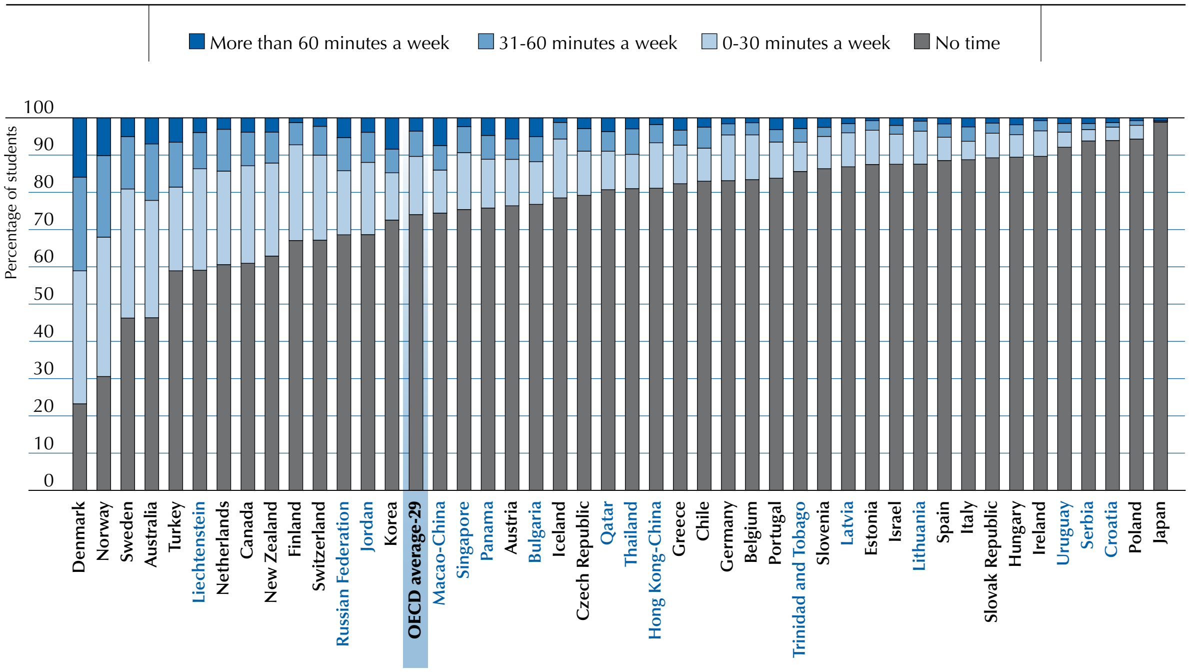
1. OECD average for computer use during classroom lessons in a typical school week, not adjusted for the number of students who do not have any lessons in the subject each week.
Source: OECD, *PISA 2009 Database,* Table VI.5.19.
StatLink http://dx.doi.org/10.1787/888932435435

As shown in Figure VI.5.21, on average across OECD countries, a smaller percentage of students use computers during their mathematics lessons (16%) than use them during language-of-instruction classes (26%), science classes (25%) and foreign-language classes (26%).

As reading is the major testing domain for PISA 2009, computer use in language-of-instruction lessons is examined in more detail. The amount of time students spend using computers in language-of-instruction classes varies across countries (Figure VI.5.22 and Table VI.5.19). At least 50% of students in Denmark, Norway, Sweden and Australia use a computer in a language-of-instruction class each week, while fewer than 1% of students in Japan do so. Of those students who do use a computer in classroom lessons, most do so for less than 31 minutes per week. Only in Denmark and Norway did more 30% of students report that they use a computer for more than 30 minutes per week.

■ Figure VI.5.22 ■

Intensity of computer use during language-of-instruction lessons



Countries are ranked in ascending order of the percentage of students who use a computer during language-of-instruction lessons at least some time.
Source: OECD, *PISA 2009 Database*, Table VI.5.19.
StatLink http://dx.doi.org/10.1787/888932435435

There is substantial variation between countries and economies in when students use computers in the classroom (Table VI.5.19 and Table VI.5.20). The OECD countries Denmark, Norway, Sweden, Australia, Turkey, the Netherlands, Finland, Switzerland, Iceland, and Korea show above OECD average levels of classroom computer use in at least three of the four subjects. Denmark and Norway show the highest proportion of students using computers in three subjects during a typical school week: around 70% or more in language-of-instruction classes; over 50% in foreign-language classes; and around 40% in mathematics and science classes. Denmark, Australia, Norway and Sweden show the highest levels for science lessons.

Among the partner countries and economies, Liechtenstein, the Russian Federation and Jordan show above OECD average computer use in at least three of the four subjects. Some 36% of students in Jordan and 31% in the Russian Federation use computers in mathematics classes – the subject with the lowest OECD average (16%). Only in Norway and Denmark does a greater proportion of students use computers during mathematics classes. A relatively large proportion of students in Jordan (39%) and the Russian Federation (44%) reported using computers during science lessons.

Meanwhile, fewer than 5% of Japanese students use computers in their classes, and at most 9% of students in Poland do so.

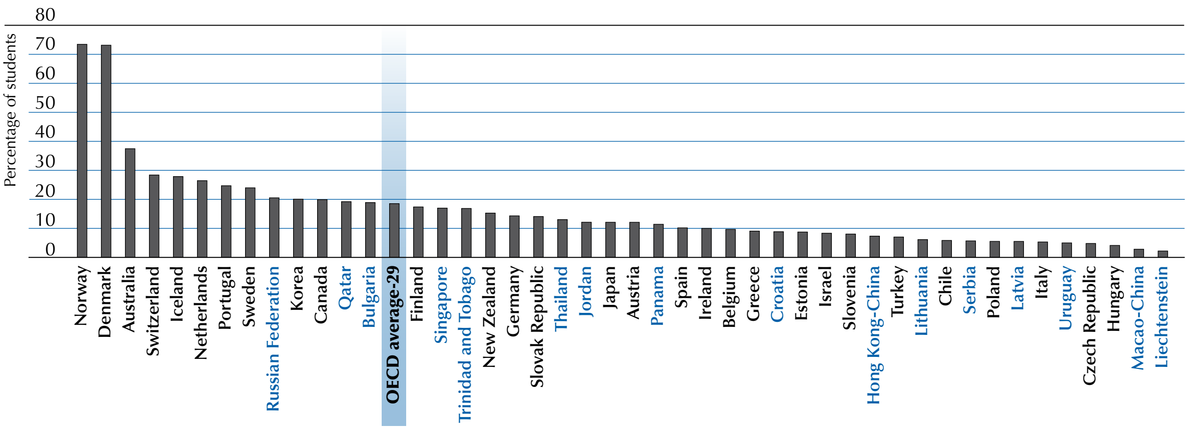
The use of computers during class lessons varies even within countries. For example, in Sweden, more than one-third of students reported using computers in a typical week during language-of-instruction (54%), science (44%) and foreign-language (34%) lessons. In contrast, only 10% of Swedish students reported doing so during mathematics lessons. A similar pattern was evident in Korea, where only 8% of students reported that they use a computer during mathematics lessons, despite relatively high levels of use during language-of-instruction (27%), science (31%), and foreign-language lessons (41%). In Italy, the pattern is very different. Around one-quarter of Italian students reported using a computer during mathematics (27%) and foreign-language (25%) lessons, while fewer than 12% reported doing so in language-of-instruction and 13% in science classes. These differences may be related to different teaching methods for mathematics throughout the school systems in these countries. The infrequent use of computers in mathematic lessons is a clear trend across OECD and partner countries and economies.

How many students use a laptop at school?

Using laptops in school may help to integrate ICT into classrooms, as it would obviate the need for a dedicated computer lab in school. In Norway and Denmark, more than 70% of students reported using a laptop at school (Figure VI.5.23 and Table VI.5.21). Between 20% and 40% of students in Australia, Switzerland, Iceland, the Netherlands, Portugal, Sweden, Korea, and the partner country the Russian Federation reported using a laptop at school. Students in all of these countries, except Portugal, show above OECD average use of computers during class in two or more of the four core subjects.

■ Figure VI.5.23 ■

Percentage of students who reported using laptops at school



Countries are ranked in descending order of the percentage of students who reported using laptops at school.
Source: OECD, *PISA 2009 Database,* Table VI.5.21.
StatLink http://dx.doi.org/10.1787/888932435435

In 11 OECD countries and 8 partner countries and economies, at most 10% of students reported using a laptop at school. Only 2% of students in the partner country Liechtenstein reported using a laptop, the lowest level among participating countries and economies. However, Liechtenstein shows relatively high levels of computer use during lessons across all four subjects (Table VI.5.19 and Table VI.5.20). This difference stems from the fact that 91% of students reported using laptop and/or desktop computers at school (Table VI.5.10a).

STUDENTS' ATTITUDES TOWARDS AND SELF-CONFIDENCE IN USING COMPUTERS

Students' attitudes towards using computers

The use of computers can be strongly affected by how positive students feel about computers and by how confident they are in performing particular ICT tasks. Being interested and feeling confident in ICT use may affect both the frequency and degree of engagement in learning through ICT.

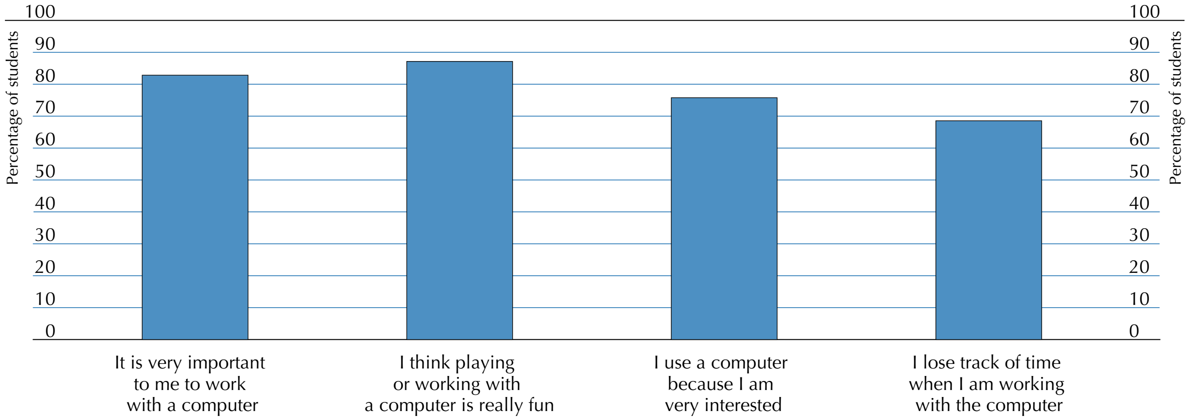
How positive are students' attitudes towards computers?

In the PISA 2009 ICT survey, students were asked to indicate the extent to which they agreed with four statements about their experience with computers: "It is very important to me to work with a computer"; "I think playing or working with a computer is really fun"; "I use a computer because I am very interested"; and "I lose track of time when I am working with the computer". Students responded to each statement with "strongly disagree", "disagree", "agree" or "strongly agree". Students are considered to have positive attitudes towards computers if they agreed or strongly agreed with the statements. When interpreting the results for both attitudes, it is important to remember that the data is generated by students' subjective self-report and not from information that is directly measured or observed. Students across countries may not interpret or respond to the survey questions in the same way.

■ Figure VI.5.24 ■

Percentage of students who reported positive attitudes towards computers, OECD average-28

Percentage of students who agreed or strongly agreed with the following statements



Source: OECD, *PISA 2009 Database*, Table VI.5.22.

StatLink http://dx.doi.org/10.1787/888932435435

As shown in Figure VI.5.24, on average across the OECD area, over two-thirds of students reported positive attitudes towards computers across all four statements. The highest proportion of students reacted the most positively to the statements "playing or working with a computer is really fun" (87%) and "it is very important to me to work with a computer" (83%). Across OECD countries, 76% of students indicated that they "use a computer because they are interested", while 69% reported they "lose track of time when working with a computer" (Table VI.5.22).

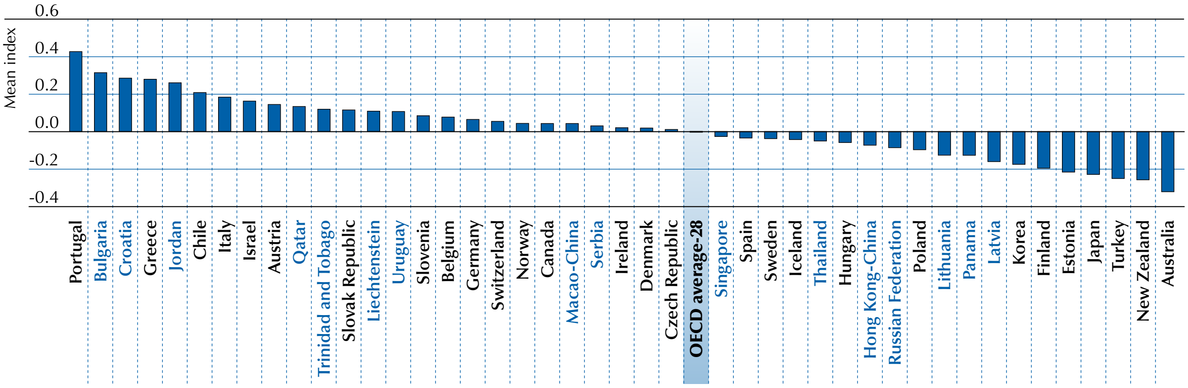
Student responses were used to create an *index of attitudes towards computers*. For this index, a negative score does not necessarily signify a negative attitude towards computers, but rather an attitude that is less positive than the average for students in OECD countries. Students in Portugal, Greece, Chile and the partner countries Bulgaria, Croatia and Jordan expressed more positive attitudes towards computers, whereas students in Australia, New Zealand, Turkey, Japan, Estonia and Finland expressed far less positive attitudes than the OECD average (Figure VI.5.25 and Table VI.5.23).

Do gender and socio-economic background influence students' attitudes towards computers?

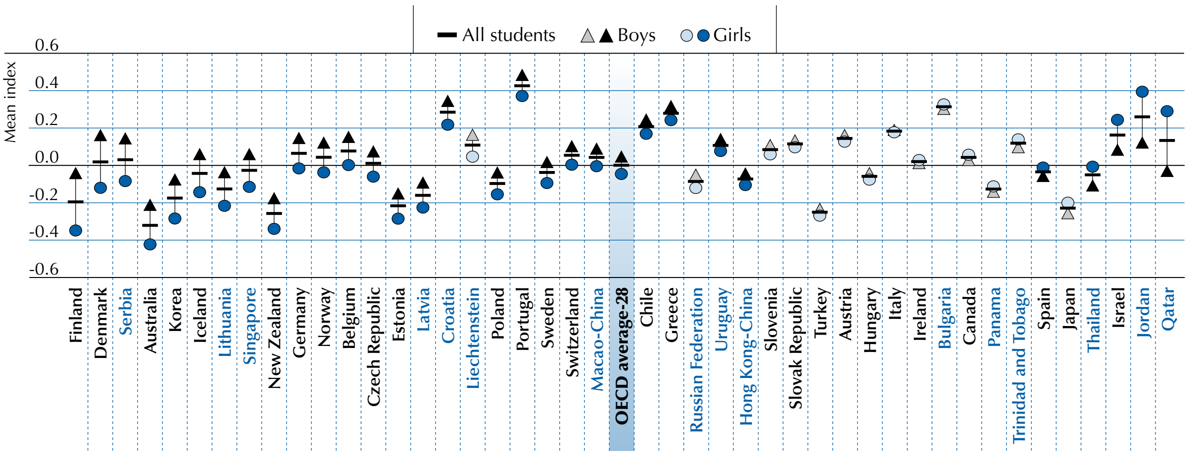
In 17 OECD countries and 8 partner countries and economies, boys show more positive attitudes towards computers than girls (Figure VI.5.25 and Table VI.5.23). On average across OECD countries, boys feel more positive towards computers than girls, with 0.05 and -0.05 index points, respectively. Finland, Denmark, Australia, Korea, Iceland and the partner country Serbia show the widest gender gap in favour of boys, of 0.20 index points or more. In contrast, girls in Israel, Spain, the partner countries and economy Jordan, Thailand and Qatar have more positive attitudes towards computers than boys.

■ Figure VI.5.25 ■

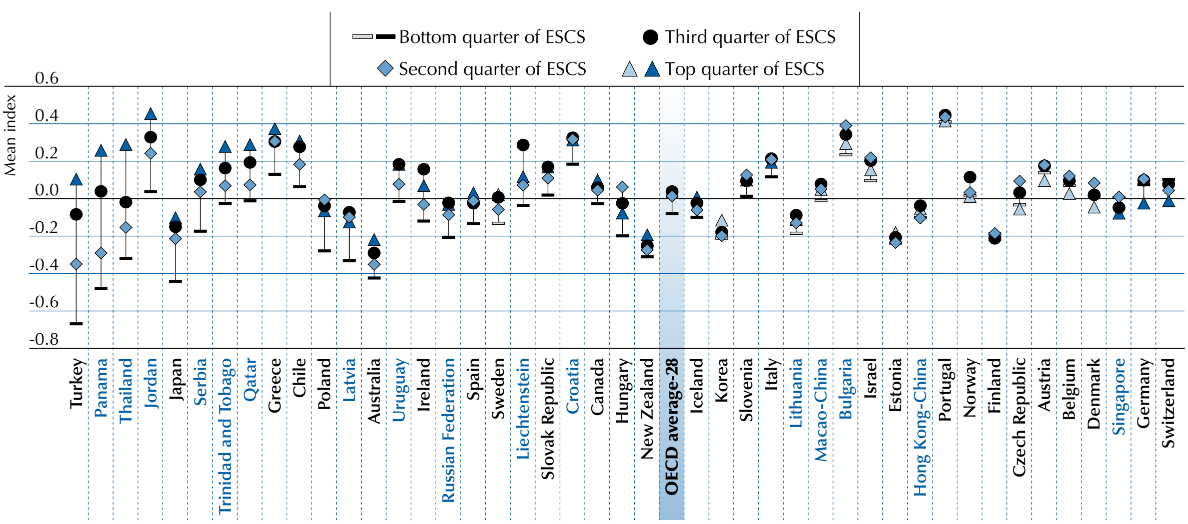
Index of attitudes towards computers, by gender and socio-economic background



Countries are ranked in descending order of the mean index of all students.



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the gender differences (B – G).



Note: Countries in which differences between the top and bottom quarters of the *PISA index of economic, social and cultural status* (ESCS) are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the differences between the top and bottom quarters (top – bottom) of ESCS.
Source: OECD, *PISA 2009 Database,* Table VI.5.23.
StatLink http://dx.doi.org/10.1787/888932435435

On average across OECD countries, students from socio-economically advantaged backgrounds expressed more positive attitudes towards computers than students from disadvantaged backgrounds, with 0.03 and -0.08 index points, respectively (Figure VI.5.25 and Table VI.5.23). Advantaged students reported more positive attitudes than disadvantaged students in 16 OECD countries and 10 partner countries and economies, with the largest differences evident in Turkey and the partner countries Panama and Thailand. In Switzerland, Germany and the partner country Singapore, disadvantaged students expressed slightly more positive attitudes towards using computers than advantaged students.

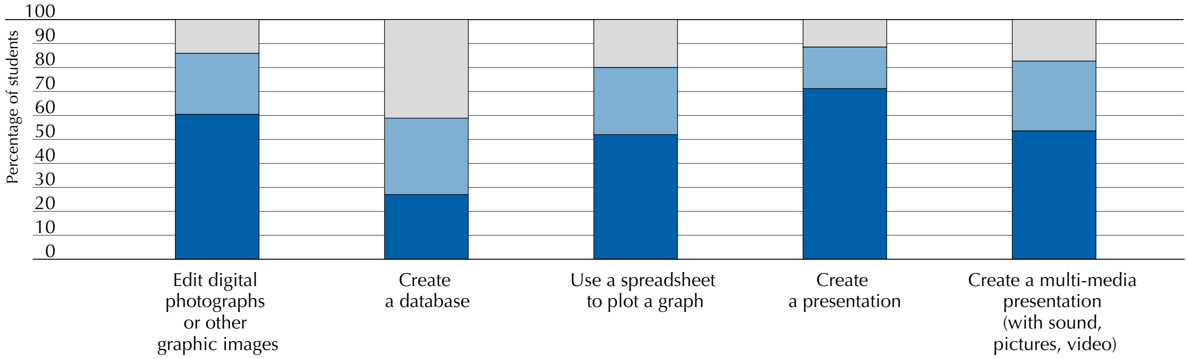
Students' confidence in computer use and technical proficiency

Students provided information on the extent to which they felt they could perform five different levels of technical proficency: "edit digital photographs or other graphic images"; "create a database (*e.g.* using Microsoft Access®)"; "use a spreadsheet to plot a graph"; "create a presentation (*e.g.* using Microsoft PowerPoint®)"; "create a multimedia presentation (with sound, pictures, video)". There were four possible responses: "I can do this very well by myself"; "I can do this with help from someone"; "I know what this means but I cannot do it"; "I don't know what this means". When interpreting the ratings of self-confidence it is important to recognise that students' subjective judgements of task competency may vary across countries and economies.

How confident are students in using computer?

Figure VI.5.26 shows the OECD averages for the percentage of students who reported they could do each task very well by themselves. On average across OECD countries, "create a presentation" was the task that students felt most confident performing by themselves (71%). To "edit digital photographs or other graphic images" received the second-highest rating, with 61% of students indicating that they could perform this task very well by themselves. Slightly over a half of students reported that they could "create a multimedia presentation" (54%) and "use a spreadsheet to plot a graph" (52%) by themselves, while the smallest proportion of students (27%) felt confident enough to "create a database" (Table VI.5.24).

■ Figure VI.5.26 ■
Percentage of students who reported being able to do each of the following tasks very well by themselves or with help from someone, OECD average-29



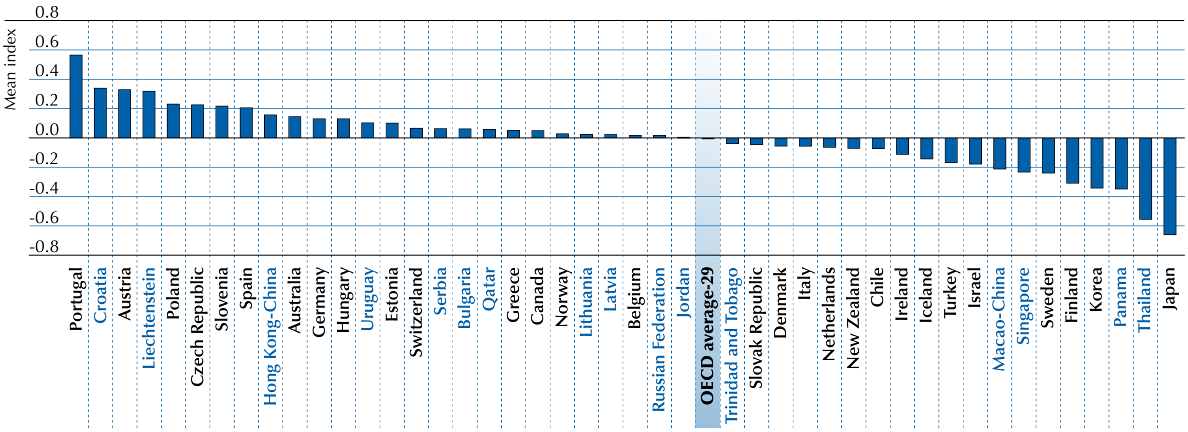
Source: OECD, *PISA 2009 Database*, Table VI.5.24.
StatLink http://dx.doi.org/10.1787/888932435435

Student responses were used to create an *index of self-confidence in ICT high-level tasks.* For this index, a negative score does not necessarily signify a lack of ability to complete the tasks, but rather a level of confidence that is lower than the average for students in OECD countries.

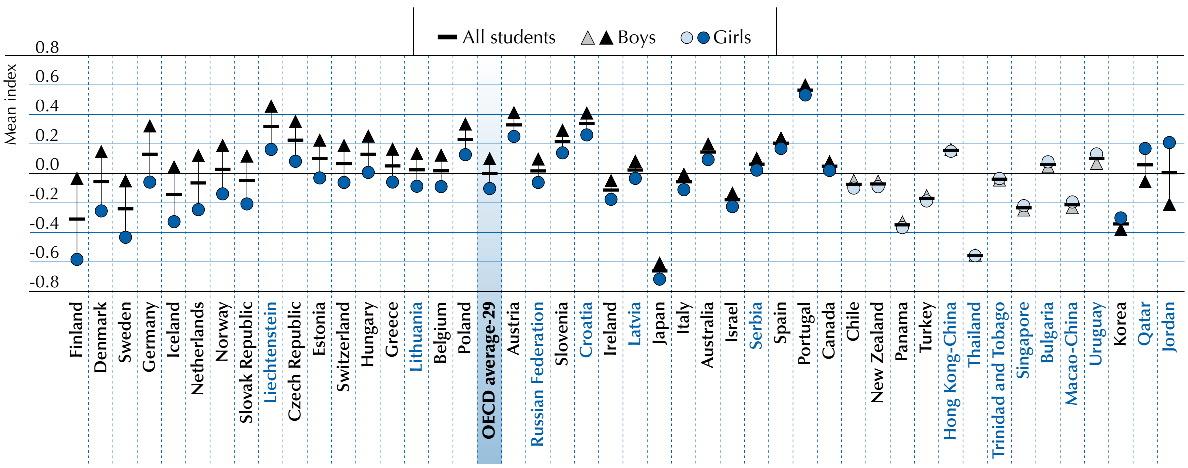
As shown in Figure VI.5.27, students in Portugal, Austria, Poland, the Czech Republic, Slovenia, Spain and the partner countries Croatia and Liechtenstein show relatively high levels of self-confidence in completing high-level ICT tasks, while students in Japan, Korea, Finland, Sweden, and the partner countries and economy Thailand, Panama, Singapore and Macao-China show lower levels of self-confidence (Table VI.5.25).

■ Figure VI.5.27 ■

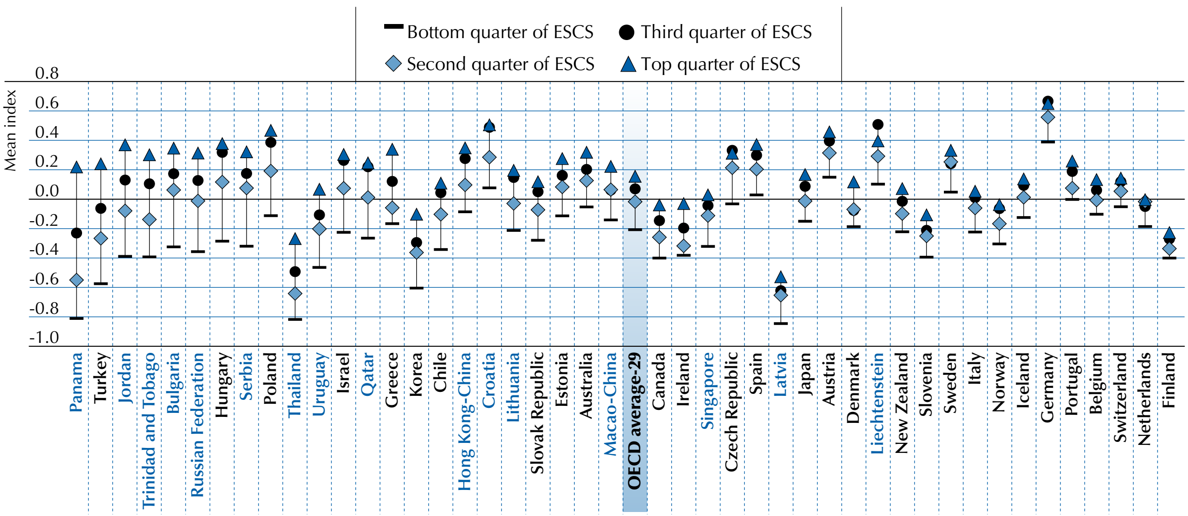
Index of self-confidence in ICT high-level tasks, by gender and socio-economic background



Countries are ranked in descending order of the mean index of all students.



Note: Countries in which gender differences are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the gender differences (B – G).



Note: Countries in which differences between the top and bottom quarters of the *PISA index of economic, social and cultural status* (ESCS) are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the differences between the top and bottom quarters (top – bottom) of ESCS.
Source: OECD, *PISA 2009 Database*, Table VI.5.25.
StatLink http://dx.doi.org/10.1787/888932435435

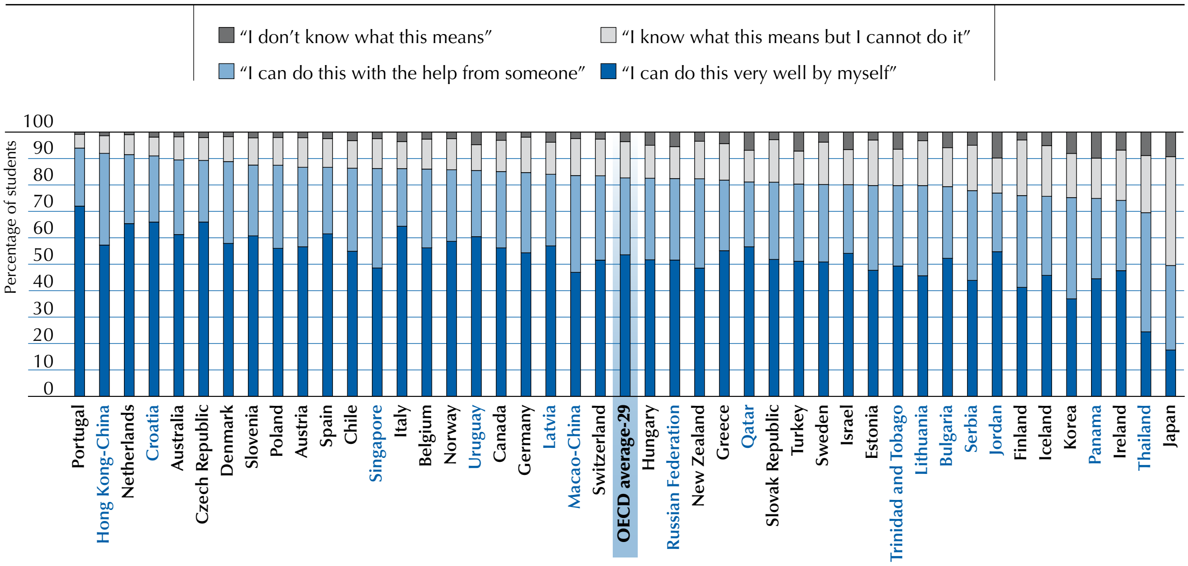
Do gender and socio-economic background influence students' self-confidence in using computers?

Across OECD countries, boys reported higher levels of self-confidence than girls. Korea was the only OECD country where girls reported higher self-confidence than boys. Among the partner countries and economies, girls reported higher levels of self-confidence than boys in Jordan and Qatar (Figure VI.5.27 and Table VI.5.25).

On average across OECD countries, students from advantaged backgrounds reported higher levels of self-confidence in high-level ICT tasks (0.15 index points) than students from disadvantaged backgrounds (-0.21 index points). This pattern was evident across all OECD countries and partner countries and economies. Turkey, Hungary, Poland and the partner countries Panama, Jordan, Trinidad and Tobago, Bulgaria, the Russian Federation and Serbia showed the largest differences in favour of socio-economically advantaged students, with more than 0.58 index points (Figure VI.5.27 and Table VI.5.25). This finding indicates a digital divide in ICT skills between students from advantaged and disadvantaged backgrounds.

■ Figure VI.5.28 ■

Percentage of students who reported being able to create a multi-media presentation



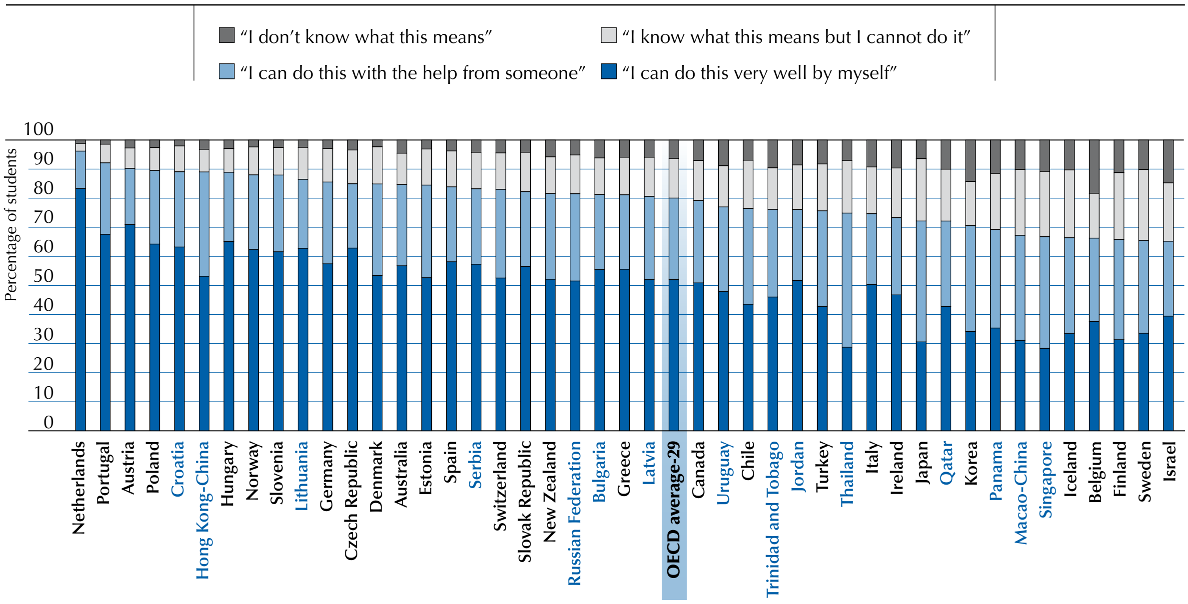
Countries are ranked in descending order of the percentage of students who reported being able to create a multi-media presentation very well by themselves or with the help from someone.
Source: OECD, *PISA 2009 Database*, Table VI.5.26.
StatLink http://dx.doi.org/10.1787/888932435435

Figures VI.5.28 and VI.5.29 show students' self-confidence in creating a multimedia presentation and in using a spreadsheet to plot a graph – two tasks directly applicable to the knowledge-based labour market. This analysis allows for a further breakdown by the four levels of self-confidence: "I can do this very well by myself"; "I can do this with help from someone"; "I know what this means but I cannot do it"; "I don't know what this means". The highest levels of self-confidence to complete a multimedia presentation, either by the students themselves or with some help, were reported by students in Portugal, the Netherlands, Australia, the Czech Republic, Denmark, Slovenia, Poland and the partner countries and economy Hong Kong-China, Croatia and Liechtenstein. More than 8% of students in Japan, Korea and the partner countries Panama, Jordan and Thailand reported that they did not know what it meant to create a multimedia presentation (Table VI.5.26).

Higher levels of self-confidence were evident in the Netherlands, Portugal, Austria, Poland, Hungary, the partner country Croatia and the partner economy Hong Kong-China in using a spreadsheet to plot a graph. Some 83% of students in the Netherlands reported that they could complete the task by themselves, which is 12 percentage points more than the second-highest proportion of students who reported that they could complete the task (71%), found in Austria. In Belgium, Israel and Korea, at least 14% of students reported that they did not know what it meant to use a spreadsheet to create a graph (Table VI.5.27).

■ Figure VI.5.29 ■

Percentage of students who reported being able to use a spreadsheet to plot a graph



Countries are ranked in descending order of the percentage of students who reported being able to use a spreadsheet to plot a graph very well by themselves or with help from someone.
Source: OECD, *PISA 2009 Database,* Table VI.5.27.
StatLink http://dx.doi.org/10.1787/888932435435

Trends in students' self-confidence in using computers

Trend data on student self-confidence in three of the four high-level ICT tasks are available for 22 OECD countries and 6 partner countries from PISA 2003 to 2009. As shown in Figure VI.5.30, the vast majority of countries shows large increases in students' self-confidence in being able to "use a spreadsheet to plot a graph", "create a presentation", and "create a multimedia presentation" by themselves. Most of the improvement in self-confidence occurred for the latter two tasks (Table VI.5.28).

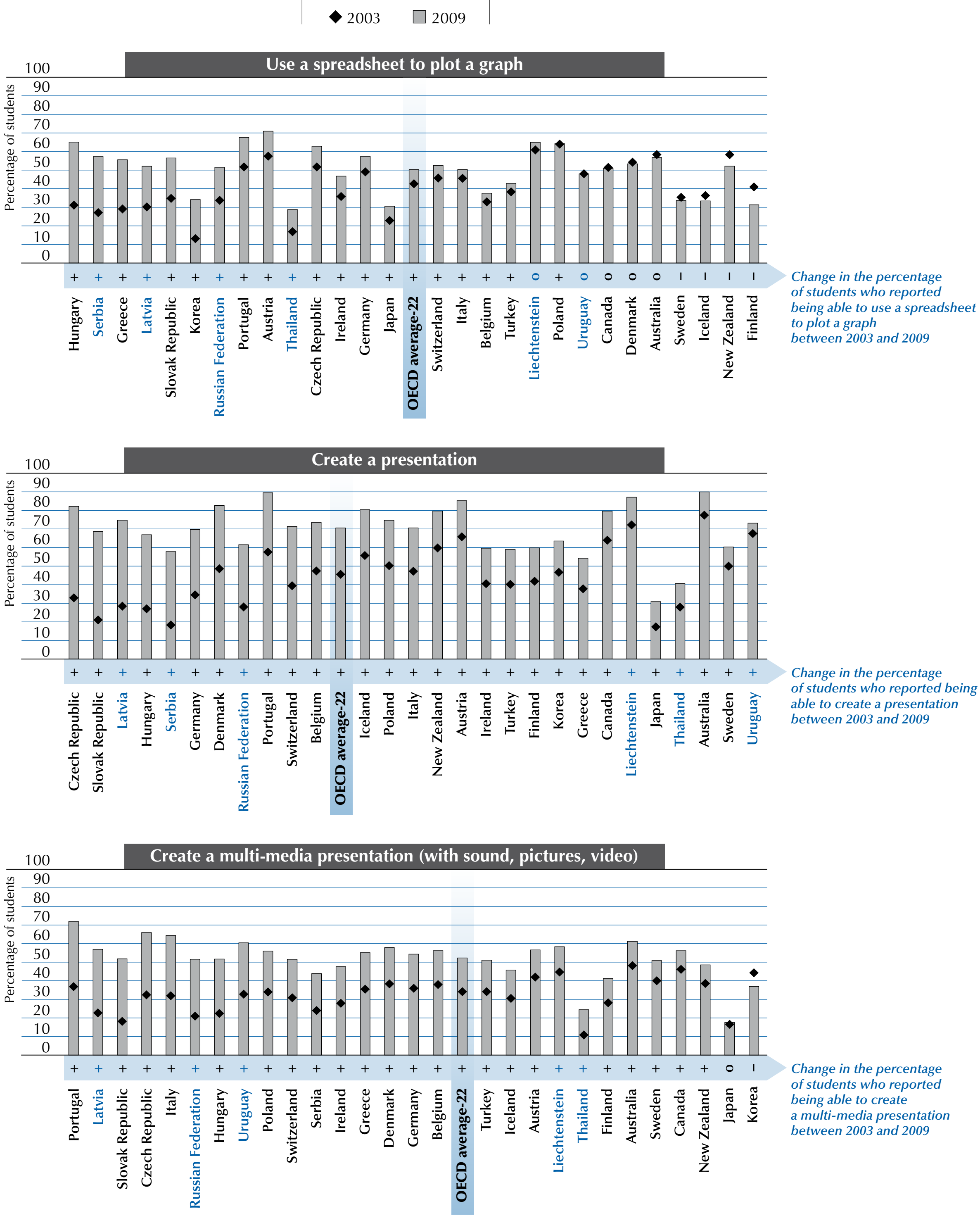
From 2003 to 2009, gains of more than 20 percentage points in student self-confidence in using a spreadsheet to plot a graph were reported in Hungary, Greece, the Slovak Republic and the partner countries Serbia and Latvia. Gains of more than 35 percentage points in student self-confidence in creating a presentation were reported in the Czech Republic, the Slovak Republic, Hungary, Germany and the partner countries Latvia and Serbia over the period; and gains of more than 30 percentage points in student self-confidence in creating a multimedia presentation were reported in Portugal, the Slovak Republic, the Czech Republic, Italy and the partner countries Latvia and the Russian Federation (Table VI.5.28).

During the same period, across OECD countries, girls' self-confidence improved, leading to a narrowing of the gender gap by 5 percentage points for using a spreadsheet to plot a graph; by 12 percentage points for creating a presentation; and by 11 percentage points for creating a multimedia presentation. Only in Japan, and only for the "create a multimedia presentation" task, was there an evident widening of the gender gap (Table VI.5.28).

From 2003 to 2009, on average across OECD countries, the gap between socio-economically advantaged and disadvantaged students in their ability to "use a spreadsheet to plot a graph" narrowed by eight percentage points. It was the only task for which that gap narrowed (Table VI.5.29). In the Slovak Republic, the Czech Republic, Poland, Switzerland, New Zealand and the partner countries Uruguay and Liechtenstein, disadvantaged students became more self-confident in using a spreadsheet to create a graph; and in Portugal, Switzerland, Poland and the Czech Republic, they become more self-confident in creating a presentation. The gap between advantaged and disadvantaged students in self-confidence in using a spreadsheet to plot a graph widened in Turkey, Korea, Australia, Belgium and Canada. It also widened in Sweden, Hungary, Turkey, Finland and the partner country Serbia for creating a presentation.

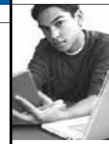
■ Figure VI.5.30 ■

Percentage of students who reported being able to do the following tasks very well by themselves or with help from someone, in 2003 and 2009



2009 higher than 2003	2009 lower than 2003	No statistically significant difference	
+	–	o	95% confidence level

Countries are ranked in descending order of change in the percentage of students for each of these items between 2003 and 2009.
Source: OECD, *PISA 2009 Database*, Table VI.5.28.
StatLink http://dx.doi.org/10.1787/888932435435



Only in Italy was there an improvement among disadvantaged students in their self-confidence in creating a multimedia presentation; while in Hungary, Turkey, Germany, Iceland, Australia, and the partner country the Russian Federation the socio-economic gap in self-confidence widened. These results indicate that improving access to computers for disadvantaged students in schools has not led to greater self-confidence in computer use and technical proficiency – evidence of the second digital divide.

CONCLUSIONS

Students' access to ICT has continued to improve since 2000. On average across OECD countries, the percentage of students who reported having a computer at home increased from 72% in 2000 to 94% in 2009. During the same period, home Internet access grew from 45% to 89%, on average across the OECD area.

Despite this improvement, the digital divide is evident between countries. While many OECD countries, such as the Netherlands, Finland and Norway, now have near universal home computer and Internet access, fewer than half of students in Mexico have access to a computer or the Internet at home. Eleven partner countries show low levels of access to a computer or the Internet, with the lowest levels reported in Kyrgyzstan (14%) and Indonesia (8%).

Within countries, the digital divide is linked to students' socio-economic background. Students from socio-economically advantaged backgrounds have higher levels of computer and Internet access at home; however, in some countries, the inequalities in the level of computer use at home is narrowed when disadvantaged students have more opportunities to use a computer at school.

Students from advantaged backgrounds reported higher levels of home computer access and use, both for leisure and schoolwork, than students from disadvantaged backgrounds. In addition, advantaged students expressed more positive attitudes towards computers and reported greater self-confidence in completing high-level ICT tasks. This may be due to the more limited access to computers at home for disadvantaged students compared to advantaged students. However, computer use at school helps to compensate for comparatively low levels of home computer use in Portugal, Italy, Poland, Hungary, Greece, Switzerland, and the partner countries Latvia, Croatia and Singapore. In these countries, disadvantaged students are more likely than advantaged students to use computers at school.

There is no clear pattern linking gender to a digital divide. Overall, boys reported a slightly higher frequency of using a computer at school than girls, while girls reported a higher frequency of computer use at home for schoolwork. Yet, some countries showed no difference or the inverse. Across all participating countries, boys reported a higher frequency of leisure-related activities than girls. Among OECD countries, boys expressed more positive attitudes towards computers and higher levels of self-confidence in completing high-level ICT tasks than girls.

Note

1. Among OECD countries, the correlation coefficient between the ratio of computers to the number of students in the modal grade of 15-year-olds in PISA 2009 and the ratio of computers to the number of students in school in PISA 2009 is 0.72.

6

Students' Use of Information and Communication Technologies and their Performance in Digital Reading

This chapter focuses on the relationship between students' familiarity with ICT and their performance in digital reading. It discusses students' access to and use of computers, both at home and at school, and analyses how the frequency of ICT use for various purposes – both leisure- and schoolwork-related – is associated with digital reading proficiency. The chapter also examines the relationship between students' self-confidence in using computers and their mastery of digital texts.

This chapter examines how students' performance in digital reading is related to their access to and use of computers. Chapter 4 examines the relationship between online reading activities and reading performance. This chapter extends the analyses in Chapter 4 by including a wider range of ICT-related activities drawn from the optional PISA 2009 questionnaire on ICT familiarity (see Chapter 5), and by differentiating where students use ICT – at home or at school. The analysis also includes students' self-confidence in working on high-level ICT tasks. The relationship between students' self-confidence and performance in digital reading, as well the relationship between students' self-confidence and different types of ICT activities, are examined. When students use computers more frequently, do they perform better in digital reading? Do students who have greater self-confidence in using computers perform better? When students use computers more frequently, are they more self-confident in using computers?

The chapter first examines the relationship between performance in digital reading and students' access to and use of computers at home and at school. It then analyses in more detail how the frequency of ICT use for various purposes is related to digital reading. This is followed by an in-depth study focusing on a subset of ICT activities to examine how these activities are related to digital reading, after accounting for students' reading proficiency. The last section examines how students' self-confidence in using computers is related to their performance in digital reading, and how ICT activities are related to students' self-confidence in using computers. These analyses, most of which are based on responses from the 17 countries that administered both the optional questionnaire and the digital reading assessment, do not attempt to show a causal relationship between any of these factors and performance.

The main focus of this chapter is on the bivariate relationship between students' familiarity with ICT and their performance in digital reading. More comprehensive analyses, examining the relationship between a wider range of student and school characteristics and performance in digital reading, are presented in Chapter 7.

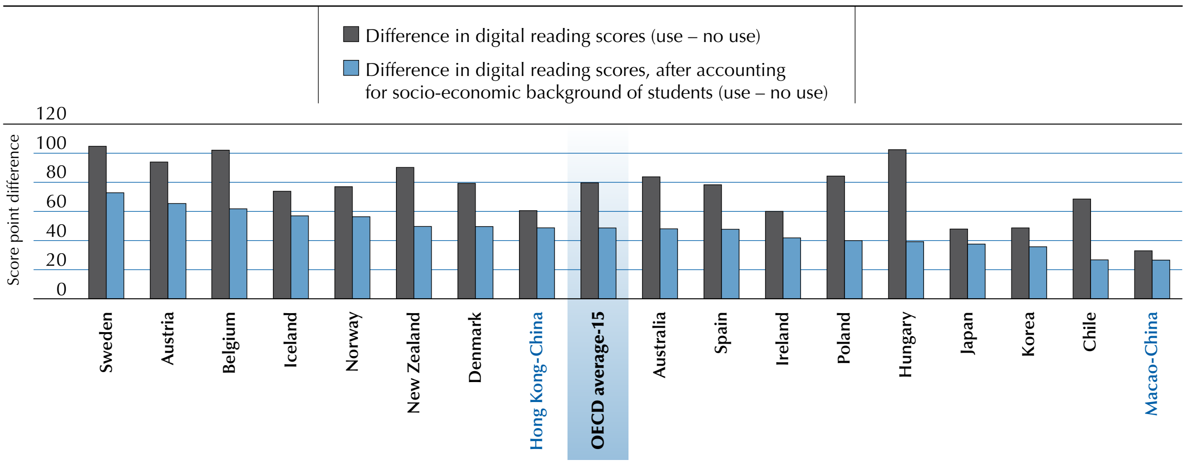
ACCESS TO AND USE OF COMPUTERS AND PERFORMANCE

Access to and use of computers at home

Chapter 5 shows that access to a computer at home has grown greatly over the past nine years. In PISA 2009, around 94% of students across OECD countries reported that they have at least one computer at home (Table VI.5.2). In all 19 countries and economies that participated in the assessment of digital reading, students who reported having a computer at home performed better than students who reported having no computer at home. Since in most countries students without a computer at home tend to be those from socio-economically disadvantaged backgrounds, the performance difference decreases in all countries and economies after accounting for students' backgrounds. Indeed, after accounting for students' socio-economic backgrounds, students who do and who do not have access to computers at home perform at similar levels in Korea, Austria and Sweden (Table VI.6.1).

■ Figure VI.6.1 ■

Difference in digital reading scores between students who use a computer at home and those who do not



Note: All differences in digital reading scores are statistically significant.
Countries are ranked in descending order of the performance difference after accounting for socio-economic background of students.
Source: OECD, *PISA 2009 Database,* Table VI.6.2.
StatLink http://dx.doi.org/10.1787/888932435454

Even if there is a computer at home, students may or may not be allowed to use it or students may or may not want to use it. The information on whether students use computers at home, including both desktop and laptop computers, is available in 45 countries and economies that administered the optional questionnaire on familiarity with ICT. Among these countries and economies, 17 also administered the assessment of digital reading. In all of these 17 countries and economies, students who reported using computers at home tend to perform better than other students, including both those who reported that they do not use computers and those who reported that there is no computer available at home (Table VI.6.2). In Sweden, Hungary and Belgium, students who use computers at home score at least 100 score points higher than students who do not, as shown in Figure VI.6.1.

Since socio-economically advantaged students are more likely to use a computer at home than disadvantaged students, the performance advantage among students who use a computer at home tends to be smaller after accounting for students' socio-economic backgrounds. But in all 17 countries and economies, students who use a computer at home perform better than those who do not, even after accounting for students' socio-economic backgrounds.

Computer access and use at school

Chapter 5 shows that in almost all countries and economies, most schools have at least one computer (Table VI.5.8). However, the number of computers available for students varies greatly within and across countries. This section thus applies a ratio of the number of computers per student as an indicator of computer access at school and examines how students' performance in digital reading differs between students in schools with below the national average ratio of computers per student and students in schools with above the national average ratio.

No consistent pattern is observed across countries (Table VI.6.3). In Austria, Chile and the partner country Colombia, students in schools with an above-average ratio of computers per student tend to perform better than students in schools with a below-average ratio. In contrast, in Korea, Japan, Hungary, Poland, Iceland and the partner economy Hong Kong-China, students in schools with a below-average ratio of computers per student tend to perform better than students in schools with an above-average ratio. In nine other countries and economies with available data, there is no performance difference between the two groups of students. The causal nature of the observed relationships is difficult to establish, and may result from the influence of third factors. For example, lower scores may be associated with greater access to computers because lower-performing students may use computers more in practical classes than higher-performing students do in more academically oriented courses.

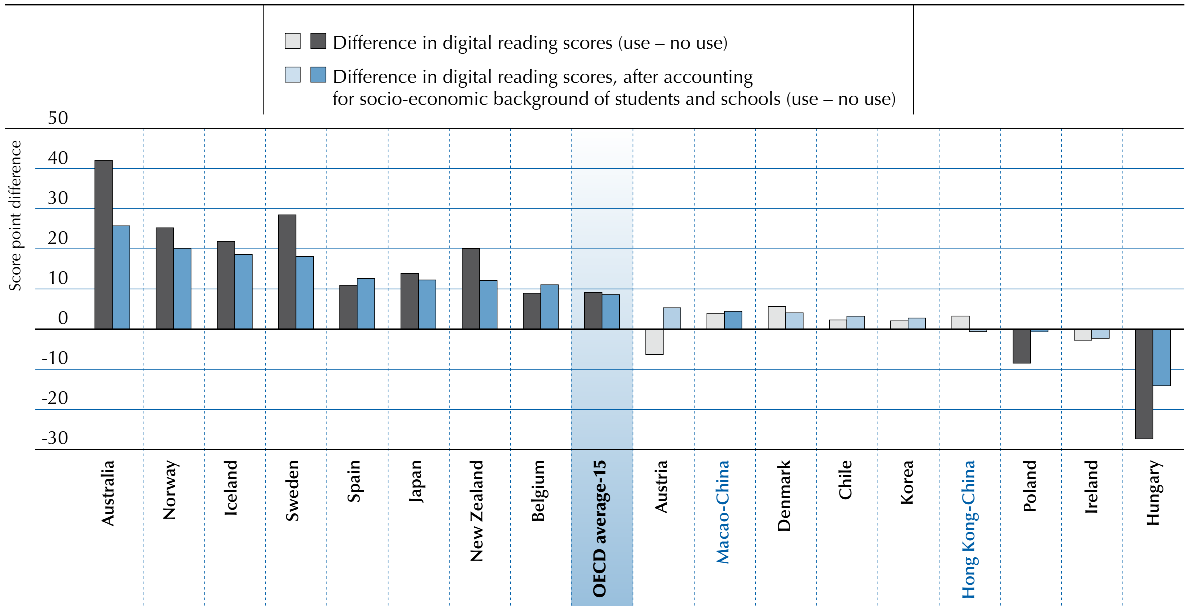
The relationship between the computer-per-student ratio of in school and the socio-economic background of schools varies across countries. In some countries, schools with an above-average ratio of computers per student are socio-economically advantaged, while in other countries, such schools are disadvantaged (Table VI.6.3). After accounting for the socio-economic background of students and schools, in almost all countries and economies there is no performance difference between students in schools with below- and above-average ratios of computers per student. In Belgium and the partner economy Macao-China, however, students in schools with an above-average ratio of computers per student tend to perform better than students in schools with a below-average ratio, after accounting for students' and schools' socio-economic backgrounds. In the partner economy Hong Kong-China, students in schools with a below-average ratio of computers per student tend to perform better than students in schools with an above-average ratio, even after accounting for students' and schools' socio-economic backgrounds.

There is also no consistent pattern across countries in the performance difference between students who reported using computers at school and students who reported that they do not use computers or had no access to computers at school, as shown in Figure VI.6.2. In eight countries – Australia, Sweden, Norway, Iceland, New Zealand, Japan, Spain and Belgium – students who use computers at school tend to perform better than students who do not use computers at school, whereas in two countries – Hungary and Poland – students who do not use computers at school tend to perform better than students who do. But in seven countries and economies there is no performance difference between these two groups of students.

In many countries, the socio-economic backgrounds of schools are not related to whether students use or do not use computers at school (Table VI.6.4). So, even after accounting for the socio-economic backgrounds of students and/or schools, the performance differences between the two groups remain in all OECD countries, except Poland, where the performance advantage for students who do not use computers at school disappears after accounting for students' and schools' backgrounds, since socio-economically disadvantaged students are more likely to use computers at school than advantaged students.

■ Figure VI.6.2 ■

Difference in digital reading scores between students who use a computer at school and those who do not



Note: Values that are statistically significant are marked in a darker tone.
Countries are ranked in descending order of the performance difference after accounting for socio-economic background of students and schools.
Source: OECD, *PISA 2009 Database,* Table VI.6.4.
StatLink http://dx.doi.org/10.1787/888932435454

DIFFERENT TYPES OF COMPUTER USE AND PERFORMANCE

Use of computers at home and performance

Students' use of computers at home for leisure and their performance in digital reading

Students use computers at home for various activities. How is the frequency of students' use of computers for leisure-related activities related to their performance in digital reading? As explained in detail in Chapter 5, students were asked to report how often they use a computer at home for the following activities: play one-player games; play collaborative online games; use e-mail; chat on line; browse the Internet for fun; download music, films, games or software from the Internet; publish and maintain a personal website, weblog or blog; and participate in online forums, virtual communities or spaces. Students' responses to these eight activities – "never or hardly ever", "once or twice a month", "once or twice a week" or "every day or almost every day" – were combined to make an *index of computer use at home for leisure*. The higher the value on this index, the more frequently students use computers at home for leisure. Labels in Box VI.6.1 are used to refer to each group of students.

Box VI.6.1 **Labels for each group of students: Students' use of computers**

Bottom quarter on the index	Second quarter on the index	Third quarter on the index	Top quarter on the index
Rare users	Moderate users		Intensive users

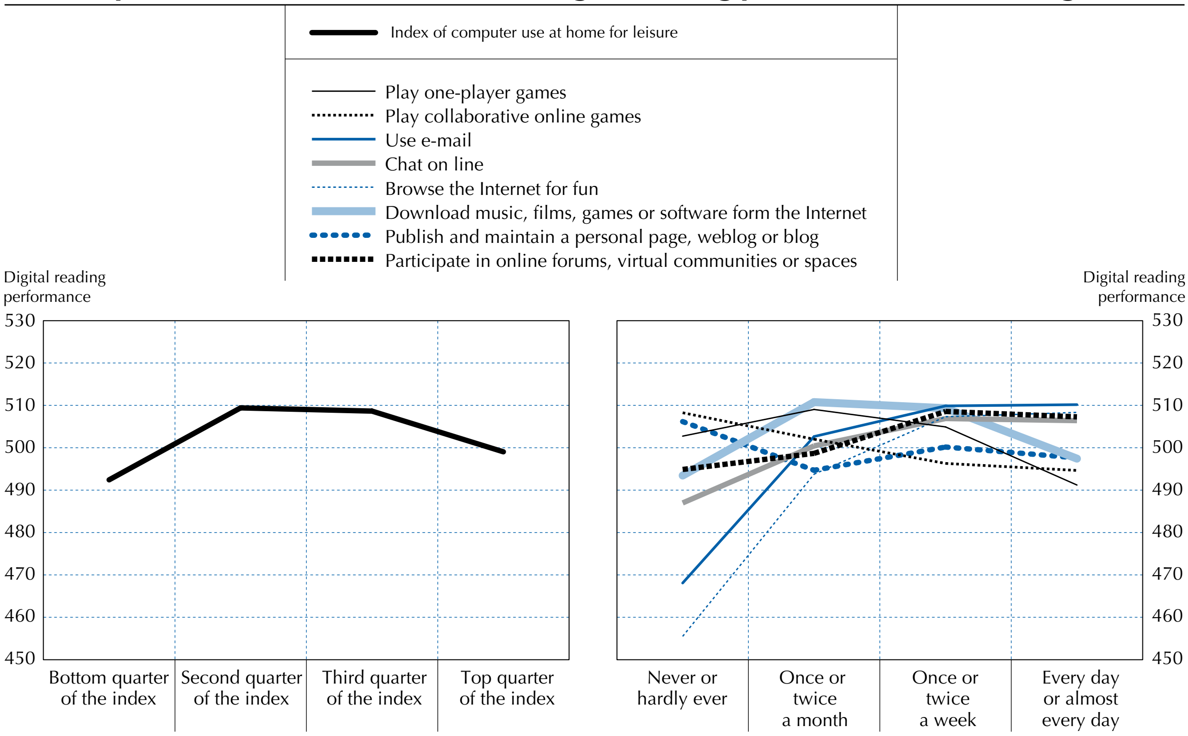
Never or hardly ever	Once or twice a month	Once or twice a week	Every day or almost every day
Infrequent users	Sporadic users		Daily users

Across OECD countries, students who use computers at home for leisure at a moderate level of frequency perform better than rare users: students in the bottom quarter of this index average 492 score points, while students in both the second and third quarters of this index average 509 score points. Intensive users – students in the top quarter of this index – average 499 score points, which is lower than the scores attained by moderate users (Table VI.5.14). In general, as shown in the left panel of Figure VI.6.3, the relationship between performance and the frequency of computer use at home for leisure is not linear, but rather mountain-shaped: it rises from rare users to moderate users then falls from moderate users to intensive users. This finding is also supported by the quadratic regression analysis[1] (Table VI.6.5a).

Across OECD countries, each of the eight activities, except the activity "play collaborative online games", shows a similar pattern in the relationship with performance as that of the index in general. As shown in the right panel of Figure VI.6.3, students who never or hardly ever use a computer at home to play collaborative online games tend to achieve the highest scores (508 score points), followed by students who use a computer at home for this purpose once or twice a month (502 score points) (Table VI.6.5c). Students who use a computer at home for this purpose at least once a week perform at the lowest levels compared with other students (496 score points for once or twice a week and 495 score points for every day or almost every day).

■ Figure VI.6.3 ■

Computer use at home for leisure, and digital reading performance, OECD average-15



Source: OECD, *PISA 2009 Database*, Tables VI.5.14 and VI.6.5b-i.
StatLink http://dx.doi.org/10.1787/888932435454

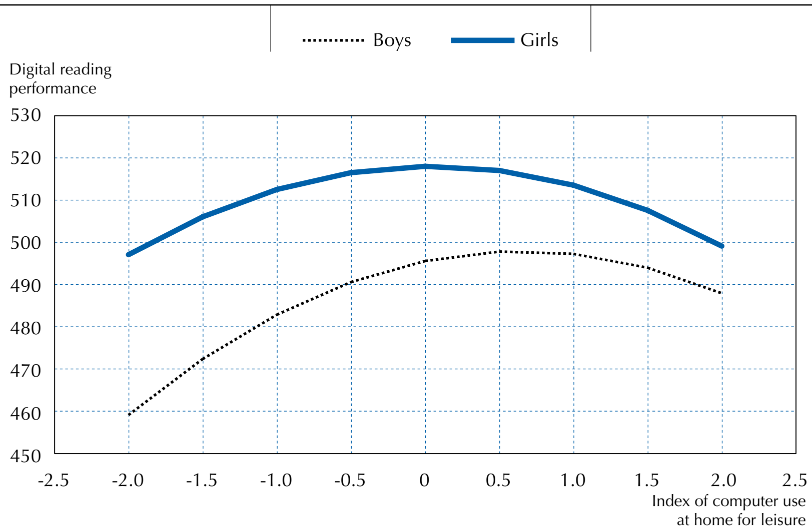
The pattern of the relationship between the *index of computer use at home for leisure* and performance varies across countries. Japan, Poland, Hungary, Spain, Denmark and the partner economies Hong Kong-China and Macao-China show a pattern similar to the OECD average, which is that moderate users perform better than rare users, and intensive users perform around the same level as or at lower levels than moderate users, while still performing better than rare users.[2] In Chile, there is a positive linear relationship between the *index of computer use at home for leisure* and performance, which means that the more frequently students use a computer at home for leisure, the better they perform. In contrast, in Norway, Korea and Austria, both the index and the square of the index are negatively related to performance, which means that intensive users achieve lower scores than moderate and rare users.

The frequency of computer use at home for leisure is highly related to students' socio-economic background: as discussed in Chapter 5, in most participating countries and economies, socio-economically advantaged students tend to use computers at home more frequently for leisure (Table VI.5.14). After accounting for students' socio-economic backgrounds, therefore, only in Japan, Chile and the partner economy Hong Kong-China, do those students who use computers at home more for leisure perform better than those who do not (Table VI.6.5a).

The pattern of the relationship between the frequency of students' use of computers at home for leisure and performance seems to be different for girls and boys. Figure VI.6.4 presents this relationship separately for boys and girls across OECD countries. Among boys, intensive users tend to perform better than rare users, while among girls intensive users tend to perform at around the same level as rare users.

■ Figure VI.6.4 ■

Index of computer use at home for leisure, and digital reading performance, by gender, OECD average-15

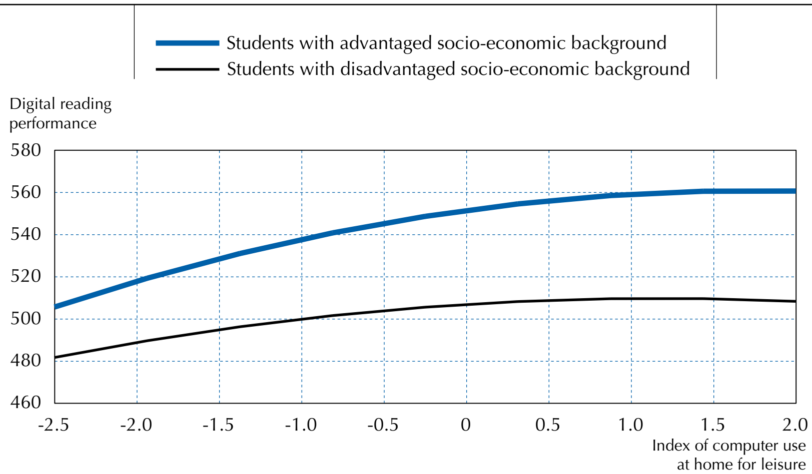


Source: OECD, *PISA 2009 Database*, Table VI.6.5a.
StatLink http://dx.doi.org/10.1787/888932435454

While the pattern of the relationship between the index and performance does not differ greatly between socio-economically advantaged and disadvantaged students across OECD countries, in some countries it varies according to students' socio-economic background (Table VI.6.5a). Among socio-economically disadvantaged students in Hungary and Norway, the relationship shows a gentle mountain-shaped pattern – rare users and intensive users perform at similar levels and moderate users perform better than both of them – while among advantaged students the relationship is negative, shown by a curve: moderate users perform at the same level or slightly better than rare users, while intensive users attain lower scores than rare and moderate users. In Japan, the relationship is positive, and illustrated by a curve, for both disadvantaged and advantaged students, but the line is steeper among advantaged students; that is, moderate users perform better than rare users, and intensive users perform better than moderate users (Figure VI.6.5a). In Chile, Iceland, Poland and Spain, the patterns are different between advantaged and disadvantaged students, and this difference is apparent in the shape of the curve. In Poland and Spain, a mountain-shaped pattern is gentler for disadvantaged students than for advantaged students, meaning that the performance advantage for moderate users compared with rare or intensive users is greater among advantaged students than among disadvantaged students. In contrast, in Iceland, a mountain-shaped pattern is steeper for disadvantaged students than for advantaged students. Among advantaged students in Chile, moderate users perform better than rare and intensive users, and intensive users perform better than rare users; while among disadvantaged students, the more frequently students use computers at home for leisure, the better they perform (Figure VI.6.5b).

■ Figure VI.6.5a ■

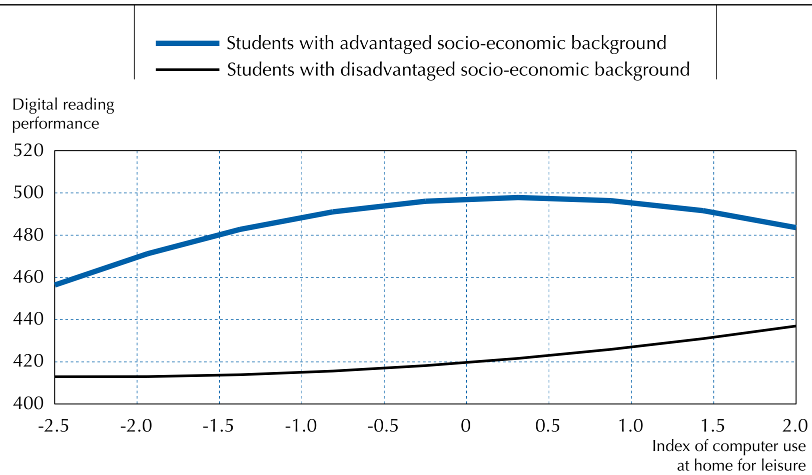
Index of computer use at home for leisure, and digital reading performance, by socio-economic background (Japan)



Note: Disadvantaged socio-economic background is defined as one standard deviation below the OECD average on the *PISA index of economic, social and cultural status,* while advantaged socio-economic background is one standard deviation above the OECD average.
Source: OECD, *PISA 2009 Database,* Table VI.6.5a.
StatLink http://dx.doi.org/10.1787/888932435454

■ Figure VI.6.5b ■

Index of computer use at home for leisure, and digital reading performance, by socio-economic background (Chile)



Note: Disadvantaged socio-economic background is defined as one standard deviation below the OECD average on the *PISA index of economic, social and cultural status,* while advantaged socio-economic background is one standard deviation above the OECD average.
Source: OECD, *PISA 2009 Database,* Table VI.6.5a.
StatLink http://dx.doi.org/10.1787/888932435454

Use of computer at home for schoolwork

Students use computers at home not only for leisure but also for their schoolwork. How is the frequency of students' use of a computer at home for schoolwork related to their performance in digital reading? Is the relationship different from that between frequency of use for leisure and performance? Students were asked to report how frequently – "never or hardly ever", "once or twice a month", "once or twice a week" or "every day or almost every day" – they use computers at home for the following five activities: browse the Internet for schoolwork; use e-mail to communicate with other students about schoolwork; use e-mail to communicate with teachers and submit homework or other schoolwork; download, upload or browse material from the school's website; and check the school's website for announcements. If students reported that they use computers for these activities "every day or almost every day" or "once or twice a week", they were considered frequent users of computers. Students' responses to these six questions were combined to make an *index of computer use at home for schoolwork*. The higher the value on this index, the more frequently students use computers at home for schoolwork-related activities. Labels in Box VI.6.1 are used to refer to each group of students.

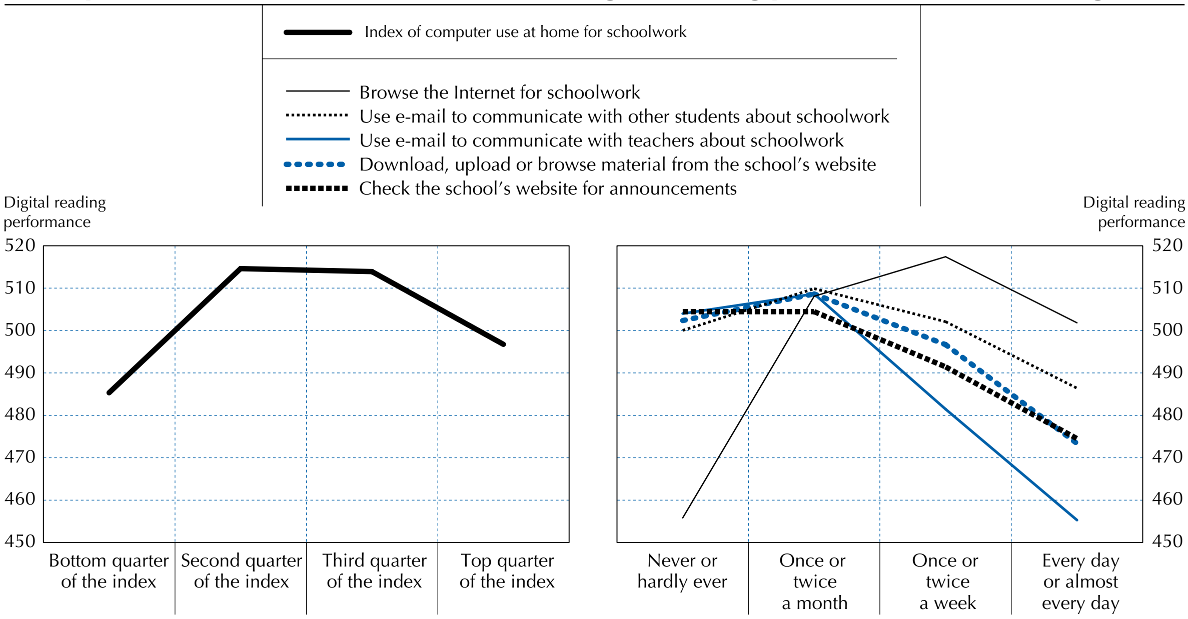
Across OECD countries, students who use computers at home for schoolwork at a moderate level of frequency perform better than rare users: students in the bottom quarter of this index average 485 score points, while students in the second and third quarters of this index average 515 and 514 score points, respectively. Intensive users – students in the top quarter of this index – average 497 score points (Table VI.5.16). As with students' use of computers at home for leisure, the relationship between students' use of computers at home for schoolwork and performance is not linear, but rather steeply mountain-shaped, as shown in the left panel of Figure VI.6.6. The performance advantage for moderate users and the performance disadvantage for rare users compared with intensive users are more prominent when students use a computer at home for schoolwork as compared to when they do so for leisure.

Each of the five activities shows a somewhat different pattern in the relationship between the frequency of engaging in that activity and performance. The right panel of Figure VI.6.6 shows that general use of the Internet for schoolwork seems to have a different relationship with performance than the other four, more specific, activities, which involve using a computer for communicating with others and accessing a school's website for schoolwork. When measured against the *index of computer use at home for schoolwork*, sporadic users – in this case, students who reported using a computer "once or twice a month" or "once or twice a week" for all five activities – perform better than students who reported using a computer for these purposes "every day or almost every day." For all but the activity "browse the Internet for schoolwork", infrequent users perform as well as or better than sporadic users and achieve higher scores than daily users. For the activity "browse the Internet for schoolwork", a mountain-shaped pattern emerges: both infrequent and daily users attain lower scores than sporadic users.

Since the causal relationship between these ICT activities and performance cannot be established, it cannot be concluded that more frequent use of computers at home for schoolwork results in a decline in performance. One explanation is that students who need more help or students who need more time to complete a task, tend to use computers at home for schoolwork more frequently, and these students also tend to attain lower scores than other students.

■ Figure VI.6.6 ■

Computer use at home for schoolwork, and digital reading performance, OECD average-15



Source: OECD, *PISA 2009 Database*, Tables VI.5.16 and VI.6.6b-f.
StatLink http://dx.doi.org/10.1787/888932435454

When looking at the *index of computer use at home for schoolwork* in individual countries and economies, there is no country or economy in which those students who rarely use computers at home for schoolwork perform better than moderate or intensive users (Table VI.5.16). In the majority of countries with available data, intensive users attain the same or lower scores than moderate users, and attain the same or better scores than rare users, except in the partner economy Hong Kong-China, where moderate users perform better than rare users and intensive users perform better than moderate users.

Students from socio-economically advantaged backgrounds more frequently use computers at home for schoolwork than disadvantaged students in almost all participating countries and economies except Liechtenstein, where there is no significant difference (see Chapter 5) (Table VI.5.16). After accounting for students' socio-economic backgrounds, only in Japan, Iceland and the partner economies Hong Kong-China and Macao-China is there a positive relationship between the index and digital reading performance. Still, the relationship is mountain-shaped, so that while intensive users perform better than rare users, they do not necessarily perform as well as moderate users[3] (Table VI.6.6a).

Across OECD countries, there is no difference between boys and girls in the pattern of the relationship between this index and performance. Nor is there any great difference in the pattern between socio-economically advantaged and disadvantaged students across OECD countries. But in some countries and economies, the pattern varies according to students' socio-economic background (Table VI.6.6a). In Australia, Chile, Japan, Korea, New Zealand and Sweden, moderate users perform better than rare or intensive users among both advantaged and disadvantaged students, but the performance disadvantage for intensive users compared with that of moderate users is smaller among advantaged students than among disadvantage students. In contrast, in the partner economies Hong Kong-China and Macao-China, the performance disadvantage for intensive users compared with moderate users is greater among advantaged students than among disadvantaged students.

Use of computers at school and performance

Use of computers at school

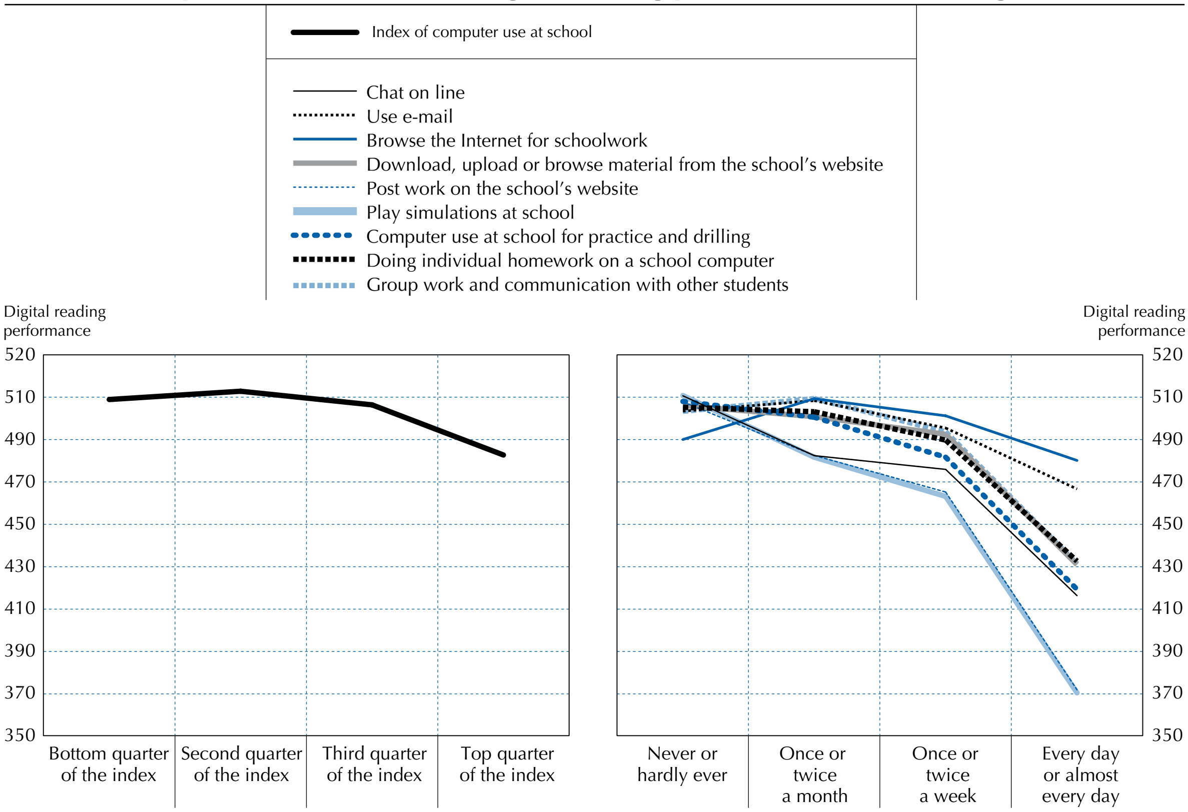
How is the frequency of students' use of computers at school related to performance? Students were asked to report how often – "never or hardly ever", "once or twice a month", "once or twice a week" or "every day or almost every day" – they use a computer at school for the nine following activities: chat on line at school; use e-mail at school; browse the Internet for schoolwork; download, upload or browse material from the school's website; post their work on the school's website; play simulations at school; practice and drilling such as for learning a foreign language or mathematics; do homework on a school computer; and use school computers for group work and communicating with other students. Students' responses to these questions were combined to make an *index of computer use at school*. The higher the value on this index, the more frequently students use computers at school. Labels in Box VI.6.1 are used to refer to each group of students.

Across OECD countries, students who use computers at school at a moderate level of frequency perform slightly better than, or at the same level as, rare users: students in the bottom quarter of this index average 509 score points, while students in the second and third quarters of this index average 513 and 506 score points, respectively (Table VI.5.18). Intensive users – students in the top quarter of this index – perform at the lowest level (483 score points). The relationship between students' use of computers at school and performance tends to be negative with a slight curve, as shown in the left panel of Figure VI.6.7.

Figure VI.6.7 illustrates that each of the nine school ICT activities shows a slightly different pattern in the relationship between the frequency of computer use at school and performance. For using e-mail at school, browsing the Internet for schoolwork, doing homework on a school computer, and using school computers for group work and communicating with other students, the pattern of the relationship is similar to that between the index and performance: students who use computers at school for these activities "once or twice a month" perform best, followed by students who "never or hardly ever" use computers at school for these activities, while students who use computers at school for these activities "every day or almost every day" achieve the lowest scores. In contrast, for chatting on line at school, downloading, uploading or browsing material from the school's website, posting their work on the school's website, playing simulations at school, and engaging in drills and practice, such as for learning a foreign language or mathematics, students who use computers at school for these activities "never or hardly ever" achieve the highest scores, and the more frequently students use computers at school for these activities, the lower their scores.

■ Figure VI.6.7 ■

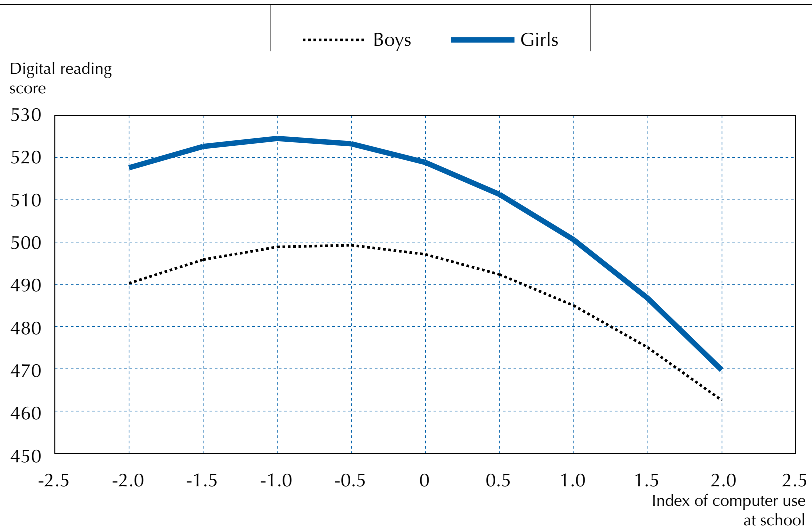
Computer use at school and digital reading performance, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.5.18 and VI.6.7b-j.
StatLink http://dx.doi.org/10.1787/888932435454

■ Figure VI.6.8 ■

Index of computer use at school, and digital reading performance, by gender, OECD average-15



Source: OECD, *PISA 2009 Database,* Table VI.6.7a.
StatLink http://dx.doi.org/10.1787/888932435454

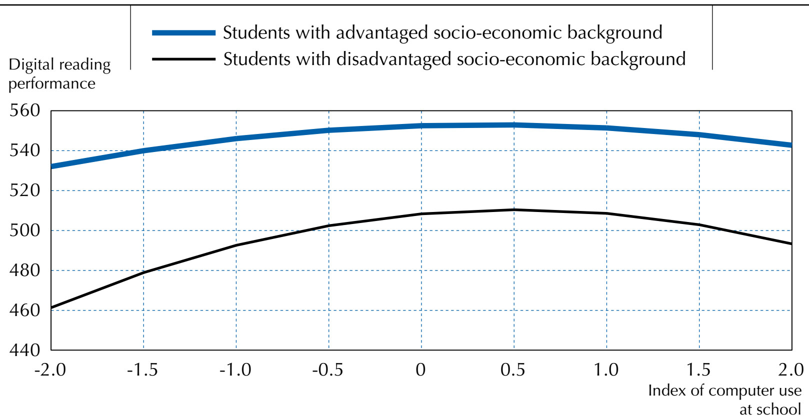
Examining the *index of computer use at school*, in Hungary, Poland, Denmark, Chile and the partner economy Hong Kong-China, rare users generally perform better than moderate users and moderate users perform better than intensive users. In New Zealand, Spain, Belgium, Sweden, Norway, Austria, Korea and Ireland, rare and moderate users perform at similar levels and both perform better than intensive users. In Iceland and Australia, rare and intensive users perform at similar levels and they do not perform as well as moderate users. In Japan and the partner economy Macao-China, performance in digital reading is similar for rare, moderate and intensive users (Table VI.5.18).

Students' socio-economic backgrounds are not highly related to students' use of computers at school (Table VI.5.18). Even after accounting for students' socio-economic backgrounds, the performance advantage for moderate users compared to that for frequent users remains consistent or decreases only slightly[4] (Table VI.6.7a).

The pattern of the relationship between performance and the frequency of students' use of computers at school seems to be different between girls and boys (Figure VI.6.8). The performance disadvantage for girls who use computers intensively as compared to girls who use computers moderately or rarely is much greater than the performance disadvantage for boys who use computers intensively compared to those who use them moderately or rarely. Perhaps there is a difference in attitudes towards and interest in using computers between the boys and girls who use computers intensively at school.

The pattern of the relationship between the index and performance does not differ greatly between socio-economically advantaged and disadvantaged students across OECD countries, although it does in a few countries and economies (Table VI.6.7a). In Belgium, among both advantaged and disadvantaged students, moderate users perform better than rare or intensive users, and rare users perform better than intensive users; but the performance disadvantage for intensive users compared with rare or moderate users is greater among advantaged students than among disadvantaged students. In Japan, among both advantaged and disadvantaged students, moderate users perform better than rare or intensive users, and intensive users perform better than rare users; but the performance advantage for moderate users compared with rare users is greater among disadvantaged students than among advantaged students (Figure VI.6.9). In Denmark, the relationship is negative among both advantaged and disadvantaged students, but among advantaged students the relationship is more linear.

■ Figure VI.6.9 ■
Index of computer use at school, and digital reading performance, by socio-economic background (Japan)



Note: Disadvantaged socio-economic background is defined as one standard deviation below the OECD average on the *PISA index of economic, social and cultural status,* while advantaged socio-economic background is one standard deviation above the OECD average.
Source: OECD, *PISA 2009 Database,* Table VI.6.7a.
StatLink http://dx.doi.org/10.1787/888932435454

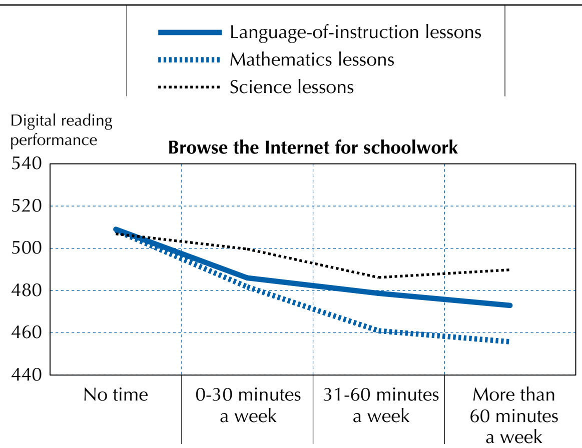
Intensity of computer use in core school lessons

As discussed in Chapter 5, in PISA 2009 students reported for the first time how much time – "no time"; "0-30 minutes"; "30-60 minutes" or "60 minutes or more" – they spend during a typical school week using a computer in language-of-instruction, mathematics and science class. Students' responses to these questions also provide information on the extent to which ICT is used during regular core subject lessons.

Figure VI.6.10a shows that, across OECD countries, students who spend no time using a computer during school lessons perform the best, and the more time students spend using a computer during school lessons, the lower their scores in all three core subjects. This finding should be interpreted with care: it does not necessarily suggest that spending more time using a computer in lessons results in poorer performance. Possible explanations are that lower-performing students who require additional help are provided with disproportionate time on a computer for remedial purposes, and/or those countries that show strong negative relationship between performance and the intensity of computer use in school lessons have not effectively integrated ICT in a pedagogically meaningful way. In fact, the relationship between performance and the intensity of computer use in school lessons varies greatly across countries. Figure VI.6.10b shows that in the countries where ICT is highly integrated into school lessons, the performance disadvantage for students who use computers intensively in school lessons is smaller than in the countries where ICT use in school lessons is not prevalent.

■ Figure VI.6.10a ■

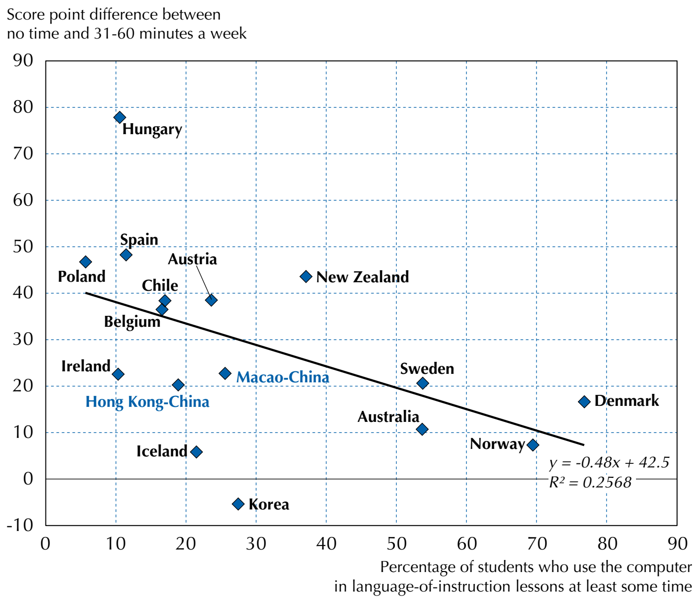
Intensity of computer use in school lessons, and digital reading performance, OECD average-15



Source: OECD, *PISA 2009 Database*, Tables VI.6.8c-f.
StatLink http://dx.doi.org/10.1787/888932435454

■ Figure VI.6.10b ■

Prevalence of computer use in school lessons, and difference in digital reading performance according to intensity of computer use in school lessons



Source: OECD, *PISA 2009 Database*, Tables VI.5.20 and VI.6.8c.
StatLink http://dx.doi.org/10.1787/888932435454

RELATIONSHIP BETWEEN SELECTED COMPUTER ACTIVITIES AND PERFORMANCE IN DIGITAL READING, IN DETAIL

The previous section shows that the relationship between digital reading and students' use of computers varies greatly, depending on what the computer is used for. This section examines in greater depth a few of the selected ICT activities – namely using home computers to play collaborative online games, browse the Internet for fun, browse the Internet for schoolwork, use e-mail to communicate with other students about homework, and use school computers to browse the Internet for schoolwork and to practice and drill. These activities have been chosen as they show distinctive patterns in the relationship between performance in digital reading and each type of ICT activity. For example, using a computer at school to browse the Internet for schoolwork and to drill and practice were chosen as representing ICT use at school. The pattern of the relationship with digital reading performance differs greatly between these activities: there is a linear negative relationship between digital reading performance and engaging in drills and practice, while this does not hold for browsing the Internet for schoolwork.

However, while the different patterns of the relationship could be partly due to the different kinds of activities, they could also be associated with other student characteristics. In order to take this into account, the relationship between digital reading performance and each activity is examined after accounting for students' cognitive skills, represented here as print reading scores. This is then followed by an analysis of the relationship between these activities and navigation skills.

Computer use at home

Comparing students who reported engaging in collaborative online games with varying levels of frequency, those who never or hardly ever do so score the highest in digital reading across OECD countries. Compared with these students, students who play collaborative online games once or twice a month score 6 points lower, students who play once or twice a week score 12 points lower, and students who play every day or almost every day score 14 points lower (Figure VI.6.11). One possible explanation for this is that these students spend most of their time playing games and do not spend enough time studying. In order to account for this, the relationship between frequency of playing games and performance in digital reading is compared among students who show similar levels of academic performance. After accounting for students' performance in print reading as a proxy for academic performance, students who play collaborative online games once or twice a month score 5 points higher, those who play once or twice a week score 8 points higher, and those who play every day or almost every day score 12 points higher than students who never or hardly ever play these games.

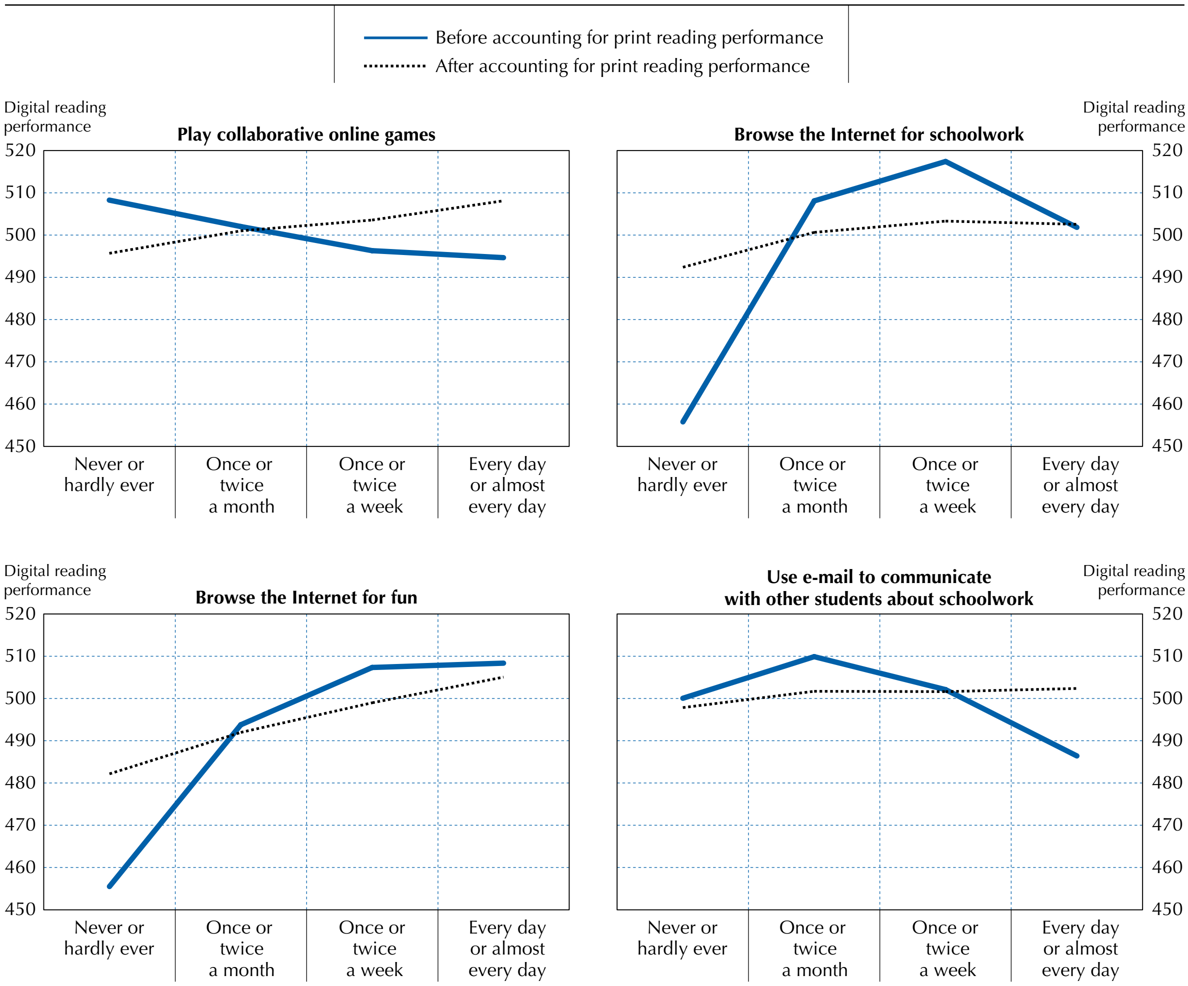
Unlike playing collaborative online games, browsing the Internet at home for fun has a positive relationship with digital reading performance, even before accounting for students' reading proficiency. But, after accounting for print reading performance, the relationship becomes more linear. For example, before accounting for print reading performance, students in OECD countries who never or hardly ever browse the Internet for fun at home score the lowest. Compared with these students, students who browse the Internet for fun once or twice a month score 38 points higher, and students who do this once or twice a week score 52 points higher. Students who browse the Internet for fun every day or almost every day score at about the same level as students who do so once or twice a week (Figure VI.6.11). After accounting for students' performance in print reading, students who never or hardly ever browse the Internet for fun at home score the lowest; and compared with these students, students who browse the Internet for fun once or twice a month score 10 points higher, students who do so once or twice a week score 17 points higher, and students who do so every day or almost every day score 23 points higher.

Comparing students who reported browsing the Internet at home for schoolwork with varying levels of frequency, those who never or hardly ever do so perform the worst. Compared with these students, those who browse the Internet for schoolwork once or twice a month score 52 points higher, and students who do so once or twice a week score 62 points higher. But students who browse the Internet for schoolwork every day or almost every day attain lower scores than students who do so once or twice a month (Figure VI.6.11). Students who browse the Internet for schoolwork at home every day might be those who need additional information from the Internet in order to complete their schoolwork. After accounting for students' performance in print reading, the relationship between digital reading performance and the frequency of browsing the Internet at home for schoolwork is close to linear: students who never or hardly ever browse the Internet at home for schoolwork score the lowest. Compared with them, students who browse the Internet at home for schoolwork once or twice a month score 8 points higher, student who do so once or twice a week score 11 points higher, and students who do so every day or almost every day perform at almost the same level as students who do so once or twice a week.

Before accounting for students' reading proficiency, daily use of computers at home to communicate by e-mail with other students about schoolwork is associated with poorer performance in digital reading. Across OECD countries, students who use the computer for this purpose every day or almost every day score 14 points lower than students who never or hardly ever do so, before accounting for print reading performance, while students who do so once or twice a month score the highest. Students who never or hardly ever use computers at home to e-mail other students about schoolwork and students who do so once or twice a week perform at similar levels in digital reading (Figure VI.6.11). Students who frequently use e-mail to communicate with other students about schoolwork are probably those who need help from their classmates in order to complete schoolwork. After accounting for students' performance in print reading, infrequent users perform less well than all others, while sporadic and daily users show similar performance.

■ Figure VI.6.11 ■

Frequency of computer use at home for leisure and schoolwork, and digital reading performance, before and after accounting for print reading performance, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.6.9a, b, c, d.
StatLink http://dx.doi.org/10.1787/888932435454

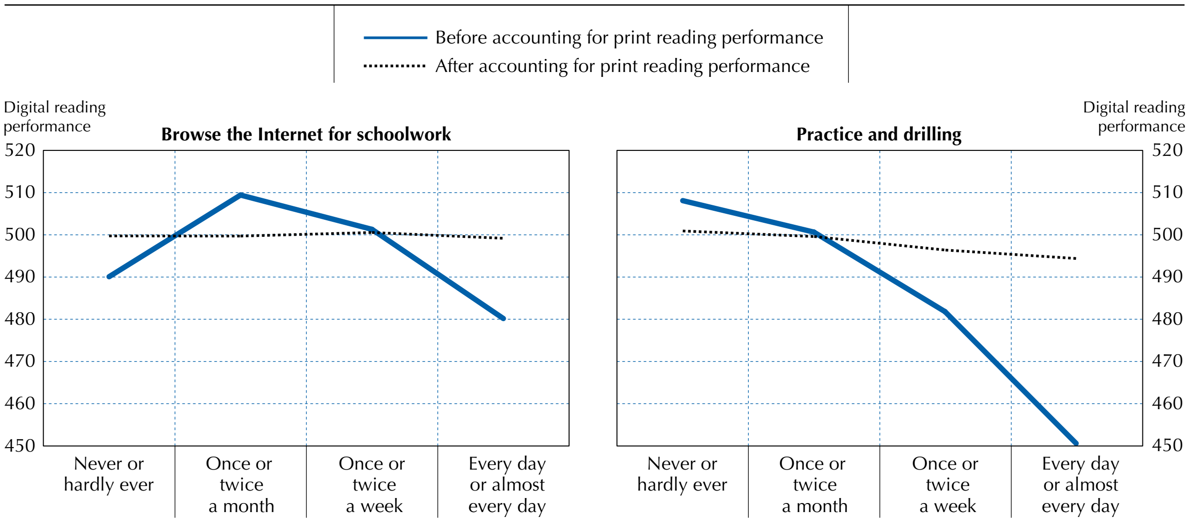
Computer use at school

Students who sporadically use computers at school for browsing the Internet for schoolwork perform the best across OECD countries: students who do so once or twice a month score 19 points higher and student who do so once or twice a week score 11 points higher than students who never or hardly ever do so. But students who do so every day or almost every day score 10 points lower than students who never or hardly ever do so (Figure VI.6.12).

These daily users could be students who need to spend more time to complete schoolwork, or those to whom teachers give additional tasks to help them catch up with their classmates. When students with similar levels of print reading proficiency are compared, they achieve the same level of digital reading proficiency, regardless of how frequently they use computers at school for browsing the Internet for schoolwork.

Across OECD countries, there is a clear negative relationship between the frequency of computer use for engaging in drills and practice and digital reading performance: students who never or hardly ever use computers at school for this purpose score the highest. Compared with these students, students who use home computers for this purpose once or twice a month score 7 points lower, students who do so once or twice a week score 26 points lower, and students who do so every day or almost every day score 58 points lower (Figure VI.6.12). However, as most students who use computers at school for practice and drills would do so for remedial purposes, when the relationship is compared among students who have similar levels of print reading proficiency, this negative relationship is not as prominent. After accounting for proficiency in print reading, students in OECD countries who use computers at school once or twice a month for this purpose perform at the same level as students who never or hardly ever do; while students who do so once or twice a week score 5 points lower, and students who do so every day or almost every day score 7 points lower than students who never or hardly ever do.

■ Figure VI.6.12 ■
Frequency of computer use at school, and digital reading performance, before and after accounting for print reading performance, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.6.10a and b.
StatLink http://dx.doi.org/10.1787/888932435454

Navigation and computer use at home and at school

When comparing students who have similar levels of print reading proficiency, the more frequently students use a computer at home for leisure – playing collaborative online games and browsing the Internet for fun – the better the digital reading performance. However, this linear and positive relationship is less obvious when using home computers for schoolwork – browsing the Internet for schoolwork and using e-mail to communicate with other students about schoolwork – and it is not observed in using computers at school – browsing the Internet for schoolwork and for practice and drills.

Students seem to develop navigation skills by using computers at home for leisure. As discussed in Chapter 3, navigation skills are an essential and unique part of digital reading. Figure VI.6.13a presents the average number of relevant pages visited,[5] depending on the frequency of ICT use, and according to student performance in print reading. In this analysis, students are grouped as among those who attained above the national average score in print reading and those who performed below the national average.[6] The relationship between the average number of relevant pages visited and the frequency of ICT use could differ according to the level of students' cognitive skills, which is represented here as print reading performance.

Box VI.6.2 **Relationship between ICT activities and performance in print reading, mathematics and science**

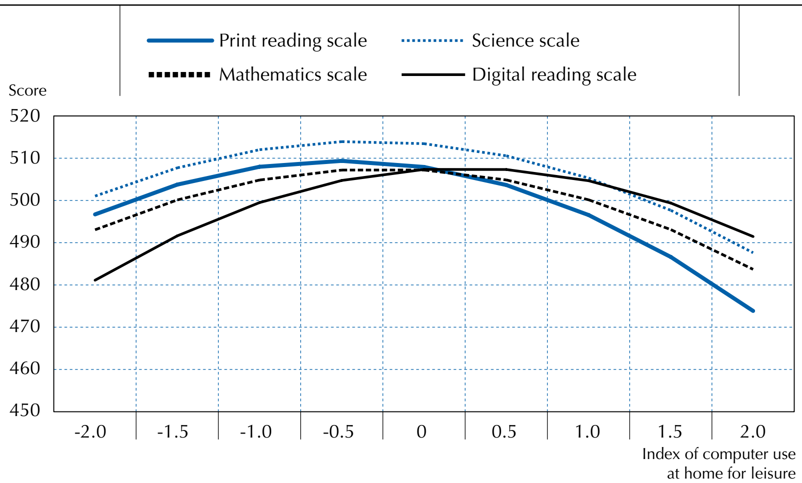
What is the relationship between students' ICT activities and their performance in print reading, mathematics and science? Is it similar to that between ICT activities and performance in digital reading? The *index of computer use at home for leisure*, the *index of computer use at home for schoolwork* and the *index of computer use at school* are used to measure how these indices are related to student performance in print reading, mathematics and science. The results discussed below are based on the average among the 15 OECD countries that participated in the ICT familiarity questionnaire and the digital reading assessment.

The relationship between using a computer at home for leisure and performance differs across assessment areas.

The relationship between the *index of computer use at home for leisure* and performance in digital reading is mountain-shaped: it rises from rare users to moderate users then falls from moderate users to intensive users. A similar mountain-shaped relationship is observed in all three PISA assessment areas – print reading, mathematics and science. However, the shape of the curves differs slightly, depending on the subject. The performance disadvantage for rare users compared with moderate users is smaller in the three main subjects than it is in digital reading, while the performance disadvantage for intensive users compared with moderate users is greater in the three main subjects – especially in print reading – than it is in digital reading.

■ Figure VI.6.A ■

Index of computer use at home for leisure, and performance in print reading, digital reading, mathematics and science, OECD average-15



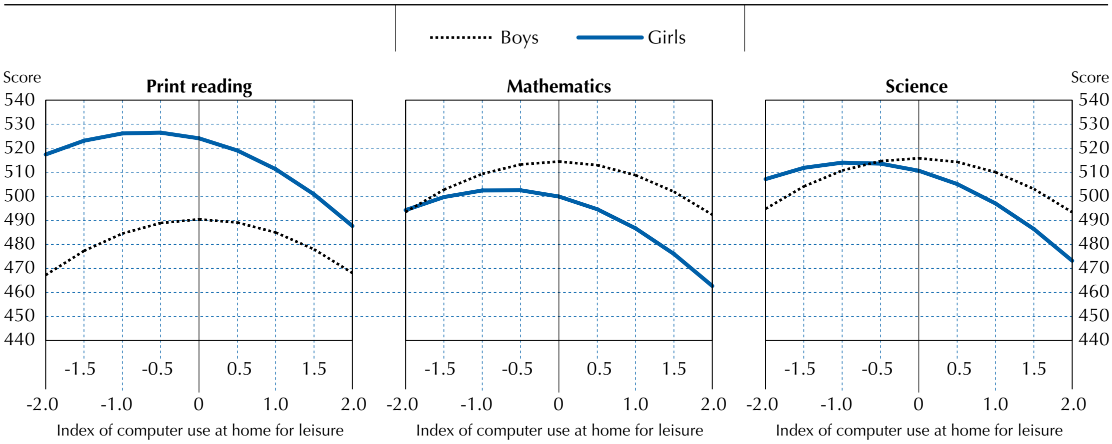
Source: OECD, *PISA 2009 Database,* Tables VI.6.5a, A6.1, A6.2 and A6.3.
StatLink http://dx.doi.org/10.1787/888932435454

Among both boys and girls, the relationship between computer use for leisure and performance differs between digital reading and the three main subjects. Figure VI.6.4 shows that the patterns of the relationship between the *index of computer use at home for leisure* and performance in digital reading are different for boys and girls. Among boys, the relationship is positively linear with a slight curve, meaning that intensive users achieve slightly lower scores than moderate users, but they perform much better than rare users. Among girls, the pattern is mountain-shaped, meaning that moderate users perform better than rare and intensive users, and rare and intensive users tend to perform at around the same levels. These patterns are different from those found in the three main assessment areas. In print reading, mathematics and science, among boys, moderate users perform better than rare and intensive users, and rare and intensive users perform at around the same levels; among girls, the relationship is negatively linear with a slight curve, meaning that rare users achieve slightly lower scores than moderate users, but they perform much better than intensive users.

...

■ Figure VI.6.B ■

Index of computer use at home for leisure, and performance in print reading, mathematics and science, by gender, OECD average-15



Source: OECD, *PISA 2009 Database*, Table A6.1, A6.2 and A6.3.
StatLink http://dx.doi.org/10.1787/888932435454

In summary, the performance advantage for boys who use computers intensively is observed in digital reading, but not in the three main subjects. While there is no performance disadvantage in digital reading for girls who use computers intensively, there appears to be one in the three main assessment areas. Thus, the relationship between the *index of computer use at home for leisure* and performance is not the same in digital reading and in the three main PISA subjects.

The relationship between using a computer at home for schoolwork and performance does not vary across assessment areas, nor does the relationships between using a computer at school and performance

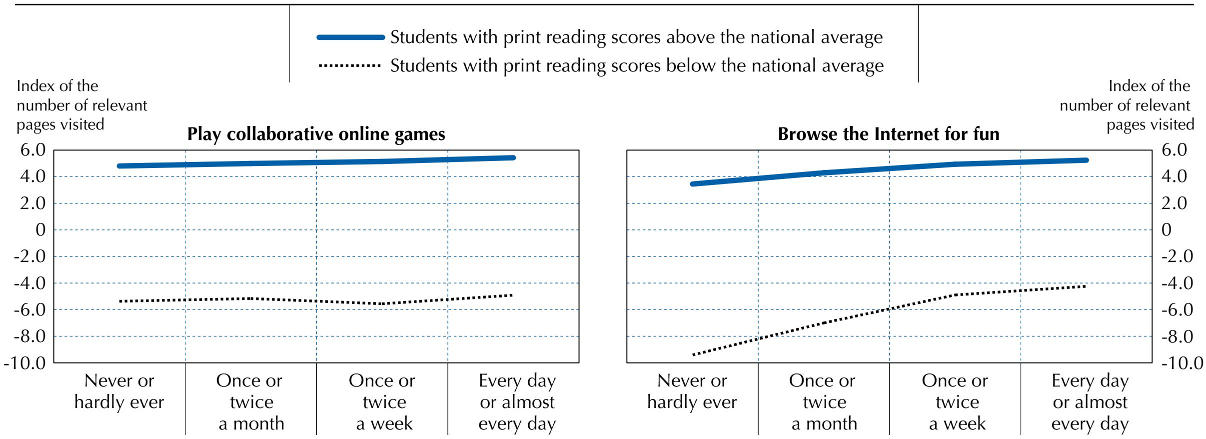
For the *index of computer use at home for schoolwork* and the *index of computer use at school*, the patterns of the relationship with performance do not vary across the assessment areas. The relationship between the *index of computer use at home for schoolwork* and performance is mountain-shaped: it rises from rare users to moderate users then falls from moderate users to intensive users, but intensive users perform better than rare users. The relationship between the *index of computer use at school* and performance is negative with a curve: it rises slightly from rare users to moderate users then falls from moderate users to intensive users, meaning that intensive users attain much lower scores than rare users.

The patterns of the relationship between the *index of computer use at home for schoolwork* and performance in digital reading are different between boys and girls, as shown in Figure VI.6.8. The performance disadvantage for girls who intensively use a computer at home for schoolwork compared to those who only rarely or moderately use a home computer for that purpose is much greater than the performance disadvantage for boys who are intensive users compared to those boys who are rare or moderate users. These patterns are also observed in the three main assessment areas. The patterns of the relationship between the *index of computer use at school* and performance for boys and girls are similar between digital reading and all three main assessment areas.

Among the students with above-average performance, across OECD countries, the *index of the number of relevant pages visited* is 4.8 for students who never or hardly ever use computers at home to play collaborative online games. Since this index is based on an individual country's average, this can be interpreted to mean that these students visited an additional 4.8 relevant pages compared with the average number of relevant pages visited by students in that country. In contrast, the *index of the number of relevant pages visited* is 5.4 for students who use a computer at home every day or almost every day to play collaborative online games (Figure VI.6.13a). This means that daily users visited an average of about one-half page more of relevant text than infrequent users did.

■ Figure VI.6.13a ■

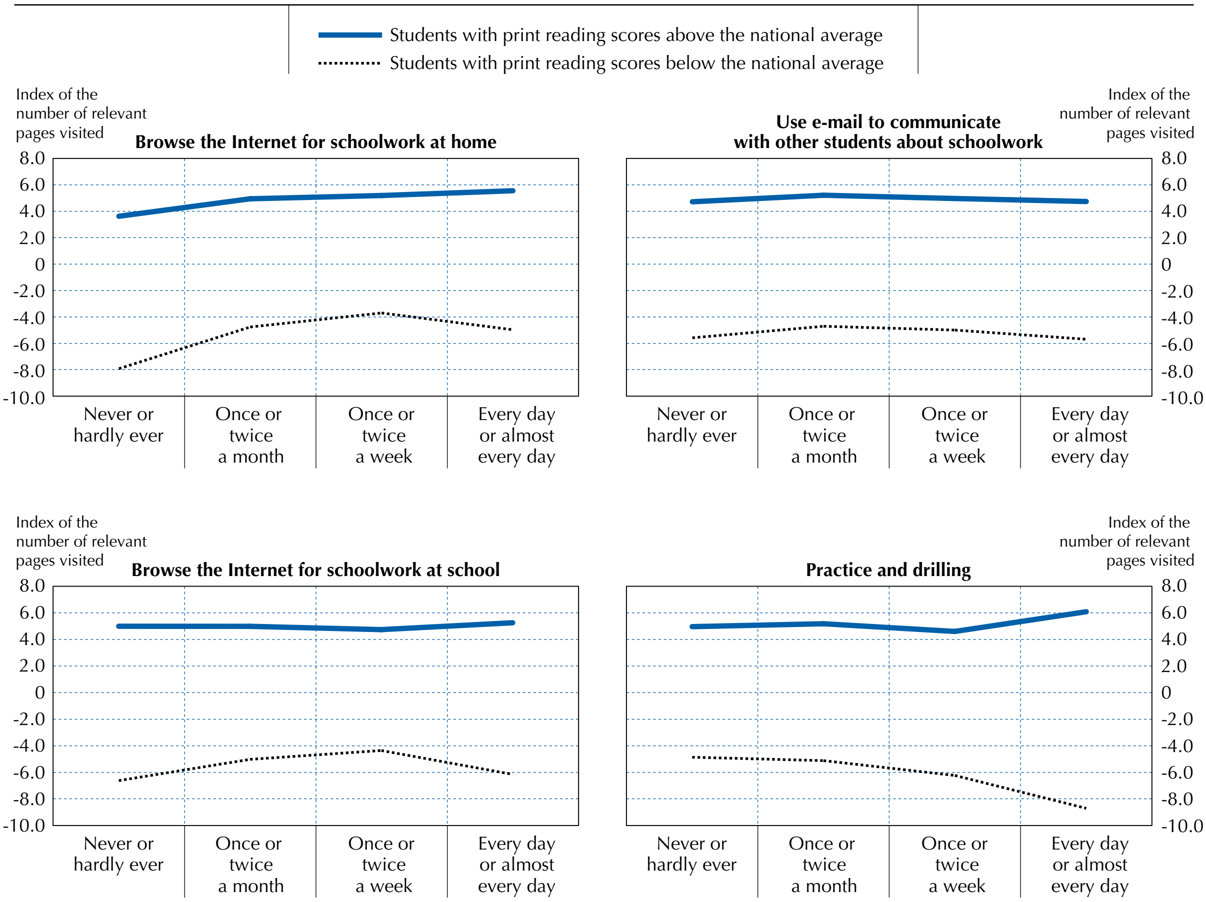
Index of the number of relevant pages visited, by frequency of computer use at home for leisure, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.6.11a and b.
StatLink http://dx.doi.org/10.1787/888932435454

■ Figure VI.6.13b ■

Index of the number of relevant pages visited, by frequency of computer use at home for schoolwork and computer use at school, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.6.11c-f.
StatLink http://dx.doi.org/10.1787/888932435454

This difference is more prominent when considering browsing the Internet at home for fun. Among students in OECD countries with above-average performance in print reading, those who use a computer at home every day or almost every day to browse the Internet for fun visit two additional relevant pages compared with students who never or hardly ever use a computer at home for that purpose (Table VI.6.13b). Among students with below-average performance in print reading, similar relationships are observed, even though the pattern is somewhat unclear for "play collaborative online games" while the pattern is very clear for "browse the Internet for fun".

In contrast, using computers for schoolwork does not seem be related to developing navigation skills. For example, across OECD countries, there is no positive relationship between the *index of the number of relevant pages visited* and the frequency of computer use at home to browse the Internet for schoolwork and to use e-mail for communicating with other students about schoolwork, nor with the frequency of computer use at school to browse the Internet for schoolwork and to play simulations (Figure VI.6.13b). Students who use computers frequently for schoolwork might just be following instructions and might not have much chance to search for information by themselves.

STUDENTS' SELF-CONFIDENCE IN DOING ICT TASKS

Students' self-confidence in using computers and performance

Besides performing well in digital reading, it is also important that students perceive themselves as capable of completing high-level ICT tasks in this technology-rich society. But students' self-reported confidence in doing these types of tasks is related to their performance in digital reading. When students have greater self-confidence in doing ICT tasks, do they perform better in digital reading? Students were asked to indicate the extent to which they are able to do each of the following five tasks on a computer: "edit digital photographs or other graphic images"; "create a database"; "use a spreadsheet to plot a graph"; "create a presentation"; and "create a multi-media presentation". Students responded to each statement by selecting from the options "I can do this very well by myself", "I can do this with help from someone", "I know what this means but I cannot do it" and "I don't know what this means". Students' responses to these five questions were combined to make an *index of self-confidence in ICT high-level tasks*.The higher the value on this index, the greater the self-confidence students reported.

Box VI.6.3 **Labels for each group of students: Students' self-confidence in using computers**

Bottom quarter on the index	Second quarter on the index	Third quarter on the index	Top quarter on the index
Students lacking confidence	Less-confident students		Most-confident students

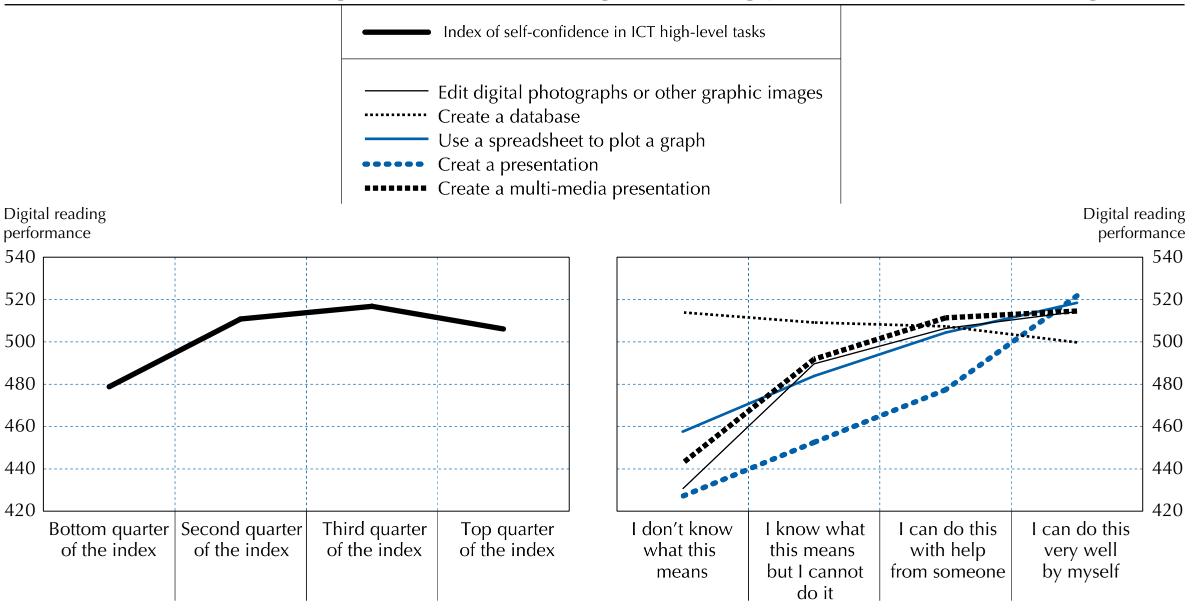
I don't know what this means	I know what this means but I cannot do it	I can do this with help from someone	I can do this very well by myself
Students with no confidence	Students with low confidence		Highly confident students

Across OECD countries, less-confident students perform slightly better than the most confident students: students in the top quarter of this index average 506 score points, while students in the second and third quarters of this index average 511 and 517 score points, respectively. Students with no confidence – those in the bottom quarter of this index – perform at the lowest level, with 479 score points. As shown in the left pane of Figure VI.6.14, students with no confidence attain much lower scores than less-confident students and the most confident students. The performance disadvantage for those with no confidence is at least 27 score points (Table VI.5.25).

The patterns of the relationship between performance and students' self-confidence in different types of ICT tasks are similar to the relationship between the *index of self-confidence in ICT high-level tasks* and performance – even though highly confident students perform better than students with low confidence in some questions (Figure VI.6.14). For the question concerning "create a database", the performance difference is small, and students with low confidence outperform highly confident students by 14 score points. This could be because only a small number of students reported that they have confidence in creating a database (Table VI5.24). Students who have confidence in creating a database might be those who have a natural affinity with and understanding of computers.

■ Figure VI.6.14 ■

Self-confidence in ICT high-level tasks, and digital reading performance, OECD average-15

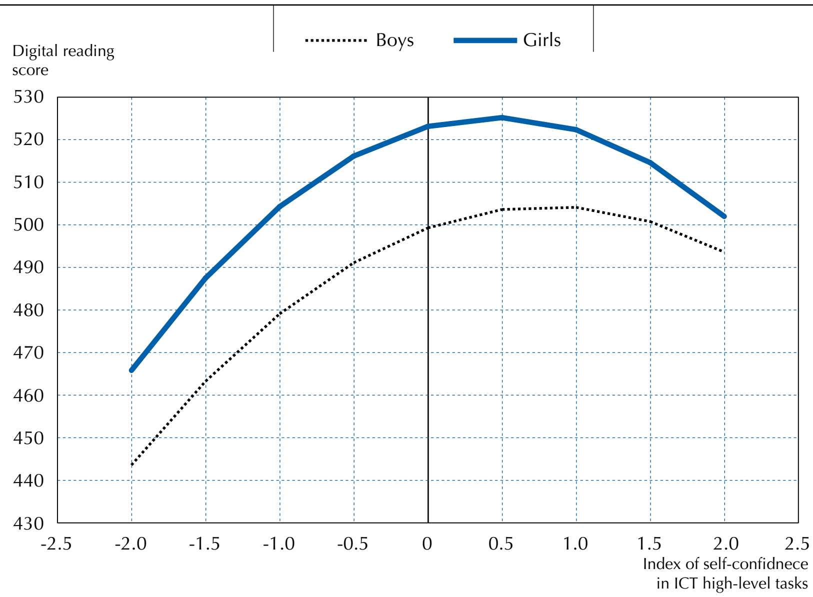


Source: OECD, *PISA 2009 Database*, Tables VI.5.25 and VI.6.12b-f.
StatLink http://dx.doi.org/10.1787/888932435454

Most countries and economies show a relationship between the *index of self-confidence in ICT high-level tasks*[7] and performance that is similar to the OECD average. In Iceland, Norway and Sweden, however, less-confident students perform at the highest level and the most-confident students perform on a par with students with no self-confidence. In Japan, Korea and the partner economy Macao-China, the more self-confident the student, the better he or she performs (Table VI.5.25). Even after accounting for students' socio-economic background, the pattern of this relationship remains similar in most countries (Table VI.6.12a).

■ Figure VI.6.15 ■

Index of self-confidence in ICT high-level tasks, and digital reading performance, by gender, OECD average-15



Source: OECD, *PISA 2009 Database*, Table VI.6.12a.
StatLink http://dx.doi.org/10.1787/888932435454

The pattern of the relationship between students' self-confidence in using computers and performance seems to be different between boys and girls (Figure VI.6.15). The most confident boys tend to perform at around the same level as less-confident boys, while the most confident girls tend to attain lower scores than less-confident girls do. The pattern of the relationship between the index and performance does not differ greatly between socio-economically advantaged and disadvantaged students (Table VI.6.12a).

Students' self-confidence in doing ICT tasks and activities

When students are engaged in ICT activities more frequently, do they have greater self-confidence in doing ICT tasks? This section examines the relationship between the frequency of various types of ICT activities and the *index of self-confidence in ICT high-level tasks.*

The top panel in Figure VI.6.16 shows that, across OECD countries, the more frequently students use computers at home for leisure, the greater their self-confidence. Students who never or hardly ever use computers at home for e-mail, chatting on line, browsing the Internet for fun, or downloading music, films, games or software from the Internet have particularly low levels of self-confidence in doing ICT tasks.

Students across the OECD area who more frequently use a home computer for schoolwork also tend to have greater self-confidence in doing ICT tasks (the middle panel in Figure VI.6.16). Students who never or hardly ever use computers at home for browsing the Internet for schoolwork have the lowest self-confidence, but this is still higher than the confidence level among students who never or hardly ever use computers at home for e-mail, chatting on line, browsing the Internet for fun, or downloading music, films, games or software from the Internet.

In general across OECD countries, there are positive relationships between the frequency of computer use at school and the level of students' self-confidence (the bottom panel in Figure VI.6.16). But the differences in confidence levels between students who never use computers at school and students who use computers at school every day or almost every day tend to be smaller than the differences in confidence levels between students who never use a computer at home and students who use a computer at home every day or almost every day (the bottom panel in Figure VI.6.16 is compared with the top and middle panels).

For example, the biggest difference in self-confidence between students who never use a computer at home – including both for leisure and schoolwork – and students who use a computer at home every day or almost every day is observed for the activity "use e-mail". Across OECD countries, students who use a computer at home for e-mailing every day or almost every day have a level of self-confidence 0.56 index points higher – over a half of the standard deviation of the index – than students who never or hardly ever do so. The smallest difference is observed for the activity "check the school's website for announcements": across OECD countries, students who use a computer at home for checking the school's website for announcements every day or almost every day have a level of self-confidence 0.33 index points higher – one-third of the standard deviation of the index – than students who never or hardly ever do so. In contrast, the biggest difference in self-confidence between students who never use computers at school and students who use computers at school every day or almost every day is observed for the activity "browse the Internet for schoolwork": across OECD countries, students who use computers at school for browsing the Internet for schoolwork every day or almost every day have a level of self-confidence 0.27 index points higher – around one-fourth the standard deviation of the index – than students who never or hardly ever do so. The smallest difference is observed for the activity "chat on line at school": across OECD countries, students who use computers at school for chatting on line every day or almost every day have a level of self-confidence 0.13 index points higher than students who never or hardly ever do so.

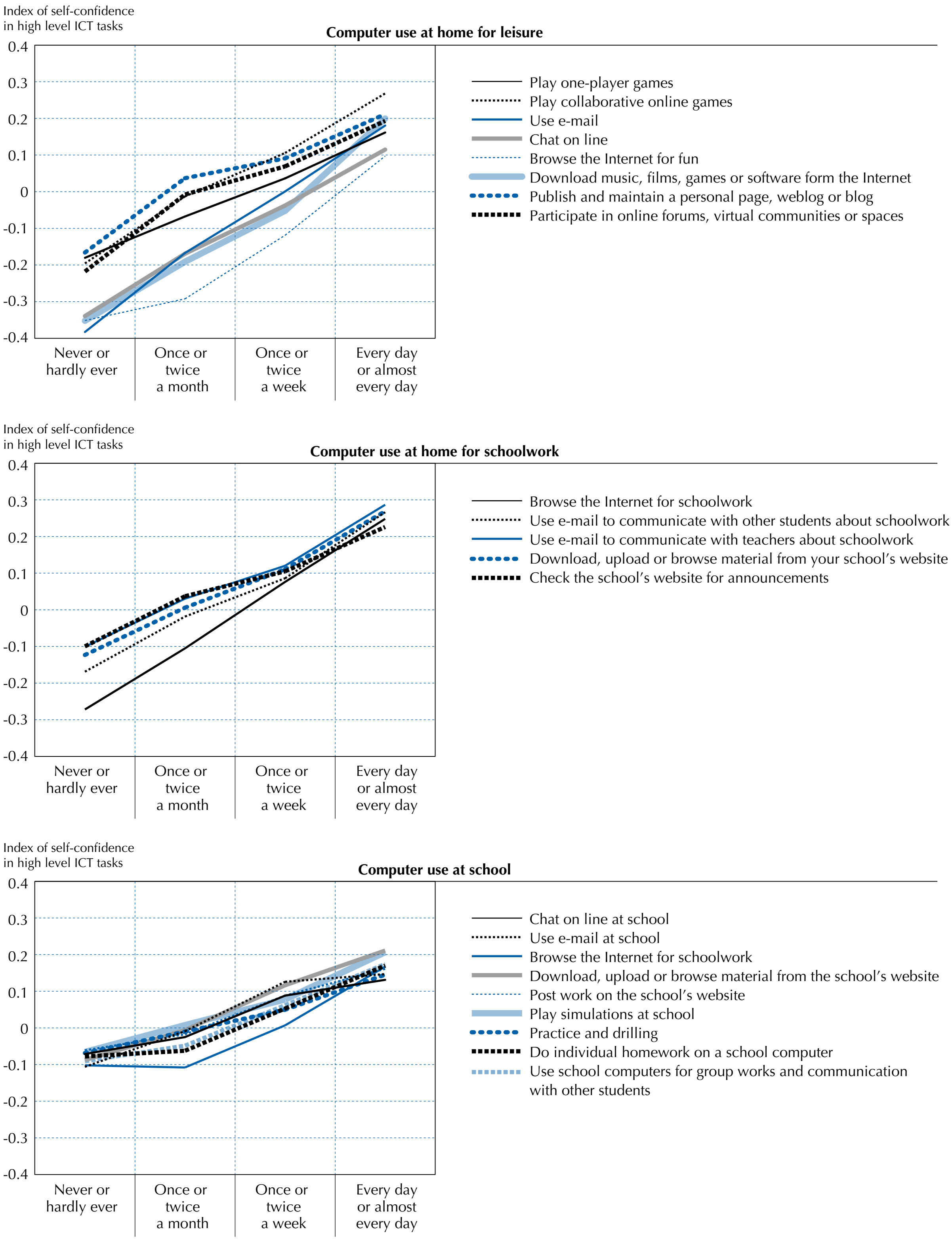
CONCLUSIONS

Using a computer at home is related to digital reading performance in all 17 participating countries and economies, even after accounting for students' socio-economic background. In contrast, the relationship between using a computer at school and digital reading performance varies across countries: it is positive in nine countries and economies, negative in one country, and makes no difference in seven countries and economies.

The pattern of the relationship between digital reading performance and the use of computers at home differs according to the reasons for use (*i.e.* for leisure or for schoolwork), but the difference in the pattern is more distinct in relation to where the computer is used (*i.e.* at home or at school). In general, the relationship between the frequency of computer use at home for leisure and for schoolwork and digital reading performance is not linear, but rather mountain-shaped: performance rises from rare users to moderate users and then falls from moderate users to intensive users.

■ Figure VI.6.16 ■

Frequency of computer use at home and school, and index of self-confidence in high-level ICT tasks, OECD average-15



Source: OECD, *PISA 2009 Database,* Tables VI.6.13a-h, VI.14a-f, VI.15.a-i.
StatLink http://dx.doi.org/10.1787/888932435454

In contrast, the relationship between students' computer use at school and performance in digital reading tends to be negative with a slight curve. One possible explanation is that those students who use computers intensively at school may require additional tasks to catch up to other students or may need more time to complete their studies.

After accounting for performance in print reading, as a proxy for academic performance, the pattern of the relationship changes. There is a positive linear relationship between performance in digital reading and computer use at home, particularly computer use for leisure, while there is no significant relationship to computer use at school. This chapter also shows that the frequency of computer use at home for leisure is positively related to navigation skills, which is an essential and unique part of digital reading, while the frequency of computer use at school is not. These findings suggest that students are developing digital reading literacy mainly by using computers at home to pursue their interests.

However, computer use at school is not positively associated with digital reading performance, even after accounting for academic performance. A negative relationship can result, for example, when systems or schools make practical use of computers a more common experience for students with lower levels of academic proficiency. It can also result from variations in how digital technologies have or have not been integrated into curricula and instructional systems. The findings in this chapter suggest that access to computers at school is not the sole determinant of performance; students who use computers at school must also develop the knowledge and skills needed to locate and use the range of information available through the computer.

Findings also reveal that the relationship between performance in digital reading and students' self-confidence in using computers tends to be positive but curvilinear: less-confident students perform slightly better than the most confident students. The confidence that students reported is somewhat linked to the frequency of computer use at home and school. Regardless of the types of activities engaged in and the location of the computer, the more frequently students use computers, the greater their self-confidence. Still, the association is stronger the more students use a computer at home for leisure.

Though frequent computer use at home, particularly for leisure, tends to build students' navigation skills and self-confidence, parents and educators may have to bear in mind that students who use computers intensively do not perform better than those who do so moderately. The performance disadvantage from intensive ICT use is more pronounced in the three main subjects than in digital reading. For example, the performance disadvantage in print reading for intensive users is greater than the performance disadvantage in digital reading. Therefore, it is important to encourage students to develop navigation skills and to foster self-confidence through using computers at home, while providing guidance on how to balance the amount of time students spend using computers with time for other activities.

Notes

1. For this analysis, the *index of computer use at home for leisure* was standardised to have zero as an average and one as the standard deviation within each country and economy.

2. In these countries and economies, the *index of computer use at home for leisure* is positively related to performance, while the square of this index, which shows how the relationship is curved, is negatively related to performance (Table VI.6.5a).

3. For this analysis, this index has been standardised to have zero as an average and one as the standard deviation within each country and economy.

4. For this analysis, this index has been standardised to have zero as an average and one as the standard deviation within each country and economy.

5. See Chapter 3 and Annex A1a for the definition of *number of relevant pages visited*.

6. Within each country, students are grouped into two categories: those who achieved below the national mean score in print reading; and those who matched or exceeded the national mean score in print reading.

7. For this analysis, this index has been standardised to have zero as an average and one as the standard deviation within each country and economy.

7

Some Aspects Related to Digital Reading Proficiency

Education systems are increasingly incorporating information and communication technologies into their teaching practices. This chapter examines the student- and school-related factors that are most strongly associated with digital reading proficiency, including the use of a computer at home and at school, students' engagement in online reading activities, students' learning strategies, students' attitudes towards reading, the socio-economic background of the school and the student, and gender.

In recent years some education systems have begun to emphasise the use of digital technologies to communicate with parents and students, submit students' work to teachers, present concepts to students, search information on the Internet, report results to students, and deliver assessments. The latter is of most direct importance to PISA.

While countries have been administering paper-based PISA tests since 2000, there have been two significant computer-based components: the computer-based assessment of science as part of PISA 2006 and the digital reading assessment as part of PISA 2009 (as described in this volume). For PISA 2012 and 2015, a much larger number of test components is expected to be computer-based, and many more countries will participate in these assessments.

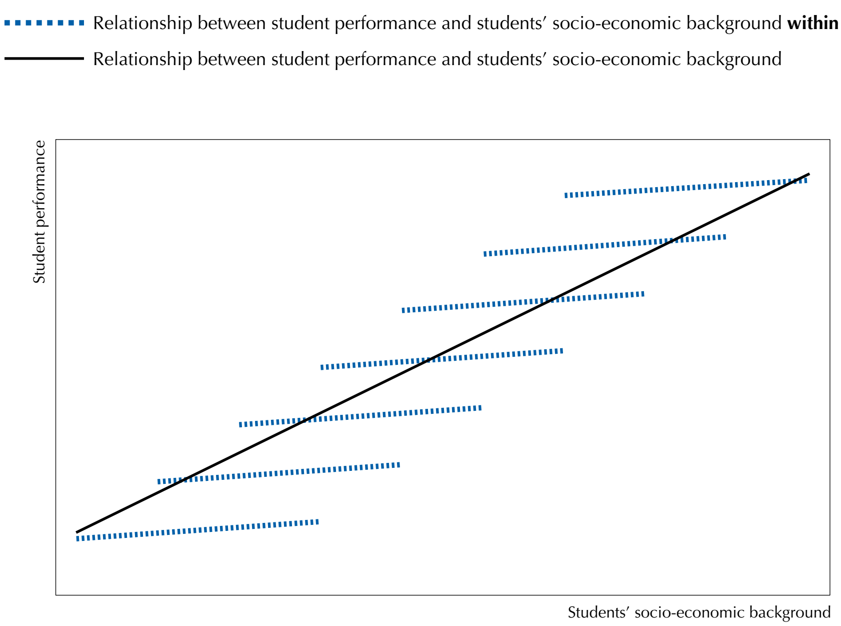
A comparison of countries' results in paper-based and computer-based assessments, and the aspects that affect them, is therefore valuable. This chapter presents an analysis of the combined influence of a range of variables discussed in the previous chapters on digital reading proficiency. A multivariate analysis investigates how gender, print reading performance, use of a computer, reading engagement and selected socio-cultural variables are associated with digital reading performance. The interplay between student- and school-level variables is also analysed in a multilevel estimation of what is related to students' performance in digital reading. Background information is drawn from the student, school and ICT familiarity questionnaires.

Chapter 4 mainly examines relationships between individual student characteristics and digital reading performance. These characteristics are considered again here, but the context of school characteristics is also included in the analysis. The use of such multilevel regression models (Bryk and Raudenbusch, 1992) has a number of advantages over single-level regression models. It takes into account the fact that students are grouped within schools. The relative contribution of the school can be considered when estimating the contribution of each aspect to student performance.

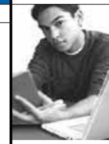
Consider the example of socio-economic background across and within schools. Figure VI.7.1 shows a hypothetical relationship between socio-economic background and student performance in a number of different schools within a fictional country. The single black line in the figure represents the country's average socio-economic gradient across all students – that is, the association between students' socio-economic background and performance.

■ Figure VI.7.1 ■

Illustration of the relationship between students' socio-economic background and student performance



Source: OECD, *PISA 2009 Database*.
StatLink http://dx.doi.org/10.1787/888932435473



The blue dotted lines in the figure represent the within-school socio-economic gradients – that is, the association between students' socio-economic background and performance within the individual schools that make up the sample (for simplicity's sake, the gradient in each of the schools is assumed to be the same, although this is not necessarily the case). The graph shows three main points:

1. Schools differ in the socio-economic background of their students: the schools to the left have more disadvantaged students than the schools to the right.
2. Schools differ in the performance of their students: the schools at the bottom of the graph show lower student scores, on average, than the schools at the top.
3. The socio-economic gradient within individual schools is much less steep than the overall socio-economic gradient across all schools.

Therefore, while it may be said that this country has a steep socio-economic gradient, the impact of socio-economic background within schools is not so great.

The analysis in this chapter includes the 19 countries and economies that took part in the digital reading assessment, except when using the ICT familiarity questionnaire. In those instances, the analysis involves the 17 countries and economies that took part in both the digital reading and the ICT familiarity questionnaires.

VARIATION IN STUDENT READING PERFORMANCE

Countries show differences in the amount of variation between high-performing and low-performing students. The first three columns of Tables VI.7.1a and VI.7.2a show the within-school variation, the between-school variation and the total variation in student performance in digital reading. These tables show that in some countries there is relatively small variation between students while in other countries the variation is relatively large. For example, the total variation in Austria is larger than it is in Korea.

Column 4 of Table VI.7.1a and Table VI.7.1b shows the proportion of between-school variation compared to total variation (called the intra-class correlation), which gives an indication of the similarities and differences among schools in a given country. A high intra-class correlation indicates large differences between schools, meaning that parents will need to be cautious in choosing the most appropriate schools for their children. A low intra-class correlation indicates a country in which schools perform more consistently.

On average across the OECD countries for which data are available, the intra-class correlation for digital reading is 36.6%. In some countries the intra-class correlation is quite high, indicating large differences between schools in digital reading performance. For example, in Austria the value is 66.7% and in Hungary it is 65.6%.

These differences in variation may be associated with aspects related to student background and attitudes towards school, and to policies and practices in the different countries' education systems. This chapter aims to explore the relationship between school and student characteristics and performance in the PISA 2009 digital reading assessment. A model, based on multilevel regression models (student and school levels),[1] was designed to investigate the relationship between school and student features and performance, while taking other aspects into account. Previous chapters show that there is a strong link between digital and print reading proficiency. The model presented in this chapter is in two forms: in the first, important aspects associated with digital reading proficiency are examined without taking the students' print reading performance into account; in the second, print reading proficiency is taken into account. This is done in an attempt to isolate the aspects that are more directly associated with digital reading proficiency.

SOCIO-ECONOMIC ASPECTS

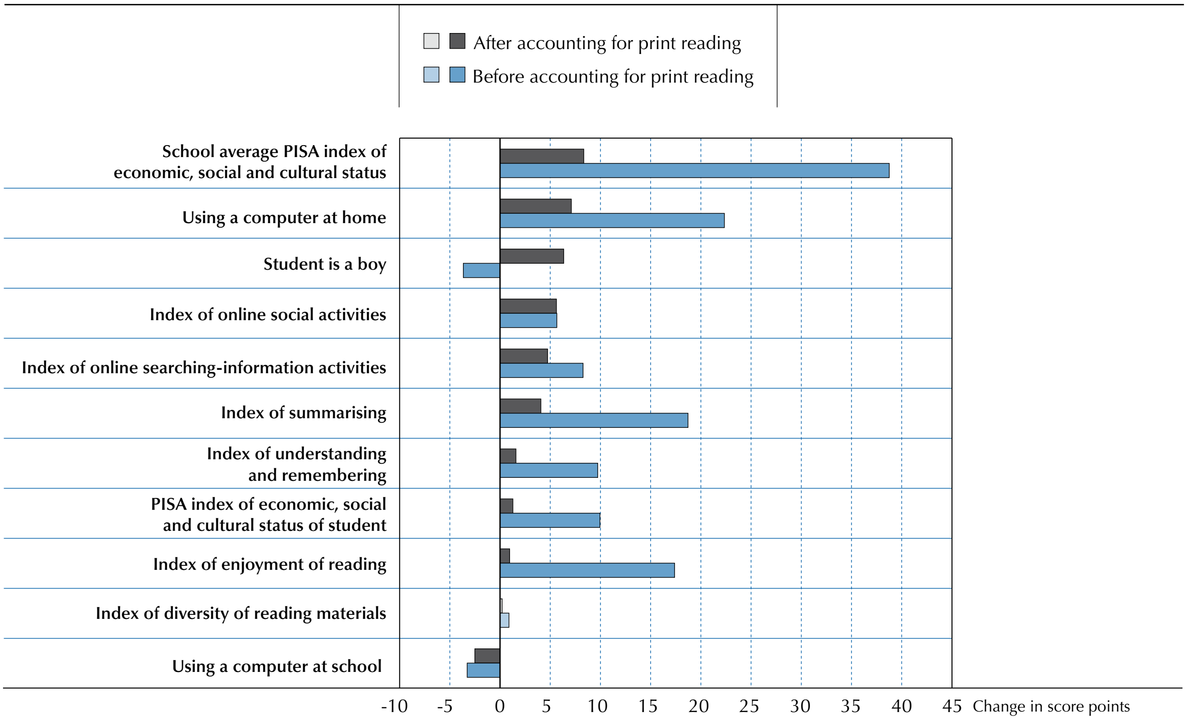
Student socio-economic background

Figure VI.7.2 shows the relationship between digital reading performance and each of the variables before and after students' print reading scores are taken into account.

Student socio-economic background is indicated by the *PISA index of economic, social and cultural status*, which includes measures of parents' education and occupation and cultural possessions found at home.

■ Figure VI.7.2 ■

Score point differences in digital reading associated with variables in the multilevel regression models, OECD average-15



Note: Changes in score that are statistically significant are marked in a darker tone.
Bars are ranked in descending order of the change in digital reading score after accounting for print reading.
Source: OECD, *PISA 2009 Database,* Tables VI.7.1b and VI.7.2b.
StatLink http://dx.doi.org/10.1787/888932435473

Across OECD countries, a change of one unit in this index is associated with a 9.9 score point difference before print reading is taken into account, and a 1.3 score point difference after taking print reading into account. The relationship between student socio-economic background and digital reading performance is largest in Poland, at 19.0 score points before taking print reading into account and 6.2 score points after (Tables VI.7.1b and VI.7.2b).

Mean school socio-economic background

Volume II, *PISA 2009 Results: Overcoming Social Background: Equity in Learning Opportunities and Outcomes,* shows that the combined impact of some student variables is greater than the impact of individual variables. The mean school socio-economic background is the average of the students' *index of economic, social and cultural status* at a school. As can be seen in Figure VI.7.2, this variable has a great impact on digital reading performance, with a 38.8 score point difference associated with a one standard deviation change in the index across OECD countries. In four countries this impact is over 63 score points: Belgium (69.5), Austria (69.0), Hungary (65.0) and Japan (63.1). After taking print reading into account, the difference is still an average of 8.3 score points across OECD countries for each unit of change, but this is not statistically significant in over half of OECD countries. Caution is required in interpreting the results of average school socio-economic background, since it is often highly related to other school-level variables, such as school type, location, level of educational resources, school size, etc., in a way that student socio-economic background is not.

ATTITUDES TOWARDS READING

Enjoyment of reading

Chapter 4 shows that enjoyment of reading is one of the variables significantly associated with student performance in both digital and print reading. This result is confirmed in the two-level model.

Without taking students' print reading proficiency into account, a one unit change in the *index of enjoyment of reading* is associated with a change of 17.4 score points in digital reading, on average across OECD countries. The impact is over 20 score points in New Zealand (26.0 score points), Denmark (22.8), Australia (21.5), Iceland (20.8) and Ireland (20.1) (Table VI.7.1b).

After taking print reading into account, there is a 1.0 score point difference across OECD countries. The countries with the greatest association between enjoyment of reading and digital reading proficiency are Chile (5.0 score points), Denmark (4.0 score points) and Japan (3.1 score points) (Table VI.7.2b).

Diversity of reading materials

The diversity of reading materials has a relatively small association with students' digital reading proficiency, both before and after print reading proficiency is taken into account. On average across the participating OECD countries there is a 0.9 score point difference associated with a change of one standard deviation in the index, before print reading is taken into account (Table VI.7.1b).

In three countries the association is negative. For example, in New Zealand there is a decrease of 10.9 score points for every one standard deviation increase in the *index of the diversity of reading materials*; in Australia (-5.5 score points) and Iceland (-4.0) the association is also negative. The largest positive association was found in Sweden (7.9 score points), Norway (6.6), Spain (5.4) and the partner economy Macao-China (6.4).

After print reading is taken into account, the average for participating OECD countries is only 0.2 score point (Table VI.7.2b).

USE OF COMPUTERS

The use of computers at home and at school is discussed in Chapter 5 and its relationship to performance in Chapter 6. This chapter considers the impact of these two aspects when taking other variables into account.

Computer use at home

Students responded to questions on the ICT familiarity questionnaire on whether they use computers, including both desktop and laptop computers, at home. Figure VI.7.2 shows that computer use at home has a positive relationship on digital reading proficiency, both before and after print reading proficiency is taken into account.

Across OECD countries, there was an average 22.3 score point difference in digital reading performance between students who reported that they use computers at home and students who reported that they do not. The difference is largest in Norway (47.0 score points), Sweden (39.7 score points), Belgium (38.8 score points) and the partner economy Hong Kong-China (33.5 score points) (Table VI.7.1b).

After taking into account students' print reading proficiency, the average across OECD countries is 7.1 score points, with the largest impact seen in Belgium (20.7 score points), Sweden (18.0), Japan (13.5) and the partner economy Hong Kong-China (19.0) (Table VI.7.2b).

Computer use at school

Students also responded to questions on the ICT familiarity questionnaire on whether they use computers, including both desktop and laptop computers, at school.

Before taking into account students' print reading proficiency, students who reported that they use computers at school perform 3.3 score points lower in digital reading than students who reported that they do not use computers at school, on average across OECD countries. The relationship is most negative in Hungary (-13.9 score points) and the partner economy Hong Kong-China (-11.2 score points) (Table VI.7.1b).

After taking print reading proficiency into account, the score point difference associated with computer use at school is smaller (-2.5 score points), but it is still negative across OECD countries (Table VI.7.2b).

ONLINE READING PRACTICES

All students participating in PISA 2009 responded to questions in the student questionnaire about how they use computers. Chapter 4 describes how further analysis of this area reveals two main areas of activity.

The first centres on searching for information, such as reading news, using a dictionary, searching online information to learn about a particular topic, and searching for practical information on line. The second centres on social activities: reading e-mails and chatting on line.[2]

While the *index of online reading activities* appears in the PISA 2009 database, the *index of online searching-information activities* and the *index of online social activities* do not.

Searching-information activities

The aspect relating to information-gathering has a positive association with student performance in digital reading. This is indicated by an average difference of 8.3 score points associated with a one standard deviation change in the index. This association was over 12 points in Japan (12.5 score points), Korea (12.3) and Iceland (12.2) (Table VI.7.1b). After taking into account students' print reading proficiency, Japan (9.1 score points) and Korea (8.0) are still the countries with the greatest association between information-gathering and digital reading proficiency (Table VI.7.2b).

Social activities

The less academically-focused use of the computer for social activities resulted in a weaker association with student performance than searching-information activities. On average across OECD countries, the association with digital reading proficiency was 5.7 score points before taking account of print reading proficiency, and 5.6 score points after (Tables VI.7.2a and VI.7.2b).

LEARNING STRATEGIES

Students employ different techniques and processes to help them to learn. The PISA 2009 student questionnaire included a number of questions to find out which strategies students prefer and which strategies are effective (see Chapter 4 for full details).

Awareness of strategies to understand and remember information

Student responses were matched to expert opinions about the best strategies to understand and remember information.

Knowledge of these strategies is positively related to digital reading, with an average association in the participating OECD countries of 9.7 score points before taking account of print reading. The association was largest in Denmark (14.1 score points), Iceland (13.8), Chile (12.5) and New Zealand (12.2) (Table VI.7.1b).

After taking print reading into account, the average of the participating OECD countries is 1.6 score points (Table VI.7.2b).

Awareness of effective strategies to summarise information

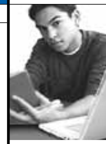
The questionnaire also sought responses from students regarding their views on the most effective strategies to summarise information. Their responses were compared to expert opinions and a score was allocated.

Knowledge of these strategies is more strongly associated with performance in digital reading than the strategies to understand and remember information. Across participating OECD countries, this aspect is associated with an increase of 18.7 score points in digital reading proficiency, before taking print reading proficiency into account (Table VI.7.1b). The increase is larger than 20 score points in Poland (24.9 score points), Ireland (24.2), Spain (23.8), Denmark (22.8) and Norway (21.0).

After students' print reading proficiency is taken into account, knowledge of these strategies is associated with a 4.1 score point difference in digital reading proficiency across participating OECD countries (Table VI.7.2b).

GENDER

In all PISA surveys, girls have consistently outperformed boys in print reading in nearly every country. After taking the other aspects in the model into account, Table VI.7.1b shows that girls score an average of 3.7 points higher than boys in digital reading across OECD countries. In nearly all OECD countries, the result is in favour of girls or there is no score point difference between girls and boys. The only exceptions are Denmark, where boys outperform girls by



16.7 points, and Austria, where the difference is 15.4 score points. In the partner economy Hong Kong-China, boys outperform girls by 8.5 points. The largest gender differences in favour of girls are seen in New Zealand (16.6 score points), Iceland (12.0), Korea (11.2) and Norway (10.3).

When print reading performance is taken into account, the situation is different: boys have an average advantage of 6.3 score points over girls. This means that when we compare boys and girls who have similar levels of print reading proficiency, boys tend to perform better than girls in digital reading.

VARIATION EXPLAINED BY THE MODEL

Columns 8, 9 and 10 in Tables VI.7.1a and VI.7.2a show the amounts of variation in student performance in digital reading that are explained by the two models. The columns show the within-school variation explained, the between-school variation explained, and the total variation explained, respectively. Before taking into account student proficiency in print reading, the model explains 28.5% of the within-school variation in digital reading performance and 58.0% of the between-school variation. On average across OECD countries, 41.6% of the total variation in student performance is explained by the variables in the model. The model explains around 50% or more of the total student variation in digital reading performance in Chile (57.8%), Japan (49.7%), Hungary (54.3%) and (Table VI.7.1a).

When students' print reading proficiency is included in the model, the explained within-school variation jumps to 72.3%, as would be expected, given the close correlation between students' print and digital reading proficiency. The model explains around 80% of the within-school variation in Sweden (80.9%) and Poland (79.1%) (Table VI.7.2a).

The amount of between-school variation explained by the model that includes print reading proficiency is 70.2%. The model explains over 85% of the between-school variation in Japan (93.0%), Chile (92.8%), Hungary (89.3%), Belgium (87.0%) and the partner economy Macao-China (89.4%).

Some 74.4% of the total variation in digital reading performance is explained by the model that includes student proficiency in print reading, on average across OECD countries. The figure is largest in Chile (81.5%), Belgium (80.5%) and Hungary (80.0%).

Thus, including print reading proficiency in the model increases the amount of explained variation, indicating that proficiencies in the two modes of reading are based on similar, but not identical, skills.

CONCLUSIONS

As education systems increasingly incorporate computers and related information technologies into pedagogical processes, educators and policy makers need to know which activities and policies will lead to the most effective learning.

Figure VI.7.2 shows the aspects that have the greatest impact on student performance in the digital reading assessment. The schools' average socio-economic background is highly associated with performance. This holds true even when students' print reading proficiency is taken into account.

There is also a large score point difference associated with students' use of a computer at home. When taking the other aspects into account, there is an average score advantage of 22.3 points for students who use computers at home. After taking students' proficiency in print reading into account, students' use of a home computer remains an important aspect that affects digital reading performance. This means that students' use of a computer at home is not only related to better digital reading performance, but it also explains the performance difference between print and digital reading. In other words, when comparing two students who have similar levels of print reading proficiency (and have similar characteristics in all other aspects included in the model, including socio-economic background), the student who uses a computer at home tends to perform better in digital reading than the student who does not use a computer at home. The *index of summarising* also appears to be important for both digital reading performance and for explaining the performance difference between print and digital reading.

The *index of online social activities* and the *index of online searching-information activities* also explain the difference in performance between print and digital reading. When students tend to engage in more social activities and searching-information activities on line, they tend to perform better in digital reading than students who do not, even when all of these students are similarly proficient in print reading.

In contrast, the *index of understanding and remembering*, students' socio-economic background, and the *index of enjoyment of reading* are related to digital reading performance, but they do not have a great impact on the difference in performance between print and digital reading.

The relationship between gender and digital reading performance, before and after taking print reading into account, is also of interest. In line with all previous PISA results, girls score significantly higher in digital reading proficiency, before taking print reading into account. However, when comparing girls and boys who are similarly proficient in print reading, boys score significantly higher than girls.

Notes

1. The model is of the form:

$y = intercept + v1 + v2 + v3 + \ldots$

Where y is the dependent variable – in this case, performance in score points in digital reading – and v1, v2, v3, etc., are the score point differences associated with a one unit change in the variable (a change of one standard deviation in the relevant index). Thus, a positive value for the variable indicates an improvement in student performance associated with that variable when the effects of all the other variables have been taken into account. The variables may be school aspects, such as the average school socio-economic background, or student aspects, such as enjoyment of reading. The combination of these two types of variables (school and student) is why the model is regarded as a two-level model.

Apart from two indices – *online searching-information activities* and *online social activities* – all variables are in the PISA 2009 database or can be constructed using the database. These two indices are the result of a division into two of the *index of online reading activities* (Annex A1a for the detailed description of the indices). The change in performance related to each of the variables, except computer use at home and school and gender, is indicated by the change in score points associated with a one unit change in the index. A number of different criteria contributed to the selection of the variables included in the model. A large number of variables were included in various trial forms of the model; some were retained while others were discarded. Parsimony invites researchers to not maintain independent variables that do not contribute at all to explaining changes in the dependent variable. It has been found that adding many non-contributing variables can decrease the statistical power of the model. In addition, if a variable was found to behave inconsistently in a few countries, the variable was removed from the model. Experience from previous PISA surveys was also tapped in the decision-making process, and the following sets of variables were included in the model: students' socio-economic background and gender; schools' socio-economic background; students' attitudes towards reading; students' use of computer at home and school; students' engagement in online reading activities; and students' meta-cognitive strategies for learning.

2. The variable "taking part in online group discussions or forums" has not been included in these analyses because it loaded equally on both factors.

Policy Implications

Being able to read proficiently is fundamental for success in life. Reading well enables people to learn new skills and acquire information and knowledge that improve the quality of their lives. In an increasingly digitised world, being a proficient reader also means being able to navigate among diverse and conflicting pieces of information and across pages of non-linear texts, using hyperlinks and other tools that the digital technologies found in laptops and smart phones provide. Individuals who develop the skills needed to use these texts efficiently and effectively will be at an increasing advantage in accessing higher education, finding and succeeding in a well-paid job, and participating fully in society. Thus, in order to strengthen students' performance in digital reading – and prevent a *digital divide* from arising between those who can and who cannot use these new technologies – it is important for policy makers and educators to:

- understand the nature of digital reading;
- examine students' performance in digital reading and address significant disparities that exist among selected populations, both within and across countries; and
- identify the influences on digital reading performance and design effective policy responses that leverage these, for example, through better access to ICT and training for both students and teachers.

HELPING STUDENTS DEVELOP EFFECTIVE SKILLS IN READING DIGITAL TEXTS

Policy makers and educators alike need to understand how the differences between printed and digital texts can affect instructional policies and practices. Low-level actions, such as identifying words and processing syntax, tend to be similar across the two media, as are the processes involved in constructing meaning. Yet there are important differences. For example, in the digital medium, the reader is often unaware of the amount of material available and necessary to complete a task successfully. Identifying effective strategies to teach digital reading skills is an important objective for instructional policies. These skills include the ability to critically evaluate the quality and credibility of available texts, integrate information from multiple texts, and – crucially – navigate effectively.

Navigation is unique to digital reading and an important variable in explaining differences in digital reading performance. To better understand the nature of navigation, PISA analysed the relationship between digital reading performance and three indices: the *number of page visits,* the *number of visits to relevant pages*, which includes revisits to a relevant page, and the *number of relevant pages visited*.

What is important in these data is that the variable *number of visits to relevant pages* has, on average, a weaker correlation with digital reading performance than does the *number of relevant pages visited*. One explanation is that the *number of relevant pages visited* reflects the behaviour of readers who are more efficient in identifying both the content and the order in which information must be processed. That means the tasks are generally less cognitively demanding for them. Because the former navigation variable includes revisits to relevant pages, it is likely to reflect the behaviour of readers who are less efficient in accessing and locating necessary information or have more trouble integrating the information they read because they are less effective in placing the information in a coherent order. Thus, improving students' ability to judge the relevance of pages to the task at hand might help to improve their digital reading performance.

Methods for improving students' navigation strategies can be derived from analysing ICT use at home. PISA results show that ICT use at home for leisure is, up to a point, positively related to both navigation skills and self-confidence in completing high-level ICT tasks. That may be because students' use of ICT at home is usually self-directed and, as a result, students learn, by experimenting, how to navigate across and among various pages to achieve their objectives. There is also a role for instruction too: given the positive association between awareness of reading and learning strategies and proficiency in reading, teachers can help by providing students with opportunities to reflect on different methods of navigating. This will allow students to develop a repertoire of approaches and learn how digital texts are structured.

Even though computer use at home for leisure is positively related to navigation skills, parents and educators should be aware that intensive users do not perform better in digital reading – and often perform worse – than moderate users. This negative association between intensive use of computers and performance is even more pronounced in mathematics, science and especially in print reading. Therefore, it is important for parents and teachers both to encourage students to use computers freely, so that they can improve their navigation skills, and also to provide guidance on balancing time spent using computers with time for other activities.

ADDRESSING UNDERPERFORMANCE OF BOYS

Policy makers should be particularly concerned about the gender gap in reading performance. According to the PISA 2009 print reading results, in the countries that also participated in the digital reading option, boys' scores are the equivalent of one year of formal schooling lower than girls'. Most of this gap can be attributed to the fact that boys are less engaged in reading than girls. However, the gender gap narrows to two-thirds of a year of schooling when digital reading is assessed. This narrowing of the gender gap often relates to differences in navigation skills between boys and girls. In Poland, Chile, Spain, the partner country Colombia and the partner economy Hong Kong-China, when comparing boys and girls who have similar levels of reading proficiency, boys tend to have better navigation skills than girls. These findings suggest that one way to promote better reading proficiency among boys lies in encouraging them to read digital texts, since reading more and reading with enjoyment promotes better reading, and better reading fosters stronger engagement.

IMPROVING ACCESS TO ICT

While the term "digital divide" originally referred to differences in access to digital technologies, it is now used more broadly to also denote disparities in the kinds of knowledge and skills that individuals bring to online practices. Nevertheless, a student cannot learn and apply those skills if he or she doesn't have access to computers and the Internet, both at home and at school.

This volume shows that access to both computers and the Internet has grown significantly in recent years and, as a result, fewer than 1% of 15-year-old students across OECD countries reported that they had not used a computer. However, although having a computer and Internet access at home is now nearly universal in many OECD countries, some countries do lag behind. In examining the relationship between performance in digital reading and access to computers at home or at school, access to computers at home relates positively to performance in digital reading, while access to computers at school does not. Even after accounting for students' socio-economic background, the performance advantage among students who have access to computers at home remains, albeit to a lesser degree, in 16 of the 19 countries that participated in the PISA ICT survey. As proficiency in using ICT is a key to success in the knowledge-based society, policy makers in countries where access to computers is still limited may consider expanding access.

Of particular concern is the limited access to computers at home among socio-economically disadvantaged students. On average, advantaged students report significantly higher levels of access to home computers than do their disadvantaged peers. However, some countries try to compensate for the lack of access to home computers among disadvantaged students by providing those students with more opportunities to use computers at school. Strategies that promote wider access to ICT at school can help to minimise the extent to which socio-economic differences between students are translated into digital competency gaps, with possible consequences for future employment opportunities.

ENABLING EFFECTIVE USE OF ICT IN SCHOOLS

Perhaps the most puzzling finding from PISA 2009 is the lack of a clear relationship between the frequency of students' ICT use at school and performance in digital reading: ICT use at school is not positively associated with

navigation skills or with performance in digital reading in the same way as home use is, even after accounting for students' academic ability. This does not necessarily mean that computer use at school has no positive impact on school performance in general or on performance in digital reading in particular, since many other school policies and practices interact with the observed relationship. However, it does suggest that deeper analysis is required that looks beyond the frequency towards the quality of ICT use at school. Such analysis will need to consider a wider range of factors that can influence the effectiveness of ICT use at school. For example, schools could offer more project-based activities using ICT – particularly those that do not impose constraints on how to accomplish tasks but, rather, allow students to explore various approaches to problem-solving using ICT, much as they do when they use ICT at home. This could help students to improve their navigation skills. At the same time, teachers could develop reading methodologies that improve students' ability to distinguish between relevant and irrelevant material, and to structure, prioritise, distil and summarise text.

Nevertheless, if the use of ICT is not an integral part of a school's vision for teaching and learning and instructional systems, teachers are unlikely to be motivated to invest in the use of ICT. The OECD's 2009 Teaching and Learning International Survey (TALIS) shows that ICT skills are ranked second in teachers' evaluations of their own development needs. That suggests that if teachers have adequate opportunities to develop their skills in using ICT in general, and their understanding of the nature of digital reading and digital texts in particular, they will be more likely to develop the skills and confidence to integrate them effectively into instructional practices on a regular, daily basis.

Last but not least, it is important to look beyond the relationship between ICT use and reading performance. ICT can enable students to obtain more regular feedback on their learning progress. It can also make students more active participants in learning processes in the classroom and tailor those processes to individual students' needs, and it can provide students with up-to-date access to the world's current research and thinking.

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Annex A

TECHNICAL BACKGROUND

All tables in Annex A are available on line

ANNEX A1a

CONSTRUCTION OF DIGITAL READING SCALES AND INDICES FROM THE STUDENT, SCHOOL AND ICT QUESTIONNAIRES

How the PISA 2009 digital reading assessments were designed, analysed and scaled

The development of the PISA 2009 digital reading tasks was identical in most respects to that of print reading tasks.[1] It was co-ordinated by an international consortium of educational research institutions contracted by the OECD, under the guidance of a group of reading experts from participating countries. Both consortium test-development centres and participating countries contributed stimulus material and questions, which were reviewed, tested and refined iteratively over the three years leading up to the administration of the assessment in 2009. The development process involved provisions for several rounds of commentary from participating countries, as well as small-scale piloting and a formal field trial in which samples of 15-year-olds from all of the countries participating in the international option took part. The reading expert group recommended the final selection of tasks. The selection was made based on both the tasks' technical quality, assessed on the basis of their performance in the field trial, and their cultural appropriateness and interest level for 15-year-olds, as judged by the participating countries. Another essential criterion for selecting the set of material as a whole was its fit in the framework described in *PISA 2009 Results: What Students Know and Can Do: Student Performance in Reading, Mathematics and Science (Volume I)*, to maintain the balance across various categories of text, aspects and situations, and variations in the amount and kind of navigation required. Finally, the set of questions was selected to ensure that a range of difficulty was covered, allowing good measurement and description of the digital reading literacy of all 15-year-old students, from the least proficient to the highly able.

Twenty-nine digital reading tasks were used in PISA 2009, but each student in the sample saw only two-thirds of the total pool because different sets of questions were given to different students. The main survey tasks for the digital reading assessment were allocated to three clusters with each cluster requiring 20 minutes of test administration time. The tasks were presented to students in six test forms, with each form composed of two clusters. Each cluster was paired with each of the other clusters in two forms, once in the first position and once in the second position. Each sampled student was randomly assigned one of the six forms, which meant that each student undertook 40 minutes of testing.

This design made it possible to construct a single scale of digital reading proficiency, in which each task is associated with a particular point on the scale that indicates its difficulty, and each student's performance is associated with a particular point on the same scale that indicates his or her estimated proficiency. A description of the modelling technique used to construct this scale can be found in the *PISA 2009 Technical Report* (OECD, forthcoming).

The relative difficulty of tasks in a test is estimated by considering the proportion of test-takers who answer each question correctly. The relative proficiency of students taking a particular test can be estimated by considering the proportion of test questions they answer correctly. A single continuous scale shows the relationship between the difficulty of questions and the proficiency of students. By constructing a scale that shows the difficulty of each question, it is possible to locate the level of digital reading literacy that the question represents. By showing the proficiency of each student on the same scale, it is possible to describe the level of digital reading literacy that the student possesses.

The location of student proficiency on this scale is set in relation to the particular group of questions used in the assessment. However, just as the sample of students taking PISA 2009 is drawn to represent all the 15-year-olds in the participating countries, so the individual questions used in the assessment are designed to represent the definition of digital reading literacy adequately. Estimates of student proficiency reflect the kinds of tasks they would be expected to perform successfully. This means that students are likely to be able to complete questions successfully at or below the difficulty level associated with their own position on the scale (but they may not always do so). Conversely, they are unlikely to be able to successfully complete questions above the difficulty level associated with their position on the scale (but they may sometimes do so).

The further a student's proficiency is located above a given question, the more likely he or she is to successfully complete the question (and other questions of similar difficulty); the further the student's proficiency is located below a given question, the lower the probability that the student will be able to successfully complete the question, and other questions of similar difficulty.

How digital reading proficiency levels are defined in PISA 2009

PISA applies a standard methodology for constructing proficiency scales. Based on a student's performance on the tasks in the test, his or her score is generated and located in a specific part of the scale, thus allowing the score to be associated with a defined proficiency level. The level at which the student's score is located is the highest level for which he or she would be expected to

1. One notable difference was that only an English-source version of the digital reading tasks was developed, instead of both English- and French-source versions, as is standard for the PISA paper-based assessments. The decision to build only one source version for digital reading was governed by a lack of time and resources. For PISA 2012, there will be French- as well as English-source versions for all computer-based assessments, including digital reading.

answer correctly most of a random selection of questions within the same level. Thus, for example, in an assessment composed of tasks spread uniformly across Level 3, students with a score located within Level 3 would be expected to complete at least 50% of the tasks successfully. Because a level covers a range of difficulty and proficiency, success rates across the band vary. Students near the bottom of the level would be likely to succeed on just over 50% of the tasks spread uniformly across the level, while students at the top of the level would be likely to succeed on well over 70% of the same tasks. The approach to developing described proficiency levels for digital reading was identical to that used for print reading and the other paper-based domains. However, there was a variation in the way the mean and standard deviation were established.

Since digital and print reading were conceived of as a single construct – reading – in the framework, the digital reading scale was constructed in such as way as to allow for a comparison with print reading, and to combine the two scales into a composite reading scale, should the data support construction of such a scale (OECD, 2009b, p. 77). Once the main survey data were collected, the correlation between digital and print reading instruments was inspected, and was judged sufficiently high, at 0.83, to pursue the plan of working towards a composite scale combining print and digital reading, as well as to report digital reading separately.

In each country, the sample of students who participated in the digital reading assessment was a subsample of all those who participated in the paper-based assessment. It was decided to impute digital reading scores for those students who did not take part in the digital reading assessment. The imputation followed the normal imputation procedures used in PISA.

Plausible values (PVs) for digital reading performance were drawn for all students included in the PISA 2009 main data file. These PVs were drawn by running a four-dimensional model (digital reading, print reading, mathematics and science), while fixing regression coefficients for the three paper-based dimensions at values estimated from analyses of the paper-based dimensions alone. Further details on digital reading scaling and sampling can be found in the *PISA 2009 Technical Report* (OECD, forthcoming).

To verify if the imputations are valid, it is necessary to analyse country mean performances of students with and without imputation for both digital and print reading. Countries' mean performance of the group of student who participated in digital reading assessment (*i.e.* non-imputed scores) is compared to the group of students who did not participate in digital reading assessment (*i.e.* imputed). The results are included in Table A1a.1. The differences in the countries' digital performance are similar to the differences in print reading performance, indicating that the imputation process was valid. As Table A1a.1 shows, for most countries, the differences between scores that were imputed and those that were not are of similar order. For example, in Australia, the difference between imputed and non-imputed scores in the digital reading is 7.9 while for print reading it is 6.9. The scatter plots of the differences are shown in Figure A1a.1.

[Part 1/1]

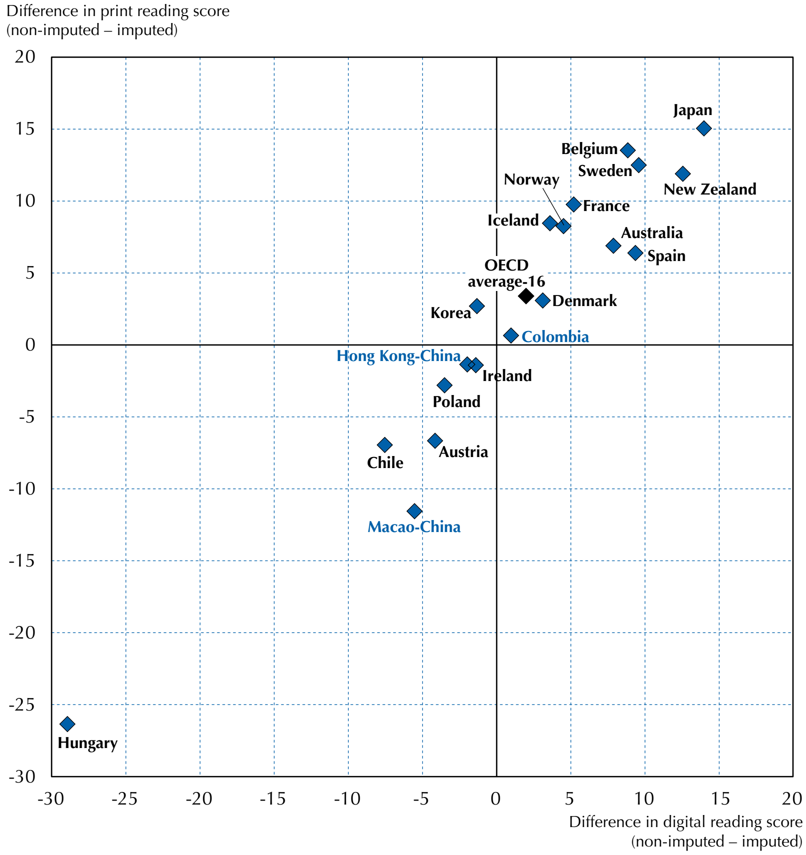
Table A1a.1 Performance in digital and print reading for the group of students who participated in the digital reading assessment and all other students

		Digital reading					Print reading				
		Group of students who participated in digital reading assessment (non-imputed)		Group of students who did not participate in digital reading assessment (imputed)		Difference (non-imputed – imputed)	Group of students who participated in digital reading assessment (non-imputed in digital reading)		Group of students who did not participate in digital reading assessment (imputed in digital reading)		Difference (non-imputed – imputed)
		Mean score	S.E.	Mean score	S.E.	Score dif.	Mean score	S.E.	Mean score	S.E.	Score dif.
OECD	Australia	543	(3.4)	535	(2.8)	7.9	520	(2.9)	513	(2.4)	6.9
	Austria	456	(4.4)	460	(5.1)	-4.2	466	(3.7)	473	(3.7)	-6.7
	Belgium	513	(2.5)	504	(2.3)	8.8	515	(2.6)	501	(2.6)	13.5
	Chile	429	(4.0)	437	(3.9)	-7.5	445	(3.7)	451	(3.4)	-6.9
	Denmark	491	(4.3)	488	(2.6)	3.1	497	(3.9)	494	(2.1)	3.1
	France	498	(6.3)	493	(5.2)	5.2	502	(4.5)	493	(4.3)	9.8
	Hungary	452	(5.5)	481	(4.6)	-28.9	479	(4.6)	505	(3.3)	-26.3
	Iceland	514	(2.7)	511	(1.8)	3.6	507	(2.9)	498	(1.8)	8.5
	Ireland	508	(3.5)	509	(3.1)	-1.4	495	(3.2)	496	(3.6)	-1.4
	Japan	525	(4.0)	511	(3.4)	14.0	526	(4.7)	511	(8.6)	15.1
	Korea	567	(3.5)	568	(3.2)	-1.3	541	(3.7)	538	(3.7)	2.7
	New Zealand	545	(3.1)	533	(2.6)	12.6	528	(3.2)	516	(2.9)	11.9
	Norway	503	(3.0)	498	(3.1)	4.5	508	(3.0)	500	(3.0)	8.3
	Poland	461	(3.3)	465	(3.3)	-3.5	499	(3.0)	502	(2.8)	-2.8
	Spain	481	(3.9)	472	(4.2)	9.4	484	(3.8)	478	(3.2)	6.4
	Sweden	516	(3.5)	506	(3.7)	9.6	505	(3.2)	492	(3.3)	12.5
	OECD average-16	500	(1.0)	498	(0.9)	2.0	501	(0.9)	498	(0.9)	3.4
Partners	Colombia	369	(4.9)	368	(3.4)	1.0	412	(4.6)	411	(3.8)	0.7
	Hong Kong-China	513	(2.8)	515	(2.7)	-2.0	532	(2.5)	534	(2.4)	-1.3
	Macao-China	489	(1.4)	494	(1.1)	-5.5	480	(1.8)	492	(1.2)	-11.5

StatLink http://dx.doi.org/10.1787/888932435492

■ Figure A1a.1 ■

Differences between students who participated in the digital reading assessment and all other students, for print and digital reading



Source: OECD, *PISA 2009 Database*, Table A1a.1.
StatLink http://dx.doi.org/10.1787/888932435492

It is interesting to note that the biggest difference between imputed and non-imputed scores is seen in Hungary. This is consistently evident in both the digital print reading assessments, validating the consistency of the imputation procedure for digital and print reading, but at the same time raising the question as to why it was so large in both cases in that country. An examination of the PISA *index of economic, social and cultural status* (ESCS) of the students sheds some light on this. At the same time it should be remembered that Hungary has one of the largest associations of ESCS with student performance in both digital and print reading (see Chapter 4): 26% of variance in student performance is explained by ESCS in Hungary. The difference between the means of imputed and non-imputed scores seems mainly attributable to the difference in ESCS for the group of students who participated in the digital reading assessment and those for whom scores were imputed. The mean ESCS index for the group that participated (scores not imputed) is -0.33, compared to -0.09 for the group of students who did not participate (scores imputed) in the digital reading assessment. A comparison of the ESCS means for all countries is included in Table A1a.2.

In the core domains of (paper-based) mathematics, reading and science, the scales were constructed with a mean of 500 and standard deviation of 100. For digital reading, however, to allow comparison with print reading results, the metric for the digital reading scale was set so that the mean and the standard deviation of the 16 OECD countries that participated in the digital reading assessment were the same as those for the same group of countries' print reading mean and standard deviation. In computing the mean and standard deviation, an equal weight was given to each of the 16 countries. The mean was 499 score points and the standard deviation was 90. Cut-scores at the same points on the digital reading scale as those on the print reading scale were then applied and given labels that made their alignment with the print reading levels transparent. Items within each band of the digital scale (of those bands that contained sufficient items to justify the exercise) were then inspected, and generalised descriptions of the characteristics of items within each band were generated. Because of the relatively small number of items in the pool for PISA 2009, only four of the seven defined levels were described. The four levels that were described were aligned with the four middle print reading levels and labelled Level 2, Level 3, Level 4 and Level 5 or above. Figure VI.2.8 provides details of the nature of digital reading skills, knowledge and understanding required at each of these levels of the digital reading scale. Below Level 2 there is a "place-holder" region of the scale,

with too few items to support level descriptions. This area is called simply "Below Level 2". It is anticipated that more items reflecting this region on the scale will be developed for future PISA surveys, so that it will be possible to describe what students at these lower levels can do. Similarly, tasks may be added to the top of the scale to allow for the description of a Level 6.

There was no attempt to construct subscales for digital reading because of the relatively small number of items in the digital reading pool for PISA 2009.

[Part 1/1]
Table A1a.2 Student socio-economic background (ESCS) for the group of students who participated in the digital reading assessment and all other students

		PISA index of economic, social and cultural status (ESCS)				
		Group of students who participated in digital reading assessment (non-imputed)		Group of students who did not participate in digital reading assessment (imputed)		Difference (non-imputed – imputed)
		Mean index	S.E.	Mean index	S.E.	Dif.
OECD	Australia	0.37	(0.02)	0.33	(0.01)	0.05
	Austria	0.04	(0.02)	0.07	(0.03)	-0.03
	Belgium	0.22	(0.02)	0.18	(0.02)	0.04
	Chile	-0.56	(0.05)	-0.56	(0.04)	0.00
	Denmark	0.29	(0.05)	0.29	(0.02)	0.00
	France	-0.11	(0.03)	-0.14	(0.03)	0.03
	Hungary	-0.33	(0.04)	-0.09	(0.03)	-0.24
	Iceland	0.58	(0.03)	0.76	(0.02)	-0.18
	Ireland	0.02	(0.03)	0.06	(0.03)	-0.04
	Japan	-0.02	(0.02)	0.01	(0.03)	-0.02
	Korea	-0.17	(0.03)	-0.15	(0.03)	-0.02
	New Zealand	0.1	(0.02)	0.08	(0.02)	0.02
	Norway	0.46	(0.02)	0.47	(0.02)	-0.02
	Poland	-0.3	(0.03)	-0.27	(0.03)	-0.03
	Spain	-0.31	(0.05)	-0.34	(0.04)	0.03
	Sweden	0.35	(0.03)	0.31	(0.02)	0.04
	OECD average-16	0.04	(0.01)	0.06	(0.01)	-0.02
Partners	Colombia	-1.27	(0.06)	-1.15	(0.05)	-0.12
	Hong Kong-China	-0.78	(0.05)	-0.80	(0.04)	0.02
	Macao-China	-0.61	(0.02)	-0.77	(0.01)	0.15

StatLink http://dx.doi.org/10.1787/888932435492

How the composite digital and print reading scale and proficiency levels were developed

Digital reading literacy is represented in two ways in reporting on student proficiency in reading: first, as a scale representing digital reading only, and second, in combination with print reading, as part of a composite reading scale.

As outlined earlier, inspection of the main survey data supported construction of a composite reading scale. The scale is based on equal weighting of results from the two assessments – an arithmetic average – consistent with the framework's proposition that the two kinds of reading are equally important. In measurement terms, the precision and reliability of estimates of student performance in the two media are comparable with, on average, 33 score points for print reading and 25 score points for digital reading yielded from the data collected per student. Moreover, the distribution of the digital reading items as a single scale is similar to the distribution of the print reading items, and when the two sets of items are calibrated together, the difficulty estimates of each item are very similar to their estimates on the separate scales. This outcome supports the validity of combining the results of the digital and print reading assessments into a single composite scale. Substantively, the fact that the digital reading tasks were built on a framework similar to the print reading framework, ensured that the construct and content of the assessments in the two media were aligned. In generating descriptions for the composite levels, the combined sets of items from the two separate scales were again inspected, and the main common features identified as characteristics of the new composite level. The descriptions also include some elements specifically pertaining to navigation, consistent with items within the level. Thus, the construction of a described scale for composite reading provides an overall picture of reading proficiency that is both qualitatively and quantitatively consistent with the two separate scales.

Explanation of indices

This section explains the indices derived from the student, school and Information Communication Technology (ICT) questionnaires used in PISA 2009. ICT questionnaire indices are only available for the 45 countries and economies that chose to administer the optional ICT questionnaire.

Several PISA measures reflect indices that summarise responses from students or school representatives (typically principals) to a series of related questions. The questions were selected from a larger pool of questions on the basis of theoretical considerations and previous research. Structural equation modelling was used to confirm the theoretically expected behaviour of the indices and to validate their comparability across countries. For this purpose, a model was estimated separately for each country and collectively for all OECD countries.

For a detailed description of other PISA indices and details on the methods, see *PISA 2009 Technical Report* (OECD, forthcoming).

There are two types of indices: simple indices and scale indices.

Simple indices are the variables that are constructed through the arithmetic transformation or recoding of one or more items in exactly the same way across assessments.

Scale indices are the variables constructed through the scaling of multiple items. Unless otherwise indicated, the index was scaled using a weighted maximum likelihood estimate (WLE) (Warm, 1985), using a one-parameter item response model (a partial credit model was used in the case of items with more than two categories).

The scaling was done in three stages:

- The item parameters were estimated from equal-sized subsamples of students from each OECD country.
- The estimates were computed for all students and all schools by anchoring the item parameters obtained in the preceding step.
- The indices were then standardised so that the mean of the index value for the OECD student population was zero and the standard deviation was one (countries being given equal weight in the standardisation process).

Sequential codes were assigned to the different response categories of the questions in the sequence in which the latter appeared in the student, school or parent questionnaires. Where indicated in this section, these codes were inverted for the purpose of constructing indices or scales. It is important to note that negative values for an index do not necessarily imply that students responded negatively to the underlying questions. A negative value merely indicates that the respondents answered less positively than all respondents did on average across OECD countries. Likewise, a positive value on an index indicates that the respondents answered more favourably, or more positively, than respondents did, on average, in OECD countries. Terms enclosed in brackets < > in the following descriptions were replaced in the national versions of the student, school and parent questionnaires by the appropriate national equivalent. For example, the term <classes in the language of assessment> in Luxembourg was translated into "German classes" or "French classes" depending on whether students received the German or French version of the assessment instruments.

In addition to simple and scaled indices described in this annex, there are a number of variables from the questionnaires that correspond to single items not used to construct indices. These non-recoded variables have prefix of "ST" for the questionnaire items in the student questionnaire, "SC" for the items in the school questionnaire, and "IC" for the items in the ICT questionnaire. All the context questionnaires as well as the PISA international database, including all variables, are available through *www.pisa.oecd.org*.

Student-level simple indices

Occupational status of parents

Occupational data for both a student's father and a student's mother were obtained by asking open-ended questions in the student questionnaire (ST9a, ST9b, ST12, ST13a, ST13b and ST16). The responses were coded to four-digit ISCO codes (ILO, 1990) and then mapped to Ganzeboom, *et al.*'s SEI index (1992). Higher scores of SEI indicate higher levels of occupational status. The following three indices are obtained:

- Mother's occupational status (BMMJ).
- Father's occupational status (BFMJ).
- The highest occupational level of parents (HISEI) corresponds to the higher SEI score of either parent or to the only available parent's SEI score.

Educational level of parents

The educational level of parents is classified using ISCED (OECD, 1999) based on students' responses in the student questionnaire (ST10, ST11, ST14 and ST15). Please note that the question format for school education in PISA 2009 differs from the one used in PISA 2000, 2003 and 2006 but the method used to compute parental education is the same.

As in PISA 2000, 2003 and 2006, indices were constructed by selecting the highest level for each parent and then assigning them to the following categories: (0) None, (1) ISCED 1 (primary education), (2) ISCED 2 (lower secondary), (3) ISCED Level 3B or 3C (vocational/pre-vocational upper secondary), (4) ISCED 3A (upper secondary) and/or ISCED 4 (non-tertiary post-secondary),

(5) ISCED 5B (vocational tertiary), and (6) ISCED 5A/6 (theoretically oriented tertiary and post-graduate). The following three indices with these categories are developed:

- Mother's educational level (MISCED).
- Father's educational level (FISCED).
- Highest educational level of parents (HISCED) corresponds to the higher ISCED level of either parent.

Highest educational level of parents was also converted into the number of years of schooling (PARED). For the conversion of level of education into years of schooling (Table A1a.3).

Immigration and language background

Information on the country of birth of students and their parents (ST17) is collected in a similar manner as in PISA 2000, 2003 and 2006 by using nationally specific ISO coded variables. The ISO codes of the country of birth for students and their parents are available in the PISA international database (COBN_S, COBN_M, and COBN_F).

The index on immigrant background (IMMIG) has the following categories: (1) native students (those students born in the country of assessment, or those with at least one parent born in that country; students who were born abroad with at least one parent born in the country of assessment are also classified as 'native' students), (2) second-generation students (those born in the country of assessment but whose parents were born in another country), and (3) first-generation students (those born outside the country of assessment and whose parents were also born in another country). Students with missing responses for either the student or for both parents, or for all three questions have been given missing values for this variable.

Students indicate the language they usually speak at home. The data are captured in nationally-specific language codes, which were recoded into variable ST19Q01 with the following two values: (1) language at home is the same as the language of assessment, and (2) language at home is a different language than the language of assessment.

Family structure

The index of family structure (FAMSTRUC) is based on students' responses regarding people living at home with them (ST08). This index has the following three values: (1) single-parent family (students living with only one of the following: mother, father, male guardian, female guardian), (2) two-parent family (students living with a father or step/foster father and a mother or step/foster mother), and (3) other (except the non-responses, which are coded as missing or not applicable).

Computer use

Students were asked if they have ever used a computer (IC03Q01). The same question was asked in PISA 2003 (IC02Q01). Students' responses are compared between PISA 2003 and PISA 2009 in Chapter 5.

Computer availability at home

Students' responses on the number of computers at home (ST21Q03) was coded into a dichotomous variable. It was coded as 0 for students who reported "none" and as1 for students who reported having one, two, or three or more computers. The same question was asked in PISA 2000 (ST22Q04). This was also coded into a dichotomous variable in the same way. Responses are compared between PISA 2000 and PISA 2009 in Chapter 5.

Internet availability at home

Students were asked whether they have a link to the Internet at home (ST20Q06). As the same question was asked in PISA 2000 (ST21Q04), the responses are compared between PISA 2000 and PISA 2009 in Chapter 5.

Student-level scale indices

Family wealth

The index of family wealth (WEALTH) is based on students' responses on whether they had the following at home: a room of their own, a link to the Internet, a dishwasher (treated as a country-specific item), a DVD player, and three other country-specific items (some items in ST20); and their responses on the number of cellular phones, televisions, computers, cars and the rooms with a bath or shower (ST21).

Home educational resources

The *index of home educational resources* (HEDRES) is based on the items measuring the existence of educational resources at home including a desk and a quiet place to study, a computer that students can use for schoolwork, educational software, books to help with students' school work, technical reference books and a dictionary (some items in ST20).

Cultural possessions

The *index of cultural possessions* (CULTPOSS) is based on the students' responses to whether they had the following at home: classic literature, books of poetry and works of art (some items in ST20).

[Part 1/1]

Table A1a.3 **Levels of parental education converted into years of schooling**

		Did not go to school	Completed ISCED Level 1 (primary education)	Completed ISCED Level 2 (lower secondary education)	Completed ISCED Levels3B or 3C (upper secondary education providing direct access to the labour market or to ISCED 5B programmes)	Completed ISCED Level 3A (upper secondary education providing access to ISCED 5A and 5B programmes) and/or ISCED Level 4 (non-tertiary post-secondary)	Completed ISCED Level 5A (university level tertiary education) or ISCED Level 6 (advanced research programmes)	Completed ISCED Level 5B (non-university tertiary education)
OECD	Australia	0.0	6.0	10.0	11.0	12.0	15.0	14.0
	Austria	0.0	4.0	9.0	12.0	12.5	17.0	15.0
	Belgium	0.0	6.0	9.0	12.0	12.0	17.0	14.5
	Canada	0.0	6.0	9.0	12.0	12.0	17.0	15.0
	Chile	0.0	6.0	8.0	12.0	12.0	17.0	16.0
	Czech Republic	0.0	5.0	9.0	11.0	13.0	16.0	16.0
	Denmark	0.0	6.0	9.0	12.0	12.0	17.0	15.0
	Estonia	0.0	4.0	9.0	12.0	12.0	16.0	15.0
	Finland	0.0	6.0	9.0	12.0	12.0	16.5	14.5
	France	0.0	5.0	9.0	12.0	12.0	15.0	14.0
	Germany	0.0	4.0	10.0	13.0	13.0	18.0	15.0
	Greece	0.0	6.0	9.0	11.5	12.0	17.0	15.0
	Hungary	0.0	4.0	8.0	10.5	12.0	16.5	13.5
	Iceland	0.0	7.0	10.0	13.0	14.0	18.0	16.0
	Ireland	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Israel	0.0	6.0	9.0	12.0	12.0	15.0	15.0
	Italy	0.0	5.0	8.0	12.0	13.0	17.0	16.0
	Japan	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Korea	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Luxembourg	0.0	6.0	9.0	12.0	13.0	17.0	16.0
	Mexico	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Netherlands	0.0	6.0	10.0	a	12.0	16.0	a
	New Zealand	0.0	5.5	10.0	11.0	12.0	15.0	14.0
	Norway	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Poland	0.0	a	8.0	11.0	12.0	16.0	15.0
	Portugal	0.0	6.0	9.0	12.0	12.0	17.0	15.0
	Scotland	0.0	7.0	11.0	13.0	13.0	16.0	16.0
	Slovak Republic	0.0	4.5	8.5	12.0	12.0	17.5	13.5
	Slovenia	0.0	4.0	8.0	11.0	12.0	16.0	15.0
	Spain	0.0	5.0	8.0	10.0	12.0	16.5	13.0
	Sweden	0.0	6.0	9.0	11.5	12.0	15.5	14.0
	Switzerland	0.0	6.0	9.0	12.5	12.5	17.5	14.5
	Turkey	0.0	5.0	8.0	11.0	11.0	15.0	13.0
	United Kingdom	0.0	6.0	9.0	12.0	13.0	16.0	15.0
	United States	0.0	6.0	9.0	a	12.0	16.0	14.0
Partners	Albania	0.0	6.0	9.0	12.0	12.0	16.0	16.0
	Argentina	0.0	6.0	10.0	12.0	12.0	17.0	14.5
	Azerbaijan	0.0	4.0	9.0	11.0	11.0	17.0	14.0
	Brazil	0.0	4.0	8.0	11.0	11.0	16.0	14.5
	Bulgaria	0.0	4.0	8.0	12.0	12.0	17.5	15.0
	Colombia	0.0	5.0	9.0	11.0	11.0	15.5	14.0
	Croatia	0.0	4.0	8.0	11.0	12.0	17.0	15.0
	Dubai (UAE)	0.0	5.0	9.0	12.0	12.0	16.0	15.0
	Hong Kong- China	0.0	6.0	9.0	11.0	13.0	16.0	14.0
	Indonesia	0.0	6.0	9.0	12.0	12.0	15.0	14.0
	Jordan	0.0	6.0	10.0	12.0	12.0	16.0	14.5
	Kazakhstan	0.0	4.0	9.0	11.5	12.5	15.0	14.0
	Kyrgyzstan	0.0	4.0	8.0	11.0	10.0	15.0	13.0
	Latvia	0.0	3.0	8.0	11.0	11.0	16.0	16.0
	Liechtenstein	0.0	5.0	9.0	11.0	13.0	17.0	14.0
	Lithuania	0.0	3.0	8.0	11.0	11.0	16.0	15.0
	Macao-China	0.0	6.0	9.0	11.0	12.0	16.0	15.0
	Montenegro	0.0	4.0	8.0	11.0	12.0	16.0	15.0
	Panama	0.0	6.0	9.0	12.0	12.0	16.0	a
	Peru	0.0	6.0	9.0	11.0	11.0	17.0	14.0
	Qatar	0.0	6.0	9.0	12.0	12.0	16.0	15.0
	Romania	0.0	4.0	8.0	11.5	12.5	16.0	14.0
	Russian Federation	0.0	4.0	9.0	11.5	12.0	15.0	a
	Serbia	0.0	4.0	8.0	11.0	12.0	17.0	14.5
	Shanghai-China	0.0	6.0	9.0	12.0	12.0	16.0	15.0
	Singapore	0.0	6.0	8.0	10.5	10.5	12.5	12.5
	Chinese Taipei	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Thailand	0.0	6.0	9.0	12.0	12.0	16.0	14.0
	Trinidad and Tobago	0.0	5.0	9.0	12.0	12.0	16.0	15.0
	Tunisia	0.0	6.0	9.0	12.0	13.0	17.0	16.0
	Uruguay	0.0	6.0	9.0	12.0	12.0	17.0	15.0

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Economic, social and cultural status

The *PISA index of economic, social and cultural status* (ESCS) was derived from the following three indices: highest occupational status of parents (HISEI), highest educational level of parents in years of education according to ISCED (PARED), and home possessions (HOMEPOS). The *index of home possessions* (HOMEPOS) comprises all items on the indices of WEALTH, CULTPOSS and HEDRES, as well as books in the home recoded into a four-level categorical variable (0-10 books, 11-25 or 26-100 books, 101-200 or 201-500 books, more than 500 books).

The *PISA index of economic, social and cultural status* (ESCS) was derived from a principal component analysis of standardised variables (each variable has an OECD mean of zero and a standard deviation of one), taking the factor scores for the first principal component as measures of the index of economic, social and cultural status.

Principal component analysis was also performed for each participating country to determine to what extent the components of the index operate in similar ways across countries. The analysis revealed that patterns of factor loading were very similar across countries, with all three components contributing to a similar extent to the index. For the occupational component, the average factor loading was 0.80, ranging from 0.66 to 0.87 across countries. For the educational component, the average factor loading was 0.79, ranging from 0.69 to 0.87 across countries. For the home possession component, the average factor loading was 0.73, ranging from 0.60 to 0.84 across countries. The reliability of the index ranged from 0.41 to 0.81. These results support the cross-national validity of the *PISA index of economic, social and cultural status*.

The imputation of components for students missing data on one component was done on the basis of a regression on the other two variables, with an additional random error component. The final values on the *PISA index of economic, social and cultural status* (ESCS) have an OECD mean of 0 and a standard deviation of 1.

Enjoyment of reading activities

The *index of enjoyment of reading activities* (ENJOY) was derived from students' level of agreement with the following statements (ST24): *i)* I read only if I have to; *ii)* reading is one of my favourite hobbies; *iii)* I like talking about books with other people; *iv)* I find it hard to finish books; *v)* I feel happy if I receive a book as a present; *vi)* for me, reading is a waste of time; *vii)* I enjoy going to a bookstore or a library; *viii)* I read only to get information that I need; *ix)* I cannot sit still and read for more than a few minutes; *x)* I like to express my opinions about books I have read; and *xi)* I like to exchange books with my friends.

As all items that are negatively phrased (items *i*, *iv*, *vi*, *viii* and *ix*) are inverted for scaling, the higher values on this index indicate higher levels of enjoyment of reading.

Diversity of reading materials

The *index of diversity of reading materials* (DIVREAD) was derived from the frequency with which students read the following materials because they want to (ST25): magazines, comic books, fiction, non-fiction books and newspapers. The higher values on this index indicate higher diversity in reading.

Online reading activities

The *index of online reading activities* (ONLNREAD) was derived from the frequency with which students are involved in the following reading activities (ST26): reading emails, chatting on line, reading online news, using an online dictionary or encyclopaedia, searching online information to learn about a particular topic, taking part in online group discussions or forums, and searching for practical information on line. The higher values on this index indicate more frequent online reading activities.

More in-depth analyses applied to the set of online reading activities reveal that there are clearly two distinct kinds of online reading activities: searching for information and social activities. The two new indices *index of online searching-information activities* and the *index of online social activities,* developed for Volume VI, are principal components, unlike other PISA indices, which are constructed using an IRT model. The seven items of Question 26 (ST26) of the student questionnaire were submitted to a principal components analysis and a Varimax rotation was implemented on the first two components. Since ST26Q06, "Taking part in online group discussion forums", presented lower correlations with the two rotated components, it was removed and the analysis was rerun.

The final factor analysis was conducted on OECD countries only, with each country contributing equally. A Varimax rotation was also implemented. The correlation between the items and the rotated components are presented in Table A1a.4.

[Part 1/1]
Table A1a.4 Rotated component pattern

Question in student questionnaire	Description	Component 1	Component 2
ST26Q01	Online – Reading e-mail	0.16762	0.77252
ST26Q02	Online – Chat on line	0.13677	0.80565
ST26Q03	Online – Reading news	0.58826	0.39559
ST26Q04	Online – Using dictionary	0.78550	0.16918
ST26Q05	Online – Particular topic	0.83625	0.09389
ST26Q07	Online – Practical information	0.73889	0.14218

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As can be seen from Table A1a.4, the first rotated component correlates highly with ST26Q03, ST26Q04, ST26Q05 and ST26Q07, which reflect searching information on line, while the second factor mainly presents high correlations with ST26Q01 and ST26Q02, reading e-mails and chatting, which reflect socially-related digital reading.

Metacognition strategies: understanding and remembering

The *index of understanding and remembering* (UNDREM) was derived from students' reports on the usefulness of the following strategies for understanding and memorising the text (ST41): A) I concentrate on the parts of the text that are easy to understand; B) I quickly read through the text twice; C) After reading the text, I discuss its content with other people; D) I underline important parts of the text; E) I summarise the text in my own words; and F) I read the text aloud to another person.

This index was scored using a rater-scoring system. Through a variety of trial activities, both with reading experts and national centres, a preferred ordering of the strategies according to their effectiveness to achieve the intended goal was agreed. The experts' agreed order of the six items consisting this index is CDE > ABF. Scaling was conducted with two steps. First, a score was assigned to each student, which is a number that ranged from 0 to 1 and can be interpreted as the proportion of the total number of expert pair-wise relations that are consistent with the student ordering. For example, if the expert rule is (ABFD>CEG, 4×3=12 pair wise rules are created (*i.e.* A>C, A>E, A>G, B>C, B>E, B>G, F>C, F>E, F>G, D>C, D>E, D>G). If the responses of a student on this task follow 8 of the 12 rules, the student gets a score of 8/12 = 0.67. Second, these scores were standardised for the index to have a mean of 0 and a standard deviation of 1 across OECD countries. Higher values on this index indicate greater students' perception of usefulness of this strategy.

Metacognition strategies: summarising

The *index of summarising* (METASUM) was derived from students' reports on the usefulness of the following strategies for writing a summary of a long and rather difficult two-page text about fluctuations in the water levels of a lake in Africa (ST42): A) I write a summary. Then I check that each paragraph is covered in the summary, because the content of each paragraph should be included; B) I try to copy out accurately as many sentences as possible; C) before writing the summary, I read the text as many times as possible; D) I carefully check whether the most important facts in the text are represented in the summary; and E) I read through the text, underlining the most important sentences, then I write them in my own words as a summary.

This index was scored using a rater-scoring system. The experts' agreed order of the five items consisting this index is DE>AC>B. Higher values on this index indicate greater students' perception of usefulness of this strategy.

ICT resources at home

The index of ICT resources at home (ICTRES) was derived from students' reports on whether they have an educational software (ST20Q05) and/or a link to the Internet at home (ST20Q06) and the number of computers at home (ST21Q03). Higher values on this index indicate more ICT resources at home.

ICT availability at home

The *index of ICT availability at home* (ICTHOME) was derived from students' reports on whether any of the following are available for them to use at home (IC01): *i)* a desktop computer; *ii)* a portable laptop or notebook; *iii)* an Internet connection; *iv)* a video games console; *v)* a cell phone; *vi)* MP3/MP4 or iPod or similar; *vii)* a printer; and *viii)* a USB stick. As all items were inverted for scaling, higher values on this index indicate greater ICT availability at home.

ICT availability at school

The *index of ICT availability at school* (ICTSCH) was derived from students' reports on whether any of the following are available for them to use at home (IC02): *i)* a desktop computer; *ii)* a portable laptop or notebook; *iii)* an Internet connection; *iv)* a printer; and *v)* a USB stick. This question is new to PISA 2009 and provides information on ICT availability at school. As all items were inverted for scaling, higher values on this index indicate greater ICT availability at school.

Computer use at home for leisure

The *index of computer use at home for leisure* (ENTUSE) was derived from students' reports on how often they use a computer for the following activities at home (IC04): *i)* play one-player games; *ii)* play collaborative online games; *iii)* use e-mail; *iv)* chat on line; *v)* browse the Internet for fun; *vi)* download music, films, games or software from the Internet; *vii)* publish and maintain a personal website, weblog or blog; and viii) participate in online forums, virtual communities or spaces. Higher values on this index indicate more frequent computer use at home for leisure.

Computer use at home for schoolwork

The *index of computer use at home for schoolwork* (HOMSCH) was derived from students' reports on how often they use a computer for the following activities at home (IC05): *i)* browse the Internet for schoolwork; *ii)* use e-mail to communicate with other students about schoolwork; *iii)* use e-mail to communicate with teachers and submit of homework or other schoolwork; *iv)* download, upload or browse material from the school's website; and *v)* check the school's website for announcements. Higher values on this index indicate more frequent computer use at home for schoolwork.

Computer use at school

The *index of computer use at school* (USESCH) was derived from students' reports on how often they use a computer for the following activities at school (IC06): *i)* chat on line at school; *ii)* use e-mail at school; *iii)* browse the Internet for schoolwork; *iv)* download, upload or browse material from the school's website; *v)* post their work on the school's website; *vi)* play simulations at school; *vii)* practice and drilling, such as for foreign language learning or mathematics; *viii)* do individual homework on a school computer; and *ix)* use school computers for group work and to communicate with other students. Higher values on this index indicate more frequent computer use at school.

Self-confidence in ICT high-level tasks

The *index of self-confidence in ICT high-level tasks* (HIGHCONF) was derived from students' reports on the extent to which they are able to do the following tasks: *i)* edit digital photographs or other graphic images; *ii)* create a database; *iii)* use a spreadsheet to plot a graph; *iv)* create a presentation; and *v)* create a multi-media presentation. As all items were inverted for scaling, higher values on this index indicate higher self-confidence.

Among these items, the following three items were asked in the same way in PISA 2003 and 2009: use a spreadsheet to plot a graph; create a presentation; and create a multi-media presentation. These items were re-coded to 1 if students reported they can do this task "very well by myself" and to 0 for other responses. The percentage of students able to do these tasks very well by themselves was then compared between PISA 2003 and 2009 in Chapter 5.

Attitude towards computers

The *index of attitude towards computers* (ATTCOMP) was derived from students' reports on the extent to which they agree with the following statements: *i)* it is very important to me to work with a computer; *ii)* I think playing or working with a computer is really fun; *iii)* I use a computer because I am very interested; and *iv)* I lose track of time when I am working with the computer. Higher values on this index indicate a more positive attitude towards computers.

School-level simple indices

Computer-per-student ratio

The *index of computer availability* (IRATCOMP) was derived by dividing the number of computers available for educational purposes available to students in the modal grade for 15-year-olds (SC10Q02) by the number of students in the modal grade for 15-year-olds (SC10Q01).

Since the question regarding the number of students in the modal grade for 15-year-olds was not included in PISA 2000, another set of ratios was computed to examine the change in the computer-per-student ratio from PISA 2000 to 2009. In PISA 2009, a computer-per-student ratio was obtained by dividing the number of computers available for educational purposes to 15-year-olds in the modal grade (SC10Q02) by school size (SC06Q01 and SC06Q02). In PISA 2000, a computer-per-student ratio was obtained by dividing the number of computers available to 15-year-old students (SC13Q02) by school size (SC02Q01 and SC02Q02). Thus, the ratio can be biased downwards for PISA 2009 as the group of students considered in the numerator in PISA 2009 can be smaller than the group considered in PISA 2000, while the school size in the denominator was defined in the same way.

School-level scale indices

School's educational resources

The *index of the school's educational resources* (SCMATEDU) was derived from seven items measuring school principals' perceptions of potential factors hindering instruction at their school (SC11). These factors are: *i)* shortage or inadequacy of science laboratory equipment; *ii)* shortage or inadequacy of instructional materials; *iii)* shortage or inadequacy of computers for instruction; *iv)* lack or inadequacy of Internet connectivity; *v)* shortage or inadequacy of computer software for instruction; *vi)* shortage or inadequacy of library materials; and *vii)* shortage or inadequacy of audio-visual resources. As all items were inverted for scaling, higher values on this index indicate better quality of educational resources.

The item "shortage or inadequacy of computer software for instruction" was also asked in PISA 2000 (SC11Q05). This item was coded as 0 for responses "not at all" or "very little" and 1 for responses "to some extent" or "a lot". A comparison of the percentages between PISA 2000 and 2009 is presented in Chapter 5.

ANNEX A1b
CONSTRUCTION OF NAVIGATION INDICES

How the navigation indices were constructed

The PISA 2009 digital reading assessment tasks were deliberately constructed so that navigation was required to obtain full credit. As described in Chapter 3, students were required to go through a number of pages to access the information they needed to complete the task, or to integrate information from at least two different pages. These navigation indices are available in a separate data file on the PISA website (*www.pisa.oecd.org*).

In Chapter 3, the associations of digital reading scores and the following three navigation indices are examined: the *number of page visits* (PAGES), the *number of visits to relevant pages* (REL_PAGES) and the *number of relevant pages visited* (UNI_REL_PAGES). These indices are constructed based on the log files that were collected while students completed the digital reading assessment. These log files contain information on: which pages were visited in which order, which devices (*i.e.* menus, text-embedded links) were used to visit a page, and how much time students spent on a page each time they visited it. The *number of page visits* represents how many times individual students visited any pages during the digital reading assessment, regardless of the pages' relevance to the task and regardless of whether each is a first visit to the page or a revisit. If a student visits the same page several times, it is counted as several visits. The *number of visits to relevant pages* represents how many times individual students visited the pages that were relevant to the task during the digital reading assessment. Pages classified as relevant were those that either contained information needed to answer the task, were helpful for answering the task or at least could sensibly be deemed helpful for answering a task, or lay on a pathway leading from the starting page of a task to a page where task-relevant information could be found. If a student visited the same task-relevant page several times, it is counted as several visits. The *number of relevant pages visited* represents how many task-relevant pages students visited during the whole digital reading assessment. Even if a student visited the same task-relevant page several times, it is counted as one page.

In analysing students' navigation behaviour during the PISA 2009 digital reading assessment, it is important to take PISA's rotated booklet design into consideration. Not all students responded to the same set of units and items. The digital reading assessment consisted of nine units that were organised into three clusters. Out of these three clusters, each student received two clusters, in either of the two possible orders. Thus, there were six tests that differed either in the clusters of which they were composed, or the order in which these were presented.

To account for possible effects of test composition and the order of cluster presentation on navigation, the navigation indices are centred on the respective index's mean for the tests that were administered. In order words, first, the mean of the index is computed with the equal weights to the OECD countries per test, then this mean value is subtracted from individual students' values. The navigation indices are then centred around the respective index's mean for the countries. By centring on the tests and countries, the following three indices are developed: the centred *number of page visits* (PAGES_SO_C), the centred *number of visits to relevant pages* (REL_PAGES_SO_C) and the centred *number of relevant pages visited* (UNI_REL_PAGES_SO_C). These indices are used in all analyses related to the navigation indices in Volume VI, except the three main columns in Table VI.3.1 (Number of relevent pages visited, Number of visits to relevent pages and number of page visits), in which the un-centred navigation indices are used. Therefore, in general, the navigation indices refer to these three centred indices, unless otherwise stated.

This transformation, which removes the effects that the administered tests might have on the indices' means, keeps the original metric of the number of pages visited, or the number of page visits. This means that regression coefficients can still be interpreted as expected changes in digital reading scores per *page visit*, per *visit to relevant pages* or per *relevant page visited*.

Further examination of the standardised navigation indices

Differences in the tests that were administered might influence not only the means of the navigation indices, but also the standard deviations of the navigation indices. Further analyses are, therefore, conducted using the following navigation indices that are standardised per test (*i.e.* within each test, the mean is zero and the standard deviation is one) and centred around countries' means: the standardised *number of page visits* (PAGES_SOS_C), the standardised *number of visits to relevant pages* (REL_PAGES_SOS_C) and the standardised *number of relevant pages visited* (UNI_REL_PAGES_SOS_C).

As seen in Tables A1b.1 to A1b.8, the main findings in Chapter 3 are consistent even when standardised navigation indices are used instead of the centred navigation indices. Only slight differences are found, as follows:

- The associations between the navigation indices and digital reading performance turn out to be slightly stronger with the standardised navigation indices. On average across OECD countries, the correlation between the standardised *number of page visits* and digital reading performance is 0.43, while it is 0.42 for the correlation between the centred *number of page visits* and digital reading performance (Tables VI.3.2 and A1b.1). On average across OECD countries, the correlation between the standardised *number of page visits* and print reading performance is 0.34, while it is 0.33 for the correlation between the centred *number of page visits* and print reading performance (Tables VI.3.3 and A1b.2).
- The unique amount of variance accounted for by the standardised *number of relevant pages visited* after accounting for print reading performance is 0.24, while it is 0.23 with the centred *the number of relevant pages visited* (Tables VI.3.4 and A1b.3).

- In the regression analyses, the meaning of the regression coefficients is different between the standardised and centred navigation indices (Tables VI.3.4, VI.3.5, VI.3.6, A1b.3, A1b.4 and A1b.5). The regression coefficients of the standardised navigation indices are the expected change in digital reading performance per one standard deviation change in the respective navigation index. For instance, on average across OECD countries, one standard deviation increase in the standardised *number of relevant pages visited* corresponds to an increase of 66 score points on the digital reading scale (Table A1b.3); one standard deviation increase in the standardised *number of visits to relevant pages* corresponds to an increase of 40 score points on the digital reading scale (Table A1b.4); and one standard deviation increase in standardised *number of page visits* corresponds to an increase of 24 score points on the digital reading scale (Table A1b.5). These score point changes in digital reading per standard deviation change in each standardised navigation index are calculated after accounting for print reading performance.

Since there is no major difference in the results between the centred and standardised navigation indices, centred navigation indices are used in Chapter 3 in order to facilitate interpretation.

[Part 1/1]

Table A1b.1 Correlations of navigation indices (standardised per test) with digital reading scores (WLEs), by country

		Correlations between digital reading scores (WLEs) and the following navigation indices:					
		Number of relevant pages visited		Number of visits to relevant pages		Number of page visits	
		Correlation	S.E.	Correlation	S.E.	Correlation	S.E.
OECD	Australia	0.80	(0.01)	0.61	(0.02)	0.39	(0.02)
	Austria	0.85	(0.01)	0.73	(0.01)	0.57	(0.02)
	Belgium	0.83	(0.01)	0.63	(0.01)	0.40	(0.02)
	Chile	0.82	(0.01)	0.64	(0.02)	0.48	(0.03)
	Denmark	0.82	(0.02)	0.64	(0.03)	0.44	(0.04)
	France	0.85	(0.02)	0.63	(0.04)	0.43	(0.04)
	Hungary	0.86	(0.01)	0.76	(0.02)	0.61	(0.03)
	Iceland	0.80	(0.01)	0.59	(0.03)	0.37	(0.03)
	Ireland	0.83	(0.01)	0.64	(0.02)	0.43	(0.03)
	Japan	0.74	(0.02)	0.52	(0.03)	0.36	(0.04)
	Korea	0.68	(0.03)	0.38	(0.04)	0.19	(0.04)
	New Zealand	0.80	(0.01)	0.56	(0.02)	0.30	(0.03)
	Norway	0.82	(0.01)	0.66	(0.02)	0.50	(0.02)
	Poland	0.86	(0.01)	0.71	(0.01)	0.56	(0.02)
	Spain	0.84	(0.01)	0.66	(0.03)	0.48	(0.03)
	Sweden	0.80	(0.01)	0.61	(0.02)	0.42	(0.03)
	OECD average-16	0.81	(0.00)	0.62	(0.01)	0.43	(0.01)
Partners	Colombia	0.76	(0.01)	0.57	(0.03)	0.48	(0.03)
	Hong Kong-China	0.77	(0.01)	0.55	(0.03)	0.36	(0.03)
	Macao-China	0.71	(0.01)	0.42	(0.02)	0.16	(0.03)

Note: Page visit counts are standardised per test and centred on the country mean for each country.
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[Part 1/1]

Table A1b.2 Correlations of navigation indices (standardised per test) with print reading scores (WLEs), by country

		Correlations between print reading scores (WLEs) and the following navigation indices:					
		Number of relevant pages visited		Number of visits to relevant pages		Number of page visits	
		Correlation	S.E.	Correlation	S.E.	Correlation	S.E.
OECD	Australia	0.64	(0.01)	0.48	(0.02)	0.31	(0.02)
	Austria	0.67	(0.01)	0.58	(0.02)	0.44	(0.02)
	Belgium	0.69	(0.01)	0.55	(0.01)	0.36	(0.02)
	Chile	0.65	(0.02)	0.53	(0.02)	0.42	(0.03)
	Denmark	0.61	(0.03)	0.48	(0.03)	0.32	(0.04)
	France	0.58	(0.06)	0.46	(0.04)	0.32	(0.04)
	Hungary	0.72	(0.02)	0.64	(0.03)	0.53	(0.03)
	Iceland	0.62	(0.03)	0.47	(0.03)	0.31	(0.03)
	Ireland	0.61	(0.02)	0.47	(0.02)	0.30	(0.03)
	Japan	0.48	(0.03)	0.34	(0.03)	0.23	(0.03)
	Korea	0.54	(0.04)	0.34	(0.04)	0.18	(0.04)
	New Zealand	0.63	(0.02)	0.42	(0.03)	0.20	(0.03)
	Norway	0.58	(0.02)	0.47	(0.02)	0.36	(0.02)
	Poland	0.67	(0.02)	0.55	(0.02)	0.43	(0.02)
	Spain	0.64	(0.02)	0.49	(0.03)	0.35	(0.03)
	Sweden	0.64	(0.02)	0.49	(0.02)	0.33	(0.02)
	OECD average-16	0.62	(0.01)	0.48	(0.01)	0.34	(0.01)
Partners	Colombia	0.58	(0.03)	0.48	(0.03)	0.43	(0.03)
	Hong Kong-China	0.48	(0.02)	0.33	(0.04)	0.21	(0.03)
	Macao-China	0.43	(0.02)	0.24	(0.02)	0.07	(0.02)

Note: Page visit counts are standardised per test and centred on the country mean for each country.
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Table A1b.3 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of relevant pages visited (standardised per test)

		Intercept		Number of relevant pages visited				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR^2	Effect size f^2	Change in score	S.E.	ΔR^2	Effect size f^2	R^2	S.E.
OECD	Australia	335	(7.00)	**69.08**	(1.79)	0.20	0.72	**0.35**	(0.01)	0.08	0.29	**0.72**	(0.01)
	Austria	343	(11.37)	**66.38**	(2.21)	0.24	1.03	**0.29**	(0.02)	0.04	0.17	**0.77**	(0.01)
	Belgium	326	(7.27)	**62.72**	(1.79)	0.17	0.68	**0.35**	(0.01)	0.07	0.28	**0.75**	(0.01)
	Chile	342	(11.78)	**60.57**	(2.03)	0.24	0.86	**0.31**	(0.02)	0.04	0.14	**0.72**	(0.01)
	Denmark	323	(15.80)	**66.29**	(3.46)	0.24	0.89	**0.33**	(0.03)	0.06	0.22	**0.73**	(0.02)
	France	374	(15.56)	**71.32**	(5.41)	0.32	1.40	**0.25**	(0.03)	0.05	0.22	**0.77**	(0.03)
	Hungary	333	(10.63)	**65.37**	(1.97)	0.21	0.98	**0.32**	(0.02)	0.04	0.19	**0.79**	(0.01)
	Iceland	370	(11.75)	**71.21**	(2.95)	0.25	0.80	**0.27**	(0.02)	0.05	0.16	**0.69**	(0.02)
	Ireland	370	(10.72)	**68.93**	(2.23)	0.27	1.01	**0.26**	(0.02)	0.05	0.19	**0.73**	(0.01)
	Japan	384	(7.94)	**62.56**	(2.54)	0.28	0.72	**0.23**	(0.02)	0.06	0.15	**0.61**	(0.03)
	Korea	344	(10.27)	**56.13**	(2.59)	0.16	0.37	**0.34**	(0.02)	0.11	0.26	**0.57**	(0.03)
	New Zealand	316	(9.17)	**67.93**	(2.21)	0.18	0.67	**0.39**	(0.02)	0.09	0.33	**0.73**	(0.01)
	Norway	363	(8.41)	**67.39**	(1.67)	0.28	1.01	**0.27**	(0.02)	0.05	0.18	**0.72**	(0.01)
	Poland	358	(9.44)	**65.36**	(1.50)	0.26	1.13	**0.26**	(0.02)	0.03	0.13	**0.77**	(0.01)
	Spain	368	(13.51)	**70.49**	(3.25)	0.28	1.08	**0.26**	(0.03)	0.03	0.12	**0.74**	(0.01)
	Sweden	345	(10.11)	**63.24**	(2.53)	0.20	0.68	**0.32**	(0.02)	0.07	0.24	**0.71**	(0.01)
	OECD average-16	350	(2.74)	**65.94**	(0.67)	0.24	0.88	**0.30**	(0.01)	0.06	0.20	**0.72**	(0.00)
Partners	Colombia	337	(12.77)	**53.96**	(2.11)	0.24	0.65	**0.27**	(0.03)	0.05	0.14	**0.63**	(0.02)
	Hong Kong-China	342	(9.71)	**62.41**	(1.61)	0.29	0.87	**0.30**	(0.02)	0.08	0.24	**0.67**	(0.02)
	Macao-China	333	(5.99)	**52.75**	(1.31)	0.25	0.66	**0.32**	(0.01)	0.11	0.29	**0.62**	(0.01)

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).

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Table A1b.4 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of visits to relevant pages (standardised per test)

		Intercept		Number of visits to relevant pages				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR^2	Effect size f^2	Change in score	S.E.	ΔR^2	Effect size f^2	R^2	S.E.
OECD	Australia	246	(7.42)	**40.45**	(2.40)	0.09	0.23	**0.55**	(0.01)	0.24	0.62	**0.61**	(0.01)
	Austria	258	(11.78)	**50.50**	(2.54)	0.15	0.46	**0.46**	(0.02)	0.14	0.43	**0.68**	(0.01)
	Belgium	222	(7.98)	**34.80**	(2.18)	0.06	0.17	**0.56**	(0.02)	0.25	0.70	**0.64**	(0.01)
	Chile	200	(14.21)	**35.88**	(2.61)	0.11	0.26	**0.55**	(0.03)	0.17	0.41	**0.58**	(0.02)
	Denmark	234	(14.32)	**44.17**	(3.55)	0.12	0.30	**0.52**	(0.03)	0.20	0.51	**0.61**	(0.02)
	France	276	(9.87)	**45.64**	(2.79)	0.13	0.31	**0.45**	(0.02)	0.18	0.43	**0.58**	(0.06)
	Hungary	233	(11.68)	**49.52**	(2.40)	0.13	0.44	**0.51**	(0.02)	0.13	0.44	**0.71**	(0.02)
	Iceland	263	(17.30)	**37.77**	(4.30)	0.10	0.22	**0.49**	(0.03)	0.19	0.41	**0.54**	(0.02)
	Ireland	279	(14.80)	**44.48**	(2.80)	0.13	0.32	**0.46**	(0.03)	0.19	0.47	**0.60**	(0.02)
	Japan	311	(10.67)	**31.33**	(2.10)	0.12	0.22	**0.37**	(0.02)	0.18	0.32	**0.44**	(0.03)
	Korea	274	(12.76)	**15.37**	(1.91)	0.03	0.05	**0.51**	(0.02)	0.30	0.54	**0.44**	(0.03)
	New Zealand	216	(9.61)	**38.97**	(2.79)	0.08	0.21	**0.60**	(0.02)	0.31	0.83	**0.63**	(0.02)
	Norway	291	(10.47)	**47.88**	(2.50)	0.16	0.40	**0.42**	(0.02)	0.16	0.40	**0.60**	(0.01)
	Poland	238	(10.72)	**44.49**	(2.18)	0.14	0.40	**0.48**	(0.02)	0.15	0.43	**0.65**	(0.02)
	Spain	240	(16.28)	**44.68**	(4.77)	0.14	0.35	**0.51**	(0.03)	0.17	0.43	**0.60**	(0.02)
	Sweden	254	(9.49)	**37.43**	(2.70)	0.09	0.23	**0.51**	(0.02)	0.23	0.58	**0.60**	(0.02)
	OECD average-16	252	(3.04)	**40.21**	(0.72)	0.11	0.29	**0.50**	(0.01)	0.20	0.50	**0.59**	(0.01)
Partners	Colombia	213	(12.98)	**29.20**	(2.42)	0.10	0.20	**0.45**	(0.03)	0.16	0.31	**0.49**	(0.03)
	Hong Kong-China	253	(11.54)	**32.77**	(1.79)	0.14	0.29	**0.46**	(0.02)	0.21	0.43	**0.51**	(0.02)
	Macao-China	253	(8.29)	**23.16**	(1.66)	0.08	0.14	**0.47**	(0.02)	0.27	0.49	**0.45**	(0.01)

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).

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Table A1b.5 **Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of page visits (standardised per test)**

		Intercept		Number of page visits				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR²	Effect size f²	Change in score	S.E.	ΔR²	Effect size f²	R²	S.E.
OECD	Australia	199	(7.40)	**22.57**	(2.37)	0.03	0.07	**0.66**	(0.01)	0.41	0.92	**0.56**	(0.01)
	Austria	184	(12.80)	**33.34**	(2.59)	0.07	0.18	**0.60**	(0.02)	0.28	0.71	**0.60**	(0.01)
	Belgium	167	(8.79)	**17.26**	(2.47)	0.02	0.05	**0.67**	(0.02)	0.44	1.09	**0.60**	(0.01)
	Chile	136	(12.16)	**22.47**	(2.37)	0.04	0.08	**0.67**	(0.03)	0.29	0.60	**0.52**	(0.02)
	Denmark	177	(14.58)	**27.36**	(3.60)	0.05	0.11	**0.64**	(0.03)	0.35	0.76	**0.54**	(0.02)
	France	225	(10.81)	**29.28**	(3.14)	0.05	0.10	**0.55**	(0.02)	0.32	0.65	**0.51**	(0.07)
	Hungary	148	(11.67)	**32.33**	(3.40)	0.06	0.17	**0.67**	(0.02)	0.26	0.72	**0.64**	(0.02)
	Iceland	210	(14.89)	**19.28**	(3.03)	0.03	0.06	**0.59**	(0.03)	0.33	0.63	**0.47**	(0.03)
	Ireland	228	(15.29)	**28.54**	(3.03)	0.06	0.12	**0.56**	(0.03)	0.33	0.68	**0.52**	(0.02)
	Japan	287	(12.68)	**17.91**	(2.25)	0.05	0.08	**0.43**	(0.02)	0.25	0.40	**0.38**	(0.03)
	Korea	260	(14.10)	**5.19**	(1.55)	0.00	0.00	**0.56**	(0.02)	0.38	0.65	**0.42**	(0.03)
	New Zealand	174	(9.69)	**20.47**	(2.77)	0.03	0.07	**0.70**	(0.02)	0.48	1.12	**0.57**	(0.02)
	Norway	240	(10.97)	**32.16**	(2.77)	0.08	0.17	**0.52**	(0.02)	0.27	0.56	**0.52**	(0.02)
	Poland	173	(10.60)	**31.95**	(2.24)	0.08	0.20	**0.60**	(0.02)	0.27	0.66	**0.59**	(0.02)
	Spain	177	(13.49)	**30.25**	(3.74)	0.06	0.13	**0.64**	(0.03)	0.30	0.64	**0.53**	(0.02)
	Sweden	209	(9.01)	**21.56**	(2.27)	0.04	0.09	**0.61**	(0.02)	0.37	0.82	**0.55**	(0.02)
	OECD average-16	200	(3.01)	**24.49**	(0.70)	0.05	0.10	**0.60**	(0.01)	0.33	0.73	**0.53**	(0.01)
Partners	Colombia	176	(11.77)	**21.05**	(2.08)	0.06	0.11	**0.50**	(0.03)	0.22	0.40	**0.45**	(0.03)
	Hong Kong-China	216	(13.51)	**17.83**	(1.90)	0.06	0.10	**0.53**	(0.02)	0.30	0.52	**0.43**	(0.02)
	Macao-China	231	(8.95)	**7.35**	(1.35)	0.01	0.02	**0.52**	(0.02)	0.36	0.58	**0.38**	(0.01)

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table A1b.6 **Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of page visits (standardised per test) including a quadratic trend for the number of page visits**

		Intercept		Print reading (WLE)		Number of page visits		Number of page visits (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R²	S.E.	ΔR²	Effect size f²
OECD	Australia	244	(7.53)	**0.60**	(0.01)	**30.27**	(2.03)	**-18.50**	(1.58)	**0.60**	(0.01)	0.04	0.10
	Austria	219	(12.69)	**0.54**	(0.03)	**40.36**	(2.55)	**-15.59**	(1.25)	**0.64**	(0.01)	0.04	0.11
	Belgium	214	(7.75)	**0.60**	(0.01)	**26.63**	(1.98)	**-15.60**	(1.40)	**0.64**	(0.01)	0.04	0.11
	Chile	169	(13.24)	**0.60**	(0.03)	**29.80**	(2.23)	**-10.15**	(1.79)	**0.55**	(0.02)	0.03	0.07
	Denmark	216	(15.68)	**0.58**	(0.03)	**35.58**	(3.57)	**-16.89**	(2.44)	**0.58**	(0.02)	0.04	0.10
	France	276	(16.76)	**0.48**	(0.03)	**41.63**	(5.83)	**-22.05**	(3.84)	**0.59**	(0.04)	0.09	0.22
	Hungary	196	(9.63)	**0.57**	(0.02)	**41.67**	(2.53)	**-15.08**	(1.43)	**0.68**	(0.02)	0.04	0.12
	Iceland	266	(14.55)	**0.51**	(0.03)	**29.40**	(2.67)	**-15.29**	(2.18)	**0.53**	(0.03)	0.06	0.13
	Ireland	273	(15.71)	**0.50**	(0.03)	**35.24**	(2.57)	**-19.11**	(2.18)	**0.57**	(0.02)	0.05	0.12
	Japan	335	(12.34)	**0.39**	(0.02)	**23.48**	(1.74)	**-9.33**	(0.87)	**0.43**	(0.04)	0.05	0.09
	Korea	283	(13.35)	**0.53**	(0.02)	**9.01**	(1.44)	**-5.15**	(0.87)	**0.44**	(0.03)	0.02	0.04
	New Zealand	209	(12.89)	**0.65**	(0.02)	**28.42**	(2.44)	**-12.02**	(3.23)	**0.60**	(0.02)	0.03	0.07
	Norway	278	(10.65)	**0.46**	(0.02)	**40.71**	(1.87)	**-16.03**	(2.66)	**0.58**	(0.02)	0.06	0.14
	Poland	213	(12.57)	**0.52**	(0.02)	**39.46**	(1.79)	**-14.02**	(2.31)	**0.63**	(0.02)	0.04	0.11
	Spain	229	(14.96)	**0.55**	(0.03)	**37.33**	(3.36)	**-19.03**	(2.58)	**0.59**	(0.02)	0.06	0.15
	Sweden	251	(9.65)	**0.55**	(0.02)	**30.26**	(2.17)	**-12.17**	(1.57)	**0.58**	(0.02)	0.04	0.10
	OECD average-16	242	(3.20)	**0.54**	(0.01)	**32.45**	(0.69)	**-14.75**	(0.54)	**0.58**	(0.01)	0.05	0.11
Partners	Colombia	188	(10.87)	**0.46**	(0.03)	**29.98**	(2.12)	**-7.00**	(0.99)	**0.48**	(0.03)	0.03	0.06
	Hong Kong-China	275	(12.96)	**0.47**	(0.02)	**23.26**	(1.54)	**-8.63**	(1.00)	**0.48**	(0.02)	0.05	0.10
	Macao-China	261	(9.39)	**0.49**	(0.02)	**13.55**	(1.37)	**-4.78**	(0.89)	**0.41**	(0.02)	0.03	0.05

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table A1b.7 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of visits to relevant pages (standardised per test) including a quadratic trend for the number of relevant page visits

		Intercept		Print reading (WLE)		Number of visits to relevant pages		Number of visits to relevant pages (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R^2	S.E.	ΔR^2	Effect size f^2
OECD	Australia	286	(7.56)	**0.51**	(0.01)	**37.79**	(1.73)	**-15.22**	(1.31)	**0.64**	(0.01)	0.03	0.08
	Austria	262	(11.81)	**0.44**	(0.02)	**48.57**	(2.30)	**-12.00**	(1.43)	**0.69**	(0.01)	0.02	0.07
	Belgium	255	(8.11)	**0.52**	(0.02)	**33.70**	(1.75)	**-14.64**	(1.11)	**0.67**	(0.01)	0.03	0.09
	Chile	207	(13.12)	**0.51**	(0.03)	**39.82**	(2.23)	**-5.86**	(1.34)	**0.60**	(0.02)	0.02	0.05
	Denmark	265	(16.14)	**0.48**	(0.03)	**42.07**	(2.66)	**-18.41**	(2.02)	**0.65**	(0.02)	0.04	0.11
	France	306	(12.88)	**0.42**	(0.02)	**43.88**	(2.90)	**-19.70**	(2.87)	**0.68**	(0.03)	0.10	0.31
	Hungary	233	(10.70)	**0.48**	(0.02)	**49.76**	(2.22)	**-8.37**	(1.31)	**0.72**	(0.02)	0.01	0.04
	Iceland	314	(14.56)	**0.42**	(0.03)	**39.39**	(2.69)	**-16.46**	(1.67)	**0.60**	(0.02)	0.06	0.15
	Ireland	316	(13.93)	**0.41**	(0.03)	**42.09**	(2.15)	**-14.91**	(1.63)	**0.63**	(0.02)	0.03	0.08
	Japan	362	(11.03)	**0.34**	(0.02)	**29.71**	(1.58)	**-12.28**	(1.52)	**0.49**	(0.03)	0.05	0.10
	Korea	313	(12.64)	**0.48**	(0.02)	**16.67**	(1.73)	**-8.49**	(1.08)	**0.47**	(0.03)	0.03	0.06
	New Zealand	257	(11.53)	**0.56**	(0.02)	**37.34**	(2.47)	**-12.85**	(2.49)	**0.65**	(0.02)	0.02	0.06
	Norway	315	(9.23)	**0.39**	(0.02)	**47.35**	(2.19)	**-13.37**	(1.96)	**0.64**	(0.01)	0.04	0.11
	Poland	253	(9.65)	**0.44**	(0.02)	**45.64**	(1.52)	**-10.79**	(0.91)	**0.68**	(0.01)	0.02	0.06
	Spain	272	(14.87)	**0.45**	(0.03)	**46.55**	(3.27)	**-13.14**	(2.24)	**0.64**	(0.02)	0.04	0.11
	Sweden	291	(9.75)	**0.47**	(0.02)	**36.93**	(2.10)	**-12.90**	(1.17)	**0.63**	(0.02)	0.03	0.08
	OECD average-16	282	(2.99)	**0.46**	(0.01)	**39.83**	(0.57)	**-13.09**	(0.43)	**0.63**	(0.00)	0.04	0.10
Partners	Colombia	204	(11.18)	**0.42**	(0.03)	**34.91**	(1.96)	**-5.72**	(1.19)	**0.51**	(0.03)	0.02	0.04
	Hong Kong-China	314	(11.83)	**0.39**	(0.02)	**34.77**	(1.89)	**-9.41**	(1.44)	**0.56**	(0.02)	0.04	0.09
	Macao-China	293	(8.26)	**0.43**	(0.02)	**26.96**	(1.30)	**-9.35**	(1.44)	**0.49**	(0.02)	0.04	0.08

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table A1b.8 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of relevant pages visited (standardised per test) including a quadratic trend for the number of relevant pages visited

		Intercept		Print reading (WLE)		Number of relevant pages visited		Number of relevant pages visited (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R^2	S.E.	ΔR^2	Effect size f^2
OECD	Australia	358	(7.38)	**0.35**	(0.01)	**69.74**	(2.07)	**0.54**	(1.63)	**0.72**	(0.01)	0.00	0.00
	Austria	322	(11.05)	**0.29**	(0.02)	**66.79**	(1.98)	**0.54**	(1.43)	**0.77**	(0.01)	0.00	0.00
	Belgium	334	(7.44)	**0.35**	(0.01)	**63.05**	(1.74)	**0.34**	(1.25)	**0.75**	(0.01)	0.00	0.00
	Chile	290	(10.65)	**0.31**	(0.02)	**60.57**	(1.98)	**0.02**	(1.19)	**0.72**	(0.01)	0.00	0.00
	Denmark	329	(16.46)	**0.33**	(0.03)	**62.62**	(3.22)	**-3.89**	(2.17)	**0.73**	(0.02)	0.00	0.01
	France	365	(9.61)	**0.27**	(0.02)	**64.85**	(2.53)	**-4.17**	(2.03)	**0.77**	(0.03)	0.00	0.02
	Hungary	298	(10.15)	**0.32**	(0.02)	**66.59**	(1.97)	**2.59**	(1.35)	**0.79**	(0.01)	0.00	0.00
	Iceland	378	(11.85)	**0.27**	(0.02)	**66.79**	(3.66)	**-4.20**	(2.31)	**0.69**	(0.02)	0.00	0.01
	Ireland	377	(10.58)	**0.26**	(0.02)	**69.45**	(2.40)	**0.57**	(1.39)	**0.73**	(0.01)	0.00	0.00
	Japan	409	(8.66)	**0.23**	(0.02)	**59.92**	(2.67)	**-2.70**	(2.85)	**0.61**	(0.03)	0.00	0.00
	Korea	381	(11.14)	**0.34**	(0.02)	**54.37**	(3.15)	**-1.90**	(1.86)	**0.57**	(0.03)	0.00	0.00
	New Zealand	339	(9.68)	**0.39**	(0.02)	**68.23**	(2.91)	**0.26**	(1.75)	**0.73**	(0.01)	0.00	0.00
	Norway	366	(8.48)	**0.27**	(0.02)	**65.48**	(1.71)	**-1.91**	(1.43)	**0.72**	(0.01)	0.00	0.00
	Poland	329	(9.04)	**0.26**	(0.02)	**65.49**	(1.54)	**0.25**	(1.00)	**0.77**	(0.01)	0.00	0.00
	Spain	353	(13.38)	**0.26**	(0.03)	**70.33**	(2.45)	**-0.20**	(2.26)	**0.74**	(0.01)	0.00	0.00
	Sweden	354	(10.42)	**0.32**	(0.02)	**63.88**	(2.84)	**0.66**	(1.40)	**0.71**	(0.01)	0.00	0.00
	OECD average-16	349	(2.65)	**0.30**	(0.01)	**64.88**	(0.62)	**-0.82**	(0.44)	**0.72**	(0.00)	0.00	0.00
Partners	Colombia	253	(11.01)	**0.27**	(0.03)	**51.86**	(2.27)	**5.97**	(1.30)	**0.64**	(0.02)	0.01	0.02
	Hong Kong-China	355	(10.00)	**0.30**	(0.02)	**60.52**	(2.03)	**-2.35**	(1.31)	**0.67**	(0.02)	0.00	0.00
	Macao-China	334	(5.99)	**0.32**	(0.01)	**51.45**	(1.48)	**-2.08**	(1.11)	**0.62**	(0.01)	0.00	0.00

Notes: Page visit counts are standardised per test and centred on the country mean for each country. Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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ANNEX A2
THE PISA TARGET POPULATION, THE PISA SAMPLES AND THE DEFINITION OF SCHOOLS

The definition of the PISA target population

PISA 2009 provides an assessment of the cumulative yield of education and learning at a point at which most young adults are still enrolled in initial education.

A major challenge for an international survey is to ensure that international comparability of national target populations is guaranteed in such a venture.

Differences between countries in the nature and extent of pre-primary education and care, the age of entry into formal schooling and the institutional structure of educational systems do not allow the definition of internationally comparable grade levels of schooling. Consequently, international comparisons of educational performance typically define their populations with reference to a target age group. Some previous international assessments have defined their target population on the basis of the grade level that provides maximum coverage of a particular age cohort. A disadvantage of this approach is that slight variations in the age distribution of students across grade levels often lead to the selection of different target grades in different countries, or between education systems within countries, raising serious questions about the comparability of results across, and at times within, countries. In addition, because not all students of the desired age are usually represented in grade-based samples, there may be a more serious potential bias in the results if the unrepresented students are typically enrolled in the next higher grade in some countries and the next lower grade in others. This would exclude students with potentially higher levels of performance in the former countries and students with potentially lower levels of performance in the latter.

In order to address this problem, PISA uses an age-based definition for its target population, *i.e.* a definition that is not tied to the institutional structures of national education systems. PISA assesses students who were aged between 15 years and 3 (complete) months and 16 years and 2 (complete) months at the beginning of the assessment period, plus or minus a one-month allowable variation, and who were enrolled in an educational institution at grade seven or higher, regardless of the grade levels or type of institution in which they were enrolled, and regardless of whether they were in full-time or part-time education. Educational institutions are generally referred to as schools in this publication, although some educational institutions (in particular, some types of vocational education establishments) may not be termed schools in certain countries. As expected from this definition, the average age of students across OECD countries was 15 years and 9 months. The range in country means was 2 months and 5 days (0.18 year) from the minimum country mean of 15 years and 8 months to the maximum country mean of 15 years and 10 months.

Given this definition of population, PISA makes statements about the knowledge and skills of a group of individuals who were born within a comparable reference period, but who may have undergone different educational experiences both in and outside of schools. In PISA, these knowledge and skills are referred to as the yield of education at an age that is common across countries. Depending on countries' policies on school entry, selection and promotion, these students may be distributed over a narrower or a wider range of grades across different education systems, tracks or streams. It is important to consider these differences when comparing PISA results across countries, as observed differences between students at age 15 may no longer appear as students' educational experiences converge later on.

If a country's scale scores in print reading, scientific, mathematical, digital reading literacy are significantly higher than those in another country, it cannot automatically be inferred that the schools or particular parts of the education system in the first country are more effective than those in the second. However, one can legitimately conclude that the cumulative impact of learning experiences in the first country, starting in early childhood and up to the age of 15 and embracing experiences both in school, home and beyond, have resulted in higher outcomes in the literacy domains that PISA measures.

The PISA target population did not include residents attending schools in a foreign country. It does, however, include foreign nationals attending schools in the country of assessment.

To accommodate countries that desired grade-based results for the purpose of national analyses, PISA 2009 provided a sampling option to supplement age-based sampling with grade-based sampling.

Population coverage for the paper-based assessment

All countries attempted to maximise the coverage of 15-year-olds enrolled in education in their national samples, including students enrolled in special educational institutions. As a result, PISA 2009 reached standards of population coverage that are unprecedented in international surveys of this kind.

The sampling standards used in PISA permitted countries to exclude up to a total of 5% of the relevant population either by excluding schools or by excluding students within schools. All but five countries, Denmark (8.17%), Luxembourg (8.15%), Canada (6.00%), Norway (5.93%) and the United States (5.16%) achieved this standard, and in 36 countries and economies the overall exclusion rate was less than 2%. When language exclusions were accounted for (*i.e.* removed from the overall exclusion rate), the United States no longer had an exclusion rate greater than 5%. For details, see *www.pisa.oecd.org*.

Exclusions within the above limits include:

- *At the school level: i)* schools that were geographically inaccessible or where the administration of the PISA assessment was not considered feasible; and *ii)* schools that provided teaching only for students in the categories defined under "within-school exclusions", such as schools for the blind. The percentage of 15-year-olds enrolled in such schools had to be less than 2.5% of the nationally desired target population (0.5% maximum for *i)* and 2% maximum for *ii)*). The magnitude, nature and justification of school-level exclusions are documented in the *PISA 2009 Technical Report* (OECD, forthcoming).
- *At the student level: i)* students with an intellectual disability; *ii)* students with a functional disability; *iii)* students with limited assessment language proficiency; *iv)* other – a category defined by the national centres and approved by the international centre; and *v)* students taught in a language of instruction for the main domain for which no materials were available. Students could not be excluded solely because of low proficiency or normal discipline problems. The percentage of 15-year-olds excluded within schools had to be less than 2.5% of the nationally desired target population.

Table A2.1 describes the target population of the countries participating in PISA 2009. Further information on the target population and the implementation of PISA sampling standards can be found in the *PISA 2009 Technical Report* (OECD, forthcoming).

- ***Column 1*** shows the **total number of 15-year-olds** according to the most recent available information, which in most countries was the year 2008, the year before the assessment.
- ***Column 2*** shows the number of 15-year-olds enrolled in schools in grades seven or above (as defined above), which is referred to as the **eligible population**.
- ***Column 3*** shows the **national desired target population**. Countries were allowed to exclude up to 0.5% of students *a priori* from the eligible population, essentially for practical reasons. The following *a priori* exclusions exceed this limit but were agreed with the PISA Consortium: Canada excluded 1.1% of its population from Territories and Aboriginal reserves; ***France*** excluded 1.7% of its students in its *territoires d'outre-mer* and other institutions; ***Indonesia*** excluded 4.7% of its students from four provinces because of security reasons; Kyrgyzstan excluded 2.3% of its population in remote, inaccessible schools; and Serbia excluded 2% of its students taught in Serbian in Kosovo.
- ***Column 4*** shows the **number of students enrolled in schools that were excluded from the national desired target population** either from the sampling frame or later in the field during data collection.
- ***Column 5*** shows the **size of the national desired target population after subtracting the students enrolled in excluded schools**. This is obtained by subtracting column 4 from column 3.
- ***Column 6*** shows the **percentage of students enrolled in excluded schools**. This is obtained by dividing column 4 by column 3 and multiplying by 100.
- ***Column 7*** shows the **number of students participating in PISA 2009**. Note that in some cases this number does not account for 15-year-olds assessed as part of additional national options.
- ***Column 8*** shows the **weighted number of participating students**, *i.e.* the number of students in the nationally defined target population that the PISA sample represents.
- Each country attempted to maximise the coverage of PISA's target population within the sampled schools. In the case of each sampled school, all eligible students, namely those 15 years of age, regardless of grade, were first listed. Sampled students who were to be excluded had still to be included in the sampling documentation, and a list drawn up stating the reason for their exclusion. ***Column 9*** indicates the **total number of *excluded students,*** which is further described and classified into specific categories in Table A2.2. ***Column 10*** indicates the **weighted number of excluded students,** *i.e.* the overall number of students in the nationally defined target population represented by the number of students excluded from the sample, which is also described and classified by exclusion categories in Table A2.2. Students were excluded based on five categories: *i)* students with an intellectual disability – the student has a mental or emotional disability and is cognitively delayed such that he/she cannot perform in the PISA testing situation; *ii)* students with a functional disability – the student has a moderate to severe permanent physical disability such that he/she cannot perform in the PISA testing situation; *iii)* students with a limited assessment language proficiency – the student is unable to read or speak any of the languages of the assessment in the country and would be unable to overcome the language barrier in the testing situation (typically a student who has received less than one year of instruction in the languages of the assessment may be excluded); *iv) other* – a category defined by the national centres and approved by the international centre; and *v)* students taught in a language of instruction for the main domain for which no materials were available.
- ***Column 11*** shows the **percentage of students excluded within schools.** This is calculated as the weighted number of excluded students (column 10), divided by the weighted number of excluded and participating students (column 8 plus column 10) then multiplied by 100.

[Part 1/2]

Table A2.1 **PISA target populations and samples (paper-based assessment)**

		Population and sample information							
		Total population of 15-year-olds	Total population of 15-year-olds enrolled at Grade 7 or above	Total in national desired target population	Total school-level exclusions	Total in national desired target population after all school exclusions and before within-school exclusions	School-level exclusion rate (%)	Number of participating students	Weighted number of participating students
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Australia	286 334	269 669	269 669	7 057	262 612	2.62	14 251	240 851
	Austria	99 818	94 192	94 192	115	94 077	0.12	6 590	87 326
	Belgium	126 377	126 335	126 335	2 474	123 861	1.96	8 501	119 140
	Canada	430 791	426 590	422 052	2 370	419 682	0.56	23 207	360 286
	Chile	290 056	265 542	265 463	2 594	262 869	0.98	5 669	247 270
	Czech Republic	122 027	116 153	116 153	1 619	114 534	1.39	6 064	113 951
	Denmark	70 522	68 897	68 897	3 082	65 815	4.47	5 924	60 855
	Estonia	14 248	14 106	14 106	436	13 670	3.09	4 727	12 978
	Finland	66 198	66 198	66 198	1 507	64 691	2.28	5 810	61 463
	France	749 808	732 825	720 187	18 841	701 346	2.62	4 298	677 620
	Germany	852 044	852 044	852 044	7 138	844 906	0.84	4 979	766 993
	Greece	102 229	105 664	105 664	696	104 968	0.66	4 969	93 088
	Hungary	121 155	118 387	118 387	3 322	115 065	2.81	4 605	105 611
	Iceland	4 738	4 738	4 738	20	4 718	0.42	3 646	4 410
	Ireland	56 635	55 464	55 446	276	55 170	0.50	3 937	52 794
	Israel	122 701	112 254	112 254	1 570	110 684	1.40	5 761	103 184
	Italy	586 904	573 542	573 542	2 694	570 848	0.47	30 905	506 733
	Japan	1 211 642	1 189 263	1 189 263	22 955	1 166 308	1.93	6 088	1 113 403
	Korea	717 164	700 226	700 226	2 927	697 299	0.42	4 989	630 030
	Luxembourg	5 864	5 623	5 623	186	5 437	3.31	4 622	5 124
	Mexico	2 151 771	1 425 397	1 425 397	5 825	1 419 572	0.41	38 250	1 305 461
	Netherlands	199 000	198 334	198 334	6 179	192 155	3.12	4 760	183 546
	New Zealand	63 460	60 083	60 083	645	59 438	1.07	4 643	55 129
	Norway	63 352	62 948	62 948	1 400	61 548	2.22	4 660	57 367
	Poland	482 500	473 700	473 700	7 650	466 050	1.61	4 917	448 866
	Portugal	115 669	107 583	107 583	0	107 583	0.00	6 298	96 820
	Slovak Republic	72 826	72 454	72 454	1 803	70 651	2.49	4 555	69 274
	Slovenia	20 314	19 571	19 571	174	19 397	0.89	6 155	18 773
	Spain	433 224	425 336	425 336	3 133	422 203	0.74	25 887	387 054
	Sweden	121 486	121 216	121 216	2 323	118 893	1.92	4 567	113 054
	Switzerland	90 623	89 423	89 423	1 747	87 676	1.95	11 812	80 839
	Turkey	1 336 842	859 172	859 172	8 569	850 603	1.00	4 996	757 298
	United Kingdom	786 626	786 825	786 825	17 593	769 232	2.24	12 179	683 380
	United States	4 103 738	4 210 475	4 210 475	15 199	4 195 276	0.36	5 233	3 373 264
Partners	Albania	55 587	42 767	42 767	372	42 395	0.87	4 596	34 134
	Argentina	688 434	636 713	636 713	2 238	634 475	0.35	4 774	472 106
	Azerbaijan	185 481	184 980	184 980	1 886	183 094	1.02	4 727	105 886
	Brazil	3 292 022	2 654 489	2 654 489	15 571	2 638 918	0.59	20 127	2 080 159
	Bulgaria	80 226	70 688	70 688	1 369	69 319	1.94	4 507	57 833
	Colombia	893 057	582 640	582 640	412	582 228	0.07	7 921	522 388
	Croatia	48 491	46 256	46 256	535	45 721	1.16	4 994	43 065
	Dubai (UAE)	10 564	10 327	10 327	167	10 160	1.62	5 620	9 179
	Hong Kong-China	85 000	78 224	78 224	809	77 415	1.03	4 837	75 548
	Indonesia	4 267 801	3 158 173	3 010 214	10 458	2 999 756	0.35	5 136	2 259 118
	Jordan	117 732	107 254	107 254	0	107 254	0.00	6 486	104 056
	Kazakhstan	281 659	263 206	263 206	7 210	255 996	2.74	5 412	250 657
	Kyrgyzstan	116 795	93 989	91 793	1 149	90 644	1.25	4 986	78 493
	Latvia	28 749	28 149	28 149	943	27 206	3.35	4 502	23 362
	Liechtenstein	399	360	360	5	355	1.39	329	355
	Lithuania	51 822	43 967	43 967	522	43 445	1.19	4 528	40 530
	Macao-China	7 500	5 969	5 969	3	5 966	0.05	5 952	5 978
	Montenegro	8 500	8 493	8 493	10	8 483	0.12	4 825	7 728
	Panama	57 919	43 623	43 623	501	43 122	1.15	3 969	30 510
	Peru	585 567	491 514	490 840	984	489 856	0.20	5 985	427 607
	Qatar	10 974	10 665	10 665	114	10 551	1.07	9 078	9 806
	Romania	152 084	152 084	152 084	679	151 405	0.45	4 776	151 130
	Russian Federation	1 673 085	1 667 460	1 667 460	25 012	1 642 448	1.50	5 308	1 290 047
	Serbia	85 121	75 128	73 628	1 580	72 048	2.15	5 523	70 796
	Shanghai-China	112 000	100 592	100 592	1 287	99 305	1.28	5 115	97 045
	Singapore	54 982	54 212	54 212	633	53 579	1.17	5 283	51 874
	Chinese Taipei	329 249	329 189	329 189	1 778	327 411	0.54	5 831	297 203
	Thailand	949 891	763 679	763 679	8 438	755 241	1.10	6 225	691 916
	Trinidad and Tobago	19 260	17 768	17 768	0	17 768	0.00	4 778	14 938
	Tunisia	153 914	153 914	153 914	0	153 914	0.00	4 955	136 545
	Uruguay	53 801	43 281	43 281	30	43 251	0.07	5 957	33 971

Note: For a full explanation of the details in this table, please refer to the *PISA 2009 Technical Report* (OECD, forthcoming). The figure for the total national population of 15-year-olds enrolled in Column 1 may occasionally be larger than the total number of 15-year-olds in Column 2 due to differing data sources. In Greece, Column 1 does not include immigrants but Column 2 does.

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[Part 2/2]
Table A2.1 **PISA target populations and samples (paper-based assessment)**

		Population and sample information				Coverage indices		
		Number of excluded students	Weighted number of excluded students	Within-school exclusion rate (%)	Overall exclusion rate (%)	Coverage index 1: Coverage of national desired population	Coverage index 2: Coverage of national enrolled population	Coverage index 3: Coverage of 15-year-old population
		(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	313	4 389	1.79	4.36	0.956	0.956	0.841
	Austria	45	607	0.69	0.81	0.992	0.992	0.875
	Belgium	30	292	0.24	2.20	0.978	0.978	0.943
	Canada	1 607	20 837	5.47	6.00	0.940	0.930	0.836
	Chile	15	620	0.25	1.22	0.988	0.987	0.852
	Czech Republic	24	423	0.37	1.76	0.982	0.982	0.934
	Denmark	296	2 448	3.87	8.17	0.918	0.918	0.863
	Estonia	32	97	0.74	3.81	0.962	0.962	0.911
	Finland	77	717	1.15	3.40	0.966	0.966	0.928
	France	1	304	0.04	2.66	0.973	0.957	0.904
	Germany	28	3 591	0.47	1.30	0.987	0.987	0.900
	Greece	142	2 977	3.10	3.74	0.963	0.963	0.911
	Hungary	10	361	0.34	3.14	0.969	0.969	0.872
	Iceland	187	189	4.10	4.50	0.955	0.955	0.931
	Ireland	136	1 492	2.75	3.23	0.968	0.967	0.932
	Israel	86	1 359	1.30	2.68	0.973	0.973	0.841
	Italy	561	10 663	2.06	2.52	0.975	0.975	0.863
	Japan	0	0	0.00	1.93	0.981	0.981	0.919
	Korea	16	1 748	0.28	0.69	0.993	0.993	0.879
	Luxembourg	196	270	5.01	8.15	0.919	0.919	0.874
	Mexico	52	1 951	0.15	0.56	0.994	0.994	0.607
	Netherlands	19	648	0.35	3.46	0.965	0.965	0.922
	New Zealand	184	1 793	3.15	4.19	0.958	0.958	0.869
	Norway	207	2 260	3.79	5.93	0.941	0.941	0.906
	Poland	15	1 230	0.27	1.88	0.981	0.981	0.930
	Portugal	115	1 544	1.57	1.57	0.984	0.984	0.837
	Slovak Republic	106	1 516	2.14	4.58	0.954	0.954	0.951
	Slovenia	43	138	0.73	1.61	0.984	0.984	0.924
	Spain	775	12 673	3.17	3.88	0.961	0.961	0.893
	Sweden	146	3 360	2.89	4.75	0.953	0.953	0.931
	Switzerland	209	940	1.15	3.08	0.969	0.969	0.892
	Turkey	11	1 497	0.20	1.19	0.988	0.988	0.566
	United Kingdom	318	17 094	2.44	4.62	0.954	0.954	0.869
	United States	315	170 542	4.81	5.16	0.948	0.948	0.822
Partners	Albania	0	0	0.00	0.87	0.991	0.991	0.614
	Argentina	14	1 225	0.26	0.61	0.994	0.994	0.686
	Azerbaijan	0	0	0.00	1.02	0.990	0.990	0.571
	Brazil	24	2 692	0.13	0.72	0.993	0.993	0.632
	Bulgaria	0	0	0.00	1.94	0.981	0.981	0.721
	Colombia	11	490	0.09	0.16	0.998	0.998	0.585
	Croatia	34	273	0.63	1.78	0.982	0.982	0.888
	Dubai (UAE)	5	7	0.07	1.69	0.983	0.983	0.869
	Hong Kong-China	9	119	0.16	1.19	0.988	0.988	0.889
	Indonesia	0	0	0.00	0.35	0.997	0.950	0.529
	Jordan	24	443	0.42	0.42	0.996	0.996	0.884
	Kazakhstan	82	3 844	1.51	4.21	0.958	0.958	0.890
	Kyrgyzstan	86	1 384	1.73	2.96	0.970	0.948	0.672
	Latvia	19	102	0.43	3.77	0.962	0.962	0.813
	Liechtenstein	0	0	0.00	1.39	0.986	0.986	0.890
	Lithuania	74	632	1.53	2.70	0.973	0.973	0.782
	Macao-China	0	0	0.00	0.05	0.999	0.999	0.797
	Montenegro	0	0	0.00	0.12	0.999	0.999	0.909
	Panama	0	0	0.00	1.15	0.989	0.989	0.527
	Peru	9	558	0.13	0.33	0.997	0.995	0.730
	Qatar	28	28	0.28	1.35	0.986	0.986	0.894
	Romania	0	0	0.00	0.45	0.996	0.996	0.994
	Russian Federation	59	15 247	1.17	2.65	0.973	0.973	0.771
	Serbia	10	133	0.19	2.33	0.977	0.957	0.832
	Shanghai-China	7	130	0.13	1.41	0.986	0.986	0.866
	Singapore	48	417	0.80	1.96	0.980	0.980	0.943
	Chinese Taipei	32	1 662	0.56	1.09	0.989	0.989	0.903
	Thailand	6	458	0.07	1.17	0.988	0.988	0.728
	Trinidad and Tobago	11	36	0.24	0.24	0.998	0.998	0.776
	Tunisia	7	184	0.13	0.13	0.999	0.999	0.887
	Uruguay	14	67	0.20	0.26	0.997	0.997	0.631

Note: For a full explanation of the details in this table please refer to the *PISA 2009 Technical Report* (OECD, forthcoming). The figure for the total national population of 15-year-olds enrolled in Column 1 may occasionally be larger than the total number of 15-year-olds in Column 2 due to differing data sources. In Greece, Column 1 does not include immigrants but Column 2 does.

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[Part 1/1]
Table A2.2 Exclusions (paper-based assessment)

		Student exclusions (unweighted)						Student exclusion (weighted)					
		Number of excluded students with a disability (Code 1)	Number of excluded students with a disability (Code 2)	Number of excluded students because of language (Code 3)	Number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total number of excluded students	Weighted number of excluded students with a disability (Code 1)	Weighted number of excluded students with a disability (Code 2)	Weighted number of excluded students because of language (Code 3)	Weighted number of excluded students for other reasons (Code 4)	Number of excluded students because of no materials available in the language of instruction (Code 5)	Total weighted number of excluded students
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
OECD	Australia	24	210	79	0	0	313	272	2 834	1 283	0	0	4 389
	Austria	0	26	19	0	0	45	0	317	290	0	0	607
	Belgium	3	17	10	0	0	30	26	171	95	0	0	292
	Canada	49	1 458	100	0	0	1 607	428	19 082	1 326	0	0	20 837
	Chile	5	10	0	0	0	15	177	443	0	0	0	620
	Czech Republic	8	7	9	0	0	24	117	144	162	0	0	423
	Denmark	13	182	35	66	0	296	165	1 432	196	656	0	2 448
	Estonia	3	28	1	0	0	32	8	87	2	0	0	97
	Finland	4	48	12	11	2	77	38	447	110	99	23	717
	France	1	0	0	0	0	1	304	0	0	0	0	304
	Germany	6	20	2	0	0	28	864	2 443	285	0	0	3 591
	Greece	7	11	7	117	0	142	172	352	195	2 257	0	2 977
	Hungary	0	1	0	9	0	10	0	48	0	313	0	361
	Iceland	3	78	64	38	1	187	3	78	65	39	1	189
	Ireland	4	72	25	35	0	136	51	783	262	396	0	1 492
	Israel	10	69	7	0	0	86	194	1 049	116	0	0	1 359
	Italy	45	348	168	0	0	561	748	6 241	3 674	0	0	10 663
	Japan	0	0	0	0	0	0	0	0	0	0	0	0
	Korea	7	9	0	0	0	16	994	753	0	0	0	1 748
	Luxembourg	2	132	62	0	0	196	2	206	62	0	0	270
	Mexico	25	25	2	0	0	52	1 010	905	36	0	0	1 951
	Netherlands	6	13	0	0	0	19	178	470	0	0	0	648
	New Zealand	19	84	78	0	3	184	191	824	749	0	29	1 793
	Norway	8	160	39	0	0	207	90	1 756	414	0	0	2 260
	Poland	2	13	0	0	0	15	169	1 061	0	0	0	1 230
	Portugal	2	100	13	0	0	115	25	1 322	197	0	0	1 544
	Slovak Republic	12	37	1	56	0	106	171	558	19	768	0	1 516
	Slovenia	6	10	27	0	0	43	40	32	66	0	0	138
	Spain	45	441	289	0	0	775	1 007	7 141	4 525	0	0	12 673
	Sweden	115	0	31	0	0	146	2 628	0	732	0	0	3 360
	Switzerland	11	106	92	0	0	209	64	344	532	0	0	940
	Turkey	3	3	5	0	0	11	338	495	665	0	0	1 497
	United Kingdom	40	247	31	0	0	318	2 438	13 482	1 174	0	0	17 094
	United States	29	236	40	10	0	315	15 367	127 486	21 718	5 971	0	170 542
Partners	Albania	0	0	0	0	0	0	0	0	0	0	0	0
	Argentina	4	10	0	0	0	14	288	937	0	0	0	1 225
	Azerbaijan	0	0	0	0	0	0	0	0	0	0	0	0
	Brazil	21	3	0	0	0	24	2 495	197	0	0	0	2 692
	Bulgaria	0	0	0	0	0	0	0	0	0	0	0	0
	Colombia	7	2	2	0	0	11	200	48	242	0	0	490
	Croatia	4	30	0	0	0	34	34	239	0	0	0	273
	Dubai (UAE)	1	1	3	0	0	5	2	2	3	0	0	7
	Hong Kong-China	0	9	0	0	0	9	0	119	0	0	0	119
	Indonesia	0	0	0	0	0	0	0	0	0	0	0	0
	Jordan	11	7	6	0	0	24	166	149	127	0	0	443
	Kazakhstan	10	17	0	0	55	82	429	828	0	0	2 587	3 844
	Kyrgyzstan	68	13	5	0	0	86	1 093	211	80	0	0	1 384
	Latvia	6	8	5	0	0	19	25	44	33	0	0	102
	Liechtenstein	0	0	0	0	0	0	0	0	0	0	0	0
	Lithuania	4	69	1	0	0	74	33	590	9	0	0	632
	Macao-China	0	0	0	0	0	0	0	0	0	0	0	0
	Montenegro	0	0	0	0	0	0	0	0	0	0	0	0
	Panama	0	0	0	0	0	0	0	0	0	0	0	0
	Peru	4	5	0	0	0	9	245	313	0	0	0	558
	Qatar	9	18	1	0	0	28	9	18	1	0	0	28
	Romania	0	0	0	0	0	0	0	0	0	0	0	0
	Russian Federation	11	47	1	0	0	59	2 081	13 010	157	0	0	15 247
	Serbia	4	5	0	0	1	10	66	53	0	0	13	133
	Shanghai-China	1	6	0	0	0	7	19	111	0	0	0	130
	Singapore	2	22	24	0	0	48	17	217	182	0	0	417
	Chinese Taipei	13	19	0	0	0	32	684	977	0	0	0	1 662
	Thailand	0	5	1	0	0	6	0	260	198	0	0	458
	Trinidad and Tobago	1	10	0	0	0	11	3	33	0	0	0	36
	Tunisia	4	1	2	0	0	7	104	21	58	0	0	184
	Uruguay	2	9	3	0	0	14	14	34	18	0	0	67

Exclusion codes:
Code 1 Functional disability – student has a moderate to severe permanent physical disability.
Code 2 Intellectual disability – student has a mental or emotional disability and has either been tested as cognitively delayed or is considered in the professional opinion of qualified staff to be cognitively delayed.
Code 3 Limited assessment language proficiency – student is not a native speaker of any of the languages of the assessment in the country and has been resident in the country for less than one year.
Code 4 Other defined by the national centres and approved by the international centre.
Code 5 No materials available in the language of instruction.
Note: For a full explanation of other details in this table, please refer to the *PISA 2009 Technical Report* (OECD, forthcoming).
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- ***Column 12*** shows the **overall exclusion rate,** which represents the weighted percentage of the national desired target population excluded from PISA either through school-level exclusions or through the exclusion of students within schools. It is calculated as the school-level exclusion rate (column 6 divided by 100) plus within-school exclusion rate (column 11 divided by 100) multiplied by 1 minus the school-level exclusion rate (column 6 divided by 100). This result is then multiplied by 100. Five countries, Denmark, Luxembourg, Canada, Norway and the United States, had exclusion rates higher than 5%. When language exclusions were accounted for (*i.e.* removed from the overall exclusion rate), the United States no longer had an exclusion rate greater than 5%.
- ***Column 13*** presents an **index of the extent to which the national desired target population is covered by the PISA sample**. Denmark, Luxembourg, Canada, Norway and the United States were the only countries where the coverage is below 95%.
- ***Column 14*** presents an **index of the extent to which 15-year-olds enrolled in schools are covered by the PISA sample**. The index measures the overall proportion of the national enrolled population that is covered by the non-excluded portion of the student sample. The index takes into account both school-level and student-level exclusions. Values close to 100 indicate that the PISA sample represents the entire education system as defined for PISA 2009. The index is the weighted number of participating students (column 8) divided by the weighted number of participating and excluded students (column 8 plus column 10), times the nationally defined target population (column 5) divided by the eligible population (column 2) (times 100).
- ***Column 15*** presents an **index of the coverage of the 15-year-old population**. This index is the weighted number of participating students (column 8) divided by the total population of 15-year-old students (column 1).

This high level of coverage contributes to the comparability of the assessment results. For example, even assuming that the excluded students would have systematically scored worse than those who participated, and that this relationship is moderately strong, an exclusion rate in the order of 5% would likely lead to an overestimation of national mean scores of less than five score points (on a scale with an international mean of 500 score points and a standard deviation of 100 score points). This assessment is based on the following calculations: If the correlation between the propensity of exclusions and student performance is 0.3, resulting mean scores would likely be overestimated by one score point if the exclusion rate is 1%, by three score points if the exclusion rate is 5%, and by six score points if the exclusion rate is 10%. If the correlation between the propensity of exclusions and student performance is 0.5, resulting mean scores would be overestimated by one score point if the exclusion rate is 1%, by five score points if the exclusion rate is 5%, and by ten score points if the exclusion rate is 10%. For this calculation, a model was employed that assumes a bivariate normal distribution for performance and the propensity to participate. For details, see the *PISA 2009 Technical Report* (OECD, forthcoming).

Sampling procedures and response rates

The accuracy of any survey result depends on the quality of the information on which national samples are based as well as on the sampling procedures. Quality standards, procedures, instruments and verification mechanisms were developed for PISA that ensured that national samples yielded comparable data and that the results could be compared with confidence.

Most PISA samples were designed as two-stage stratified samples (where countries applied different sampling designs, these are documented in the *PISA 2009 Technical Report* [OECD, forthcoming]). The first stage consisted of sampling individual schools in which 15-year-old students could be enrolled. Schools were sampled systematically with probabilities proportional to size, the measure of size being a function of the estimated number of eligible (15-year-old) students enrolled. A minimum of 150 schools were selected in each country (where this number existed), although the requirements for national analyses often required a somewhat larger sample. As the schools were sampled, replacement schools were simultaneously identified, in case a sampled school chose not to participate in PISA 2009.

In the case of Iceland, Liechtenstein, Luxembourg, Macao-China, and Qatar, all schools and all eligible students within schools were included in the sample.

Experts from the PISA Consortium performed the sample selection process for most participating countries and monitored it closely in those countries that selected their own samples. The second stage of the selection process sampled students within sampled schools. Once schools were selected, a list of each sampled school's 15-year-old students was prepared. From this list, 35 students were then selected with equal probability (all 15-year-old students were selected if fewer than 35 were enrolled). The number of students to be sampled per school could deviate from 35 but could not be less than 20.

Data-quality standards in PISA required minimum participation rates for schools as well as for students. These standards were established to minimise the potential for response biases. In the case of countries meeting these standards, it was likely that any bias resulting from non-response would be negligible, *i.e.* typically smaller than the sampling error.

A minimum response rate of 85% was required for the schools initially selected. Where the initial response rate of schools was between 65% and 85%, however, an acceptable school response rate could still be achieved through the use of replacement schools. This procedure brought with it a risk of increased response bias. Participating countries were, therefore, encouraged to persuade as many of the schools in the original sample as possible to participate. Schools with a student participation rate between 25% and 50% were not regarded as participating schools, but data from these schools were included in the database and contributed to the various estimations. Data from schools with a student participation rate of less than 25% were excluded from the database.

[Part 1/2]

Table A2.3 **Response rates (paper-based assessment)**

		Initial sample – before school replacement					Final sample – after school replacement		
		Weighted school participation rate before replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)	Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted school participation rate after replacement (%)	Weighted number of responding schools (weighted also by enrolment)	Weighted number of schools sampled (responding and non-responding) (weighted also by enrolment)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD	Australia	97.78	265 659	271 696	342	357	98.85	268 780	271 918
	Austria	93.94	88 551	94 261	280	291	93.94	88 551	94 261
	Belgium	88.76	112 594	126 851	255	292	95.58	121 291	126 899
	Canada	88.04	362 152	411 343	893	1 001	89.64	368 708	411 343
	Chile	94.34	245 583	260 331	189	201	99.04	257 594	260 099
	Czech Republic	83.09	94 696	113 961	226	270	97.40	111 091	114 062
	Denmark	83.94	55 375	65 967	264	325	90.75	59 860	65 964
	Estonia	100.00	13 230	13 230	175	175	100.00	13 230	13 230
	Finland	98.65	62 892	63 751	201	204	100.00	63 748	63 751
	France	94.14	658 769	699 776	166	177	94.14	658 769	699 776
	Germany	98.61	826 579	838 259	223	226	100.00	838 259	838 259
	Greece	98.19	98 710	100 529	181	184	99.40	99 925	100 529
	Hungary	98.21	101 523	103 378	184	190	99.47	103 067	103 618
	Iceland	98.46	4 488	4 558	129	141	98.46	4 488	4 558
	Ireland	87.18	48 821	55 997	139	160	88.44	49 526	55 997
	Israel	92.03	103 141	112 069	170	186	95.40	106 918	112 069
	Italy	94.27	532 432	564 811	1 054	1 108	99.08	559 546	564 768
	Japan	87.77	999 408	1 138 694	171	196	94.99	1 081 662	1 138 694
	Korea	100.00	683 793	683 793	157	157	100.00	683 793	683 793
	Luxembourg	100.00	5 437	5 437	39	39	100.00	5 437	5 437
	Mexico	95.62	1 338 291	1 399 638	1 512	1 560	97.71	1 367 668	1 399 730
	Netherlands	80.40	154 471	192 140	155	194	95.54	183 555	192 118
	New Zealand	84.11	49 917	59 344	148	179	91.00	54 130	59 485
	Norway	89.61	55 484	61 920	183	207	96.53	59 759	61 909
	Poland	88.16	409 513	464 535	159	187	97.70	453 855	464 535
	Portugal	93.61	102 225	109 205	201	216	98.43	107 535	109 251
	Slovak Republic	93.33	67 284	72 092	180	191	99.01	71 388	72 105
	Slovenia	98.36	19 798	20 127	337	352	98.36	19 798	20 127
	Spain	99.53	422 692	424 705	888	892	99.53	422 692	424 705
	Sweden	99.91	120 693	120 802	189	191	99.91	120 693	120 802
	Switzerland	94.25	81 005	85 952	413	429	98.71	84 896	86 006
	Turkey	100.00	849 830	849 830	170	170	100.00	849 830	849 830
	United Kingdom	71.06	523 271	736 341	418	549	87.35	643 027	736 178
	United States	67.83	2 673 852	3 941 908	140	208	77.50	3 065 651	3 955 606
Partners	Albania	97.29	39 168	40 259	177	182	99.37	39 999	40 253
	Argentina	97.18	590 215	607 344	194	199	99.42	603 817	607 344
	Azerbaijan	99.86	168 646	168 890	161	162	100.00	168 890	168 890
	Brazil	93.13	2 435 250	2 614 824	899	976	94.75	2 477 518	2 614 806
	Bulgaria	98.16	56 922	57 991	173	178	99.10	57 823	58 346
	Colombia	90.21	507 649	562 728	260	285	94.90	533 899	562 587
	Croatia	99.19	44 561	44 926	157	159	99.86	44 862	44 926
	Dubai (UAE)	100.00	10 144	10 144	190	190	100.00	10 144	10 144
	Hong Kong-China	69.19	53 800	77 758	108	156	96.75	75 232	77 758
	Indonesia	94.54	2 337 438	2 472 502	172	183	100.00	2 473 528	2 473 528
	Jordan	100.00	105 906	105 906	210	210	100.00	105 906	105 906
	Kazakhstan	100.00	257 427	257 427	199	199	100.00	257 427	257 427
	Kyrgyzstan	98.53	88 412	89 733	171	174	99.47	89 260	89 733
	Latvia	97.46	26 986	27 689	180	185	99.39	27 544	27 713
	Liechtenstein	100.00	356	356	12	12	100.00	356	356
	Lithuania	98.13	41 759	42 555	192	197	99.91	42 526	42 564
	Macao-China	100.00	5 966	5 966	45	45	100.00	5 966	5 966
	Montenegro	100.00	8 527	8 527	52	52	100.00	8 527	8 527
	Panama	82.58	33 384	40 426	180	220	83.76	33 779	40 329
	Peru	100.00	480 640	480 640	240	240	100.00	480 640	480 640
	Qatar	97.30	10 223	10 507	149	154	97.30	10 223	10 507
	Romania	100.00	150 114	150 114	159	159	100.00	150 114	150 114
	Russian Federation	100.00	1 392 765	1 392 765	213	213	100.00	1 392 765	1 392 765
	Serbia	99.21	70 960	71 524	189	191	99.97	71 504	71 524
	Shanghai-China	99.32	98 841	99 514	151	152	100.00	99 514	99 514
	Singapore	96.19	51 552	53 592	168	175	97.88	52 454	53 592
	Chinese Taipei	99.34	322 005	324 141	157	158	100.00	324 141	324 141
	Thailand	98.01	737 225	752 193	225	230	100.00	752 392	752 392
	Trinidad and Tobago	97.21	17 180	17 673	155	160	97.21	17 180	17 673
	Tunisia	100.00	153 198	153 198	165	165	100.00	153 198	153 198
	Uruguay	98.66	42 820	43 400	229	233	98.66	42 820	43 400

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[Part 2/2]
Table A2.3 **Response rates (paper-based assessment)**

		Final sample – after school replacement		Final sample – students within schools after school replacement				
		Number of responding schools (unweighted)	Number of responding and non-responding schools (unweighted)	Weighted student participation rate after replacement (%)	Number of students assessed (weighted)	Number of students sampled (assessed and absent) (weighted)	Number of students assessed (unweighted)	Number of students sampled (assessed and absent) (unweighted)
		(9)	(10)	(11)	(12)	(13)	(14)	(15)
OECD	Australia	345	357	86.05	205 234	238 498	14 060	16 903
	Austria	280	291	88.63	72 793	82 135	6 568	7 587
	Belgium	275	292	91.38	104 263	114 097	8 477	9 245
	Canada	908	1 001	79.52	257 905	324 342	22 383	27 603
	Chile	199	201	92.88	227 541	244 995	5 663	6 097
	Czech Republic	260	270	90.75	100 685	110 953	6 049	6 656
	Denmark	285	325	89.29	49 236	55 139	5 924	6 827
	Estonia	175	175	94.06	12 208	12 978	4 727	5 023
	Finland	203	204	92.27	56 709	61 460	5 810	6 309
	France	166	177	87.12	556 054	638 284	4 272	4 900
	Germany	226	226	93.93	720 447	766 993	4 979	5 309
	Greece	183	184	95.95	88 875	92 631	4 957	5 165
	Hungary	187	190	93.25	97 923	105 015	4 605	4 956
	Iceland	129	141	83.91	3 635	4 332	3 635	4 332
	Ireland	141	160	83.81	39 248	46 830	3 896	4 654
	Israel	176	186	89.45	88 480	98 918	5 761	6 440
	Italy	1 095	1 108	92.13	462 655	502 190	30 876	33 390
	Japan	185	196	95.32	1 010 801	1 060 382	6 077	6 377
	Korea	157	157	98.76	622 187	630 030	4 989	5 057
	Luxembourg	39	39	95.57	4 897	5 124	4 622	4 833
	Mexico	1 531	1 560	95.13	1 214 827	1 276 982	38 213	40 125
	Netherlands	185	194	89.78	157 912	175 897	4 747	5 286
	New Zealand	161	179	84.65	42 452	50 149	4 606	5 476
	Norway	197	207	89.92	49 785	55 366	4 660	5 194
	Poland	179	187	85.87	376 767	438 739	4 855	5 674
	Portugal	212	216	87.11	83 094	95 386	6 263	7 169
	Slovak Republic	189	191	93.03	63 854	68 634	4 555	4 898
	Slovenia	337	352	90.92	16 777	18 453	6 135	6 735
	Spain	888	892	89.60	345 122	385 164	25 871	28 280
	Sweden	189	191	92.97	105 026	112 972	4 567	4 912
	Switzerland	425	429	93.58	74 712	79 836	11 810	12 551
	Turkey	170	170	97.85	741 029	757 298	4 996	5 108
	United Kingdom	481	549	86.96	520 121	598 110	12 168	14 046
	United States	160	208	86.99	2 298 889	2 642 598	5 165	5 951
Partners	Albania	181	182	95.39	32 347	33 911	4 596	4 831
	Argentina	198	199	88.25	414 166	469 285	4 762	5 423
	Azerbaijan	162	162	99.14	105 095	106 007	4 691	4 727
	Brazil	926	976	89.04	1 767 872	1 985 479	19 901	22 715
	Bulgaria	176	178	97.34	56 096	57 630	4 499	4 617
	Colombia	274	285	92.83	462 602	498 331	7 910	8 483
	Croatia	158	159	93.76	40 321	43 006	4 994	5 326
	Dubai (UAE)	190	190	90.39	8 297	9 179	5 620	6 218
	Hong Kong-China	151	156	93.19	68 142	73 125	4 837	5 195
	Indonesia	183	183	96.91	2 189 287	2 259 118	5 136	5 313
	Jordan	210	210	95.85	99 734	104 056	6 486	6 777
	Kazakhstan	199	199	98.49	246 872	250 657	5 412	5 489
	Kyrgyzstan	173	174	98.04	76 523	78 054	4 986	5 086
	Latvia	184	185	91.27	21 241	23 273	4 502	4 930
	Liechtenstein	12	12	92.68	329	355	329	355
	Lithuania	196	197	93.36	37 808	40 495	4 528	4 854
	Macao-China	45	45	99.57	5 952	5 978	5 952	5 978
	Montenegro	52	52	95.43	7 375	7 728	4 825	5 062
	Panama	183	220	88.67	22 666	25 562	3 913	4 449
	Peru	240	240	96.35	412 011	427 607	5 985	6 216
	Qatar	149	154	93.63	8 990	9 602	8 990	9 602
	Romania	159	159	99.47	150 331	151 130	4 776	4 803
	Russian Federation	213	213	96.77	1 248 353	1 290 047	5 308	5 502
	Serbia	190	191	95.37	67 496	70 775	5 522	5 804
	Shanghai-China	152	152	98.89	95 966	97 045	5 115	5 175
	Singapore	171	175	91.04	46 224	50 775	5 283	5 809
	Chinese Taipei	158	158	95.30	283 239	297 203	5 831	6 108
	Thailand	230	230	97.37	673 688	691 916	6 225	6 396
	Trinidad and Tobago	155	160	85.92	12 275	14 287	4 731	5 518
	Tunisia	165	165	96.93	132 354	136 545	4 955	5 113
	Uruguay	229	233	87.03	29 193	33 541	5 924	6 815

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PISA 2009 also required a minimum participation rate of 80% of students within participating schools. This minimum participation rate had to be met at the national level, not necessarily by each participating school. Follow-up sessions were required in schools in which too few students had participated in the original assessment sessions. Student participation rates were calculated over all original schools, and also over all schools whether original sample or replacement schools, and from the participation of students in both the original assessment and any follow-up sessions. A student who participated in the original or follow-up cognitive sessions was regarded as a participant. Those who attended only the questionnaire session were included in the international database and contributed to the statistics presented in this publication if he or she provided at least a description of his or her father's or mother's occupation.

Table A2.3 shows the response rates for students and schools, before and after replacement.

- ***Column 1*** shows the **weighted participation rate of schools before replacement.** This is obtained by dividing column 2 by column 3.
- ***Column 2*** shows the **weighted number of responding schools before school replacement** (weighted by student enrolment).
- ***Column 3*** shows the **weighted number of sampled schools before school replacement** (including both responding and non-responding schools, weighted by student enrolment).
- ***Column 4*** shows the **unweighted** number **of responding schools before school replacement**.
- ***Column 5*** shows the **unweighted number of responding and non-responding schools before school replacement**.
- ***Column 6*** shows the **weighted participation rate of schools after replacement.** This is obtained by dividing column 7 by column 8.
- ***Column 7*** shows the **weighted number of responding schools after school replacement** (weighted by student enrolment).
- ***Column 8*** shows the **weighted number of schools sampled after school replacement** (including both responding and non-responding schools, weighted by student enrolment).
- ***Column 9*** shows the **unweighted number of responding schools after school replacement.**
- ***Column 10*** shows the **unweighted number of responding and non-responding schools after school replacement.**
- ***Column 11*** shows the **weighted student participation rate after replacement.** This is obtained by dividing column 12 by column 13.
- ***Column 12*** shows the **weighted number of students assessed**.
- ***Column 13*** shows the **weighted number of students sampled** (including both students who were assessed and students who were absent on the day of the assessment).
- ***Column 14*** shows the **unweighted number of students assessed.** Note that any students in schools with student-response rates less than 50% were not included in these rates (both weighted and unweighted).
- ***Column 15*** shows the **unweighted number of students sampled** (including both students that were assessed and students who were absent on the day of the assessment). Note that any students in schools where fewer than half of the eligible students were assessed were not included in these rates (neither weighted nor unweighted).

Definition of schools

In some countries, sub-units within schools were sampled instead of schools and this may affect the estimation of the between-school variance components. In Austria, the Czech Republic, Germany, Hungary, Japan, Romania and Slovenia, schools with more than one study programme were split into the units delivering these programmes. In the Netherlands, for schools with both lower and upper secondary programmes, schools were split into units delivering each programme level. In the Flemish Community of Belgium, in the case of multi-campus schools, implantations (campuses) were sampled, whereas in the French area, in the case of multi-campus schools, the larger administrative units were sampled. In Australia, for schools with more than one campus, the individual campuses were listed for sampling. In Argentina, Croatia, and Dubai (UAE), schools that had more than one campus had the locations listed for sampling. In Spain, the schools in the Basque region with multi-linguistic models were split into linguistic models for sampling.

Grade levels

Students assessed in PISA 2009 are at various grade levels. The percentage of students at each grade level is presented by country in Table A2.4a and by gender within each country in Table A2.4b.

Sampling and weighting for the digital reading assessment

Sampling for the digital reading assessment

Nineteen countries participated in the digital reading assessment: Australia, Austria, Belgium, Chile, Denmark, France, Hungary, Iceland, Ireland, Japan, Korea, New Zealand, Norway, Poland, Spain, Sweden and the partner countries and economies Colombia, Hong Kong-China and Macao-China. When a country participated in the digital reading assessment option, it was expected that student sampling of the digital reading assessment would occur in every school that participated in the paper-based PISA survey.

[Part 1/1]
Table A2.4a **Percentage of students at each grade level**

		Grade level											
		7th grade		8th grade		9th grade		10th grade		11th grade		12th grade	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.0	(0.0)	0.1	(0.0)	10.4	(0.6)	70.8	(0.6)	18.6	(0.6)	0.1	(0.0)
	Austria	0.7	(0.2)	6.2	(1.0)	42.4	(0.9)	50.7	(1.0)	0.0	(0.0)	0.0	c
	Belgium	0.4	(0.2)	5.5	(0.5)	32.0	(0.6)	60.8	(0.7)	1.2	(0.1)	0.0	(0.0)
	Canada	0.0	(0.0)	1.2	(0.2)	13.6	(0.5)	84.1	(0.5)	1.1	(0.1)	0.0	(0.0)
	Chile	1.0	(0.2)	3.9	(0.5)	20.5	(0.8)	69.4	(1.0)	5.2	(0.3)	0.0	(0.0)
	Czech Republic	0.5	(0.2)	3.8	(0.3)	48.9	(1.0)	46.7	(1.1)	0.0	c	0.0	c
	Denmark	0.1	(0.0)	14.7	(0.6)	83.5	(0.8)	1.7	(0.5)	0.0	c	0.0	c
	Estonia	1.6	(0.3)	24.0	(0.7)	72.4	(0.9)	1.8	(0.3)	0.1	(0.1)	0.0	c
	Finland	0.5	(0.1)	11.8	(0.5)	87.3	(0.5)	0.0	c	0.4	(0.1)	0.0	c
	France	1.3	(0.9)	3.6	(0.7)	34.4	(1.2)	56.6	(1.5)	4.0	(0.7)	0.1	(0.0)
	Germany	1.2	(0.2)	11.0	(0.5)	54.8	(0.8)	32.5	(0.8)	0.4	(0.1)	0.0	(0.0)
	Greece	0.4	(0.2)	1.4	(0.5)	5.5	(0.8)	92.7	(1.0)	0.0	c	0.0	c
	Hungary	2.8	(0.6)	7.6	(1.1)	67.1	(1.4)	22.4	(0.9)	0.1	(0.1)	0.0	(0.0)
	Iceland	0.0	c	0.0	c	0.0	(0.0)	98.3	(0.1)	1.7	(0.1)	0.0	c
	Ireland	0.1	(0.0)	2.4	(0.3)	59.1	(1.0)	24.0	(1.4)	14.4	(1.1)	0.0	c
	Israel	0.0	c	0.3	(0.1)	17.9	(1.0)	81.3	(1.0)	0.5	(0.2)	0.0	(0.0)
	Italy	0.1	(0.1)	1.4	(0.3)	16.9	(0.4)	78.4	(0.6)	3.2	(0.3)	0.0	c
	Japan	0.0	c	0.0	c	0.0	c	100.0	(0.0)	0.0	c	0.0	c
	Korea	0.0	c	0.0	(0.0)	4.2	(0.9)	95.1	(0.9)	0.7	(0.1)	0.0	c
	Luxembourg	0.6	(0.1)	11.6	(0.2)	51.6	(0.3)	36.0	(0.2)	0.3	(0.0)	0.0	c
	Mexico	1.7	(0.1)	7.4	(0.3)	34.5	(0.8)	55.6	(0.9)	0.7	(0.2)	0.0	(0.0)
	Netherlands	0.2	(0.2)	2.7	(0.3)	46.2	(1.1)	50.5	(1.1)	0.5	(0.1)	0.0	c
	New Zealand	0.0	c	0.0	c	0.0	(0.0)	5.9	(0.4)	88.8	(0.5)	5.3	(0.3)
	Norway	0.0	c	0.0	c	0.5	(0.1)	99.3	(0.2)	0.2	(0.1)	0.0	c
	Poland	1.0	(0.2)	4.5	(0.4)	93.6	(0.6)	0.9	(0.3)	0.0	c	0.0	c
	Portugal	2.3	(0.3)	9.0	(0.8)	27.9	(1.6)	60.4	(2.2)	0.4	(0.1)	0.0	c
	Slovak Republic	1.0	(0.2)	2.6	(0.3)	35.7	(1.4)	56.9	(1.6)	3.8	(0.8)	0.0	(0.0)
	Slovenia	0.0	c	0.1	(0.1)	3.0	(0.7)	90.7	(0.7)	6.2	(0.2)	0.0	c
	Spain	0.1	(0.0)	9.9	(0.4)	26.5	(0.6)	63.4	(0.7)	0.0	(0.0)	0.0	c
	Sweden	0.1	(0.1)	3.2	(0.3)	95.1	(0.6)	1.6	(0.5)	0.0	c	0.0	c
	Switzerland	0.6	(0.1)	15.5	(0.9)	61.7	(1.3)	21.0	(1.1)	1.2	(0.5)	0.0	(0.0)
	Turkey	0.7	(0.1)	3.5	(0.8)	25.2	(1.3)	66.6	(1.5)	3.8	(0.3)	0.2	(0.1)
	United Kingdom	0.0	c	0.0	c	0.0	c	1.2	(0.1)	98.0	(0.1)	0.8	(0.0)
	United States	0.0	c	0.1	(0.1)	10.9	(0.8)	68.5	(1.0)	20.3	(0.7)	0.1	(0.1)
	OECD average	0.8	(0.1)	5.8	(0.1)	37.0	(0.2)	52.9	(0.2)	9.9	(0.1)	0.5	(0.0)
Partners	Albania	0.4	(0.1)	2.2	(0.3)	50.9	(2.0)	46.4	(2.0)	0.1	(0.0)	0.0	c
	Argentina	4.7	(0.9)	12.9	(1.3)	20.4	(1.2)	57.8	(2.1)	4.3	(0.5)	0.0	c
	Azerbaijan	0.6	(0.2)	5.3	(0.5)	49.4	(1.3)	44.3	(1.3)	0.4	(0.1)	0.0	c
	Brazil	6.8	(0.4)	18.0	(0.7)	37.5	(0.8)	35.7	(0.8)	2.1	(0.1)	0.0	c
	Bulgaria	1.5	(0.3)	6.1	(0.6)	88.7	(0.9)	3.8	(0.6)	0.0	c	0.0	c
	Colombia	4.4	(0.5)	10.3	(0.7)	22.1	(0.8)	42.3	(1.0)	21.0	(1.0)	0.0	c
	Croatia	0.0	c	0.2	(0.2)	77.5	(0.4)	22.3	(0.4)	0.0	c	0.0	c
	Dubai (UAE)	1.1	(0.1)	3.4	(0.1)	14.8	(0.4)	56.9	(0.5)	22.9	(0.4)	0.9	(0.1)
	Hong Kong-China	1.7	(0.2)	7.2	(0.5)	25.2	(0.5)	65.9	(0.9)	0.1	(0.0)	0.0	c
	Indonesia	1.5	(0.5)	6.5	(0.8)	46.0	(3.1)	40.5	(3.2)	5.0	(0.8)	0.5	(0.4)
	Jordan	0.1	(0.1)	1.3	(0.2)	7.0	(0.5)	91.6	(0.6)	0.0	c	0.0	c
	Kazakhstan	0.4	(0.1)	6.4	(0.4)	73.3	(1.9)	19.7	(2.0)	0.1	(0.0)	0.0	c
	Kyrgyzstan	0.2	(0.1)	7.9	(0.5)	71.4	(1.3)	19.8	(1.4)	0.7	(0.1)	0.0	c
	Latvia	2.7	(0.5)	15.5	(0.7)	79.4	(0.9)	2.4	(0.3)	0.1	(0.1)	0.0	(0.0)
	Liechtenstein	0.8	(0.5)	17.5	(1.1)	71.3	(0.8)	10.4	(1.0)	0.0	c	0.0	c
	Lithuania	0.5	(0.1)	10.2	(0.9)	80.9	(0.8)	8.4	(0.6)	0.0	(0.0)	0.0	c
	Macao-China	6.7	(0.1)	19.2	(0.2)	34.9	(0.1)	38.7	(0.1)	0.5	(0.1)	0.0	c
	Montenegro	0.0	c	2.5	(1.7)	82.7	(1.5)	14.8	(0.3)	0.0	c	0.0	c
	Panama	2.9	(0.8)	10.6	(1.6)	30.6	(3.3)	49.8	(4.5)	6.1	(1.4)	0.0	c
	Peru	4.0	(0.4)	8.9	(0.6)	17.1	(0.7)	44.6	(1.1)	25.4	(0.8)	0.0	c
	Qatar	1.7	(0.1)	3.6	(0.1)	13.5	(0.2)	62.6	(0.2)	18.2	(0.2)	0.4	(0.1)
	Romania	0.0	c	7.2	(1.0)	88.6	(1.1)	4.3	(0.6)	0.0	c	0.0	c
	Russian Federation	0.9	(0.2)	10.0	(0.7)	60.1	(1.8)	28.1	(1.6)	0.9	(0.2)	0.0	c
	Serbia	0.2	(0.1)	2.1	(0.5)	96.0	(0.6)	1.7	(0.2)	0.0	c	0.0	c
	Shanghai-China	1.0	(0.2)	4.1	(0.4)	37.4	(0.8)	57.1	(0.9)	0.4	(0.2)	0.0	(0.0)
	Singapore	1.0	(0.2)	2.6	(0.2)	34.7	(0.4)	61.6	(0.3)	0.0	c	0.0	(0.0)
	Chinese Taipei	0.0	c	0.1	(0.0)	34.4	(0.9)	65.5	(0.9)	0.0	(0.0)	0.0	c
	Thailand	0.1	(0.0)	0.5	(0.1)	23.2	(1.1)	73.5	(1.1)	2.7	(0.4)	0.0	c
	Trinidad and Tobago	2.1	(0.2)	8.8	(0.4)	25.3	(0.4)	56.1	(0.4)	7.7	(0.3)	0.0	c
	Tunisia	6.4	(0.4)	13.4	(0.6)	23.9	(0.9)	50.9	(1.4)	5.4	(0.4)	0.0	c
	Uruguay	7.1	(0.8)	10.6	(0.6)	21.5	(0.8)	56.2	(1.1)	4.6	(0.4)	0.0	c

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[Part 1/2]
Table A2.4b **Percentage of students at each grade level, by gender**

		Boys – grade level											
		7th grade		8th grade		9th grade		10th grade		11th grade		12th grade	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.0	c	0.1	(0.0)	13.1	(0.9)	69.6	(1.1)	17.1	(0.8)	0.1	(0.0)
	Austria	0.7	(0.2)	7.4	(1.2)	42.6	(1.3)	49.3	(1.3)	0.0	(0.0)	0.0	c
	Belgium	0.6	(0.2)	6.4	(0.7)	34.6	(0.9)	57.3	(1.0)	1.1	(0.2)	0.0	(0.0)
	Canada	0.0	(0.0)	1.4	(0.3)	14.6	(0.6)	82.9	(0.6)	1.1	(0.1)	0.0	(0.0)
	Chile	1.3	(0.3)	4.9	(0.6)	23.2	(1.0)	65.9	(1.3)	4.7	(0.3)	0.0	c
	Czech Republic	0.7	(0.2)	4.5	(0.5)	52.5	(2.2)	42.3	(2.4)	0.0	c	0.0	c
	Denmark	0.1	(0.0)	19.5	(0.9)	79.5	(1.0)	0.8	(0.3)	0.0	c	0.0	c
	Estonia	2.4	(0.5)	27.0	(1.0)	69.6	(1.1)	1.0	(0.3)	0.0	c	0.0	c
	Finland	0.6	(0.2)	14.0	(0.8)	85.2	(0.8)	0.0	c	0.2	(0.1)	0.0	c
	France	1.3	(0.9)	4.0	(0.6)	39.6	(1.5)	51.4	(1.9)	3.6	(0.8)	0.0	(0.0)
	Germany	1.4	(0.3)	13.1	(0.7)	56.1	(1.0)	28.8	(0.9)	0.6	(0.1)	0.0	c
	Greece	0.5	(0.2)	1.9	(0.5)	6.2	(1.2)	91.4	(1.5)	0.0	c	0.0	c
	Hungary	3.2	(0.8)	9.3	(1.3)	68.8	(1.6)	18.7	(0.9)	0.0	(0.0)	0.0	(0.0)
	Iceland	0.0	c	0.0	c	0.0	c	98.7	(0.2)	1.3	(0.2)	0.0	c
	Ireland	0.1	(0.0)	2.8	(0.5)	60.9	(1.3)	22.4	(1.5)	13.8	(1.4)	0.0	c
	Israel	0.0	c	0.5	(0.2)	19.9	(1.1)	78.7	(1.2)	1.0	(0.4)	0.0	c
	Italy	0.1	(0.1)	1.7	(0.4)	20.1	(0.6)	75.7	(0.7)	2.5	(0.3)	0.0	c
	Japan	0.0	c	0.0	c	0.0	c	100.0	(0.0)	0.0	c	0.0	c
	Korea	0.0	c	0.1	(0.1)	4.7	(1.3)	94.5	(1.4)	0.7	(0.2)	0.0	c
	Luxembourg	0.8	(0.2)	12.5	(0.4)	52.4	(0.5)	34.0	(0.4)	0.3	(0.1)	0.0	c
	Mexico	2.0	(0.2)	8.8	(0.5)	37.6	(0.9)	51.0	(0.9)	0.5	(0.2)	0.0	c
	Netherlands	0.4	(0.3)	3.0	(0.4)	48.9	(1.3)	47.3	(1.3)	0.3	(0.1)	0.0	c
	New Zealand	0.0	c	0.0	c	0.0	c	6.9	(0.5)	87.9	(0.6)	5.2	(0.5)
	Norway	0.0	c	0.0	c	0.5	(0.1)	99.2	(0.2)	0.3	(0.2)	0.0	c
	Poland	1.5	(0.3)	6.5	(0.6)	91.6	(0.7)	0.5	(0.2)	0.0	c	0.0	c
	Portugal	3.4	(0.5)	10.5	(0.9)	30.9	(2.0)	54.9	(2.6)	0.4	(0.1)	0.0	c
	Slovak Republic	1.4	(0.3)	3.7	(0.5)	40.1	(1.9)	51.6	(2.1)	3.3	(0.7)	0.0	c
	Slovenia	0.0	c	0.1	(0.1)	4.0	(1.2)	91.1	(1.2)	4.7	(0.4)	0.0	c
	Spain	0.1	(0.0)	12.2	(0.6)	28.7	(0.8)	58.9	(0.9)	0.0	(0.0)	0.0	c
	Sweden	0.0	(0.0)	4.1	(0.4)	94.7	(0.6)	1.1	(0.3)	0.0	c	0.0	c
	Switzerland	0.8	(0.2)	18.0	(1.2)	60.7	(1.8)	19.4	(1.8)	1.0	(0.4)	0.1	(0.1)
	Turkey	1.0	(0.2)	4.0	(0.9)	30.2	(1.4)	61.3	(1.7)	3.2	(0.3)	0.2	(0.1)
	United Kingdom	0.0	c	0.0	c	0.0	c	1.3	(0.2)	98.0	(0.2)	0.7	(0.1)
	United States	0.0	c	0.1	(0.0)	13.2	(1.0)	68.6	(1.4)	17.9	(0.9)	0.1	(0.1)
	OECD average	1.0	(0.1)	7.0	(0.1)	40.8	(0.2)	50.8	(0.2)	9.8	(0.1)	0.7	(0.0)
Partners	Albania	0.5	(0.2)	2.6	(0.4)	54.0	(2.0)	42.9	(2.1)	0.0	(0.0)	0.0	c
	Argentina	5.9	(1.1)	15.4	(1.4)	22.7	(1.5)	52.5	(2.4)	3.5	(0.5)	0.0	c
	Azerbaijan	0.6	(0.2)	4.7	(0.5)	47.8	(1.4)	46.5	(1.5)	0.3	(0.1)	0.0	c
	Brazil	8.4	(0.6)	21.0	(0.9)	37.8	(0.8)	31.1	(0.9)	1.7	(0.2)	0.0	c
	Bulgaria	2.0	(0.4)	7.4	(0.9)	86.9	(1.2)	3.7	(0.6)	0.0	c	0.0	c
	Colombia	5.5	(0.9)	11.5	(0.9)	21.9	(1.1)	42.4	(1.4)	18.7	(1.2)	0.0	c
	Croatia	0.0	c	0.1	(0.1)	79.1	(0.6)	20.7	(0.6)	0.0	c	0.0	c
	Dubai (UAE)	1.6	(0.2)	4.5	(0.3)	16.0	(0.6)	53.6	(0.7)	23.1	(0.6)	1.1	(0.2)
	Hong Kong-China	1.9	(0.3)	7.3	(0.6)	26.6	(0.7)	64.1	(1.0)	0.1	(0.1)	0.0	c
	Indonesia	1.8	(0.7)	8.2	(1.0)	49.3	(3.4)	36.2	(3.6)	4.0	(0.9)	0.5	(0.3)
	Jordan	0.1	(0.1)	1.2	(0.4)	7.5	(0.8)	91.2	(0.9)	0.0	c	0.0	c
	Kazakhstan	0.5	(0.1)	7.1	(0.6)	75.2	(2.2)	17.2	(2.3)	0.1	(0.0)	0.0	c
	Kyrgyzstan	0.2	(0.1)	8.9	(0.7)	72.9	(1.6)	17.4	(1.6)	0.5	(0.2)	0.0	c
	Latvia	3.6	(0.9)	19.9	(1.1)	74.7	(1.4)	1.6	(0.4)	0.1	(0.1)	0.0	(0.0)
	Liechtenstein	1.1	(0.7)	19.7	(1.6)	68.9	(1.2)	10.3	(1.2)	0.0	c	0.0	c
	Lithuania	0.6	(0.2)	12.3	(1.2)	80.0	(1.2)	7.2	(0.7)	0.0	c	0.0	c
	Macao-China	8.9	(0.2)	22.0	(0.2)	34.9	(0.2)	33.6	(0.2)	0.5	(0.1)	0.0	c
	Montenegro	0.0	c	3.0	(2.0)	85.0	(1.8)	12.0	(0.4)	0.0	c	0.0	c
	Panama	3.4	(1.1)	13.6	(2.5)	32.6	(4.4)	45.7	(5.5)	4.7	(1.8)	0.0	c
	Peru	4.9	(0.5)	11.2	(0.8)	18.8	(1.0)	42.3	(1.4)	22.9	(0.9)	0.0	c
	Qatar	1.9	(0.1)	4.3	(0.2)	14.8	(0.3)	60.4	(0.3)	18.2	(0.2)	0.4	(0.1)
	Romania	0.0	c	6.3	(1.1)	89.9	(1.3)	3.9	(0.7)	0.0	c	0.0	c
	Russian Federation	1.4	(0.3)	10.4	(0.9)	61.2	(1.9)	26.3	(1.9)	0.8	(0.2)	0.0	c
	Serbia	0.3	(0.1)	2.7	(0.7)	95.6	(0.8)	1.4	(0.2)	0.0	c	0.0	c
	Shanghai-China	1.2	(0.3)	5.1	(0.6)	38.8	(1.2)	54.7	(1.4)	0.2	(0.1)	0.0	c
	Singapore	0.8	(0.2)	2.9	(0.3)	35.7	(0.6)	60.6	(0.5)	0.0	c	0.0	c
	Chinese Taipei	0.0	c	0.2	(0.1)	35.2	(1.5)	64.7	(1.5)	0.0	c	0.0	c
	Thailand	0.2	(0.1)	0.8	(0.2)	26.3	(1.4)	70.5	(1.4)	2.2	(0.5)	0.0	c
	Trinidad and Tobago	2.7	(0.3)	10.7	(0.5)	28.4	(0.6)	51.0	(0.5)	7.1	(0.4)	0.0	c
	Tunisia	8.9	(0.6)	16.8	(0.9)	24.4	(1.1)	45.3	(1.5)	4.7	(0.5)	0.0	c
	Uruguay	9.1	(1.0)	12.0	(0.8)	24.9	(0.8)	50.4	(1.3)	3.6	(0.4)	0.0	c

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[Part 2/2]

Table A2.4b **Percentage of students at each grade level, by gender**

		Girls – grade level											
		7th grade		8th grade		9th grade		10th grade		11th grade		12th grade	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.0	(0.0)	0.1	(0.0)	7.9	(0.5)	72.0	(0.8)	20.0	(0.8)	0.1	(0.0)
	Austria	0.6	(0.4)	5.0	(1.2)	42.2	(1.4)	52.1	(1.5)	0.0	(0.0)	0.0	c
	Belgium	0.3	(0.1)	4.5	(0.5)	29.3	(1.1)	64.5	(1.1)	1.3	(0.2)	0.0	(0.0)
	Canada	0.0	(0.0)	1.0	(0.2)	12.5	(0.5)	85.3	(0.5)	1.1	(0.1)	0.0	(0.0)
	Chile	0.7	(0.1)	2.9	(0.5)	17.7	(0.9)	73.0	(1.1)	5.6	(0.4)	0.0	(0.0)
	Czech Republic	0.3	(0.2)	3.1	(0.4)	44.8	(1.9)	51.8	(1.9)	0.0	c	0.0	c
	Denmark	0.1	(0.0)	10.0	(0.7)	87.3	(0.9)	2.5	(0.8)	0.0	c	0.0	c
	Estonia	0.9	(0.3)	20.8	(0.9)	75.4	(1.1)	2.7	(0.5)	0.2	(0.2)	0.0	c
	Finland	0.4	(0.1)	9.6	(0.6)	89.4	(0.6)	0.0	c	0.6	(0.2)	0.0	c
	France	1.3	(0.9)	3.2	(0.9)	29.4	(1.5)	61.6	(1.7)	4.4	(0.8)	0.1	(0.1)
	Germany	1.1	(0.2)	8.8	(0.6)	53.4	(1.1)	36.4	(1.1)	0.3	(0.1)	0.0	(0.0)
	Greece	0.2	(0.2)	0.9	(0.5)	4.9	(0.7)	94.0	(0.9)	0.0	c	0.0	c
	Hungary	2.3	(0.7)	5.9	(1.1)	65.4	(1.6)	26.2	(1.2)	0.2	(0.1)	0.0	c
	Iceland	0.0	c	0.0	c	0.0	(0.1)	97.9	(0.2)	2.1	(0.2)	0.0	c
	Ireland	0.1	(0.1)	2.0	(0.4)	57.3	(1.5)	25.7	(2.0)	15.1	(1.5)	0.0	c
	Israel	0.0	c	0.1	(0.1)	15.9	(1.0)	83.8	(1.1)	0.2	(0.1)	0.0	(0.0)
	Italy	0.2	(0.1)	1.0	(0.2)	13.5	(0.6)	81.4	(0.7)	3.9	(0.3)	0.0	c
	Japan	0.0	c	0.0	c	0.0	c	100.0	(0.0)	0.0	c	0.0	c
	Korea	0.0	c	0.0	c	3.6	(1.0)	95.6	(1.0)	0.8	(0.1)	0.0	c
	Luxembourg	0.4	(0.1)	10.6	(0.3)	50.8	(0.4)	38.0	(0.3)	0.2	(0.1)	0.0	c
	Mexico	1.5	(0.2)	6.1	(0.4)	31.5	(0.9)	60.1	(1.0)	0.8	(0.3)	0.0	(0.0)
	Netherlands	0.1	(0.1)	2.3	(0.4)	43.4	(1.4)	53.5	(1.3)	0.7	(0.2)	0.0	c
	New Zealand	0.0	c	0.0	c	0.1	(0.1)	4.8	(0.5)	89.8	(0.6)	5.4	(0.5)
	Norway	0.0	c	0.0	c	0.4	(0.1)	99.4	(0.2)	0.1	(0.1)	0.0	c
	Poland	0.6	(0.2)	2.5	(0.3)	95.6	(0.7)	1.3	(0.6)	0.0	c	0.0	c
	Portugal	1.4	(0.2)	7.7	(0.8)	25.1	(1.4)	65.4	(1.9)	0.4	(0.1)	0.0	c
	Slovak Republic	0.7	(0.2)	1.5	(0.3)	31.4	(1.8)	62.1	(2.1)	4.3	(0.9)	0.0	(0.0)
	Slovenia	0.0	c	0.0	c	1.9	(0.7)	90.3	(0.8)	7.8	(0.5)	0.0	c
	Spain	0.1	(0.1)	7.6	(0.4)	24.2	(0.7)	68.0	(0.8)	0.0	(0.0)	0.0	c
	Sweden	0.1	(0.1)	2.3	(0.3)	95.4	(0.7)	2.2	(0.7)	0.0	c	0.0	c
	Switzerland	0.4	(0.1)	12.9	(0.9)	62.6	(1.8)	22.7	(2.0)	1.4	(0.6)	0.0	c
	Turkey	0.4	(0.2)	2.9	(0.8)	19.8	(1.3)	72.3	(1.6)	4.4	(0.4)	0.2	(0.1)
	United Kingdom	0.0	c	0.0	c	0.0	c	1.0	(0.1)	98.1	(0.1)	0.9	(0.1)
	United States	0.0	c	0.2	(0.2)	8.5	(0.7)	68.4	(1.1)	22.8	(1.0)	0.1	(0.1)
	OECD average	0.6	(0.1)	5.0	(0.1)	35.6	(0.2)	55.0	(0.2)	10.2	(0.1)	0.5	(0.0)
Partners	Albania	0.2	(0.1)	1.8	(0.4)	47.6	(2.3)	50.2	(2.3)	0.2	(0.1)	0.0	c
	Argentina	3.6	(0.9)	10.7	(1.5)	18.4	(1.2)	62.3	(2.2)	4.9	(0.6)	0.0	c
	Azerbaijan	0.6	(0.3)	5.8	(0.6)	51.0	(1.5)	42.1	(1.4)	0.4	(0.1)	0.0	c
	Brazil	5.4	(0.4)	15.3	(0.6)	37.1	(0.9)	39.7	(0.9)	2.5	(0.2)	0.0	c
	Bulgaria	0.9	(0.3)	4.6	(0.7)	90.6	(1.0)	3.9	(0.7)	0.0	c	0.0	c
	Colombia	3.3	(0.4)	9.1	(0.8)	22.4	(1.0)	42.2	(1.1)	23.0	(1.1)	0.0	c
	Croatia	0.0	c	0.2	(0.2)	75.8	(0.6)	24.1	(0.5)	0.0	c	0.0	c
	Dubai (UAE)	0.6	(0.1)	2.2	(0.2)	13.5	(0.5)	60.4	(0.6)	22.7	(0.7)	0.6	(0.1)
	Hong Kong-China	1.5	(0.2)	7.1	(0.6)	23.5	(0.6)	67.9	(1.0)	0.0	c	0.0	c
	Indonesia	1.2	(0.3)	4.9	(0.8)	42.7	(3.7)	44.6	(3.8)	6.0	(1.1)	0.6	(0.5)
	Jordan	0.1	(0.0)	1.3	(0.3)	6.5	(0.7)	92.1	(0.9)	0.0	c	0.0	c
	Kazakhstan	0.4	(0.1)	5.7	(0.5)	71.5	(2.0)	22.3	(2.1)	0.2	(0.1)	0.0	c
	Kyrgyzstan	0.1	(0.1)	7.1	(0.6)	69.9	(1.5)	22.0	(1.6)	0.9	(0.2)	0.0	c
	Latvia	1.7	(0.4)	11.2	(0.6)	83.9	(0.8)	3.1	(0.4)	0.1	(0.1)	0.0	c
	Liechtenstein	0.6	(0.6)	15.0	(1.5)	74.0	(1.2)	10.4	(1.6)	0.0	c	0.0	c
	Lithuania	0.3	(0.1)	8.1	(0.8)	81.9	(0.9)	9.6	(0.7)	0.0	(0.0)	0.0	c
	Macao-China	4.4	(0.1)	16.3	(0.2)	34.9	(0.2)	43.9	(0.2)	0.5	(0.1)	0.0	c
	Montenegro	0.0	c	2.0	(1.4)	80.3	(1.3)	17.8	(0.4)	0.0	c	0.0	c
	Panama	2.4	(0.6)	7.7	(1.1)	28.7	(3.0)	53.8	(4.0)	7.5	(1.6)	0.0	c
	Peru	3.2	(0.4)	6.5	(0.6)	15.4	(0.8)	47.0	(1.2)	27.9	(1.2)	0.0	c
	Qatar	1.4	(0.1)	3.0	(0.1)	12.1	(0.2)	64.9	(0.2)	18.1	(0.2)	0.5	(0.1)
	Romania	0.0	c	8.1	(1.5)	87.3	(1.5)	4.7	(0.6)	0.0	c	0.0	c
	Russian Federation	0.5	(0.1)	9.7	(0.8)	59.0	(2.0)	29.8	(1.8)	1.0	(0.2)	0.0	c
	Serbia	0.1	(0.1)	1.4	(0.5)	96.4	(0.6)	2.0	(0.2)	0.0	c	0.0	c
	Shanghai-China	0.8	(0.2)	3.0	(0.4)	36.1	(1.0)	59.5	(1.0)	0.6	(0.2)	0.0	(0.0)
	Singapore	1.2	(0.2)	2.3	(0.3)	33.7	(0.5)	62.7	(0.4)	0.0	c	0.0	(0.0)
	Chinese Taipei	0.0	c	0.0	(0.0)	33.7	(1.5)	66.3	(1.5)	0.0	(0.0)	0.0	c
	Thailand	0.0	c	0.3	(0.1)	20.9	(1.4)	75.8	(1.4)	3.0	(0.4)	0.0	c
	Trinidad and Tobago	1.5	(0.3)	6.9	(0.5)	22.3	(0.6)	61.0	(0.6)	8.3	(0.4)	0.0	c
	Tunisia	4.2	(0.4)	10.3	(0.5)	23.4	(1.0)	56.1	(1.4)	6.0	(0.5)	0.0	c
	Uruguay	5.4	(0.6)	9.4	(0.5)	18.5	(0.9)	61.4	(1.2)	5.4	(0.6)	0.0	c

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The overall sample size requirement for the digital reading assessment was 1200 assessed students, within each country. The recommended Target Cluster Size (TCS) for the digital reading assessment was 14 students per sampled school. While 14 students for each of 150 schools (the typical number of PISA schools) would potentially yield 2100 students, the large TCS was chosen to account for the fact that some schools would not have adequate computer resources. The TCS of 14 also accounted for the loss in the digital reading assessment sample that would accrue from prior losses in the paper-based PISA sample. It was a requirement that all students who participated in the digital reading assessment also took part in the paper-based PISA assessment. The student sample for the digital reading assessment was selected at the same time that the paper-based PISA student sample was selected in each school by the student sampling software, KeyQuest. Therefore, any student sampled for both assessments who did not provide responses to the paper-based PISA assessment was an automatic loss to the digital reading assessment. There would be additional loss to the digital reading assessment due to refusals, or other absences. The TCS of 14 guarded against these losses. It was possible to vary this target cluster size for the digital reading assessment if more than the usual number of schools were sampled for the paper-based PISA.

The actual student sample size at each school for the digital reading assessment was calculated with KeyQuest, as the minimum of the TCS, and the number of sampled PISA students. Arrangements had to be made to either bring in laptops or to have extra sessions to alleviate any computer-resource problems.

Countries with a large paper-based sample could also subsample those schools where student sampling for the digital reading assessment would be done. Only two countries, Spain and Colombia, chose to do so.

The schools in Spain and Colombia were subsampled with equal probability from the paper-based PISA sampled schools in each explicit stratum. The number to subsample for the digital reading assessment in each stratum was based on how many schools would have been needed from each explicit stratum for a school sample of 150 schools. Any schools selected with certainty for the large national school sample and placed in their own stratum were added back to their original strata for the subsampling of schools for the digital reading assessment.

Sampling outcomes for the digital reading assessment

No non-response adjustments were made for schools or students sampled for the digital reading assessment which did not participate. Since the digital reading assessment was being treated as a domain such as mathematics and science, students that absent for the digital reading assessment were treated in the same manner as a student not assigned a booklet containing items in the mathematics or science domain. Plausible values were generated for these students subsampled for the digital reading assessment, as well as for all other students who had not been subsampled for the digital reading assessment.

In Spain and Colombia, the second level of sampling for the digital reading assessment needed to be accounted for in weighting, via an additional weight component. Thus, schools subsampled for the digital reading assessment in Spain and Colombia had their own weighting stream, separate from the weighting stream for the large national samples in these countries. Once in their own weighting stream, weighting procedures for these schools and students subsampled for the digital reading assessment were the same as the weighting procedures used for all other countries that participated in the digital reading assessment.

[Part 1/1]

Table A2.5 Student response rates (digital reading assessment)

		Number of students included in the digital reading assessment database	Weighted number of students included in the digital reading assessment database	Number of students sampaled for the digital reading assessment	Weighted number of students sampled for the digital reading assessment	Number of students participated in the digital reading assessment	Weighted number of students participated in the digital reading assessment	Unweighted student response rate for the digital reading assessment (unweighted) (%)
OECD	Australia	14 251	240 851	3 673	59 464	2 990	49 779	81
	Austria	6 590	87 326	3 187	43 001	2 622	34 754	82
	Belgium	8 501	119 140	3 161	47 254	2 796	41 556	88
	Chile	5 669	247 270	2 131	94 433	1 699	75 482	80
	Denmark[1]	5 924	60 854	1 830	19 564	1 270	13 753	69
	France	4 298	677 620	1 730	276 591	1 301	207 231	75
	Hungary	4 605	105 611	2 022	49 903	1 792	44 398	89
	Iceland	3 646	4 410	1 273	1 532	960	1 155	75
	Ireland	3 937	52 794	1 710	22 874	1 407	18 851	82
	Japan[1]	6 088	1 113 403	6 088	1 113 403	3 429	622 985	56
	Korea	4 989	630 030	1 508	189 368	1 477	185 078	98
	New Zealand	4 643	55 129	2 180	25 953	1 752	21 137	80
	Norway	4 660	57 367	2 268	28 309	1 972	24 268	87
	Poland	4 917	448 866	2 072	185 403	1 986	177 008	96
	Spain	4 748	385 725	1 989	165 230	1 681	140 449	85
	Sweden	4 567	113 054	2 249	55 563	1 921	47 350	85
Partners	Colombia	4 572	515 130	1 957	223 457	1 478	163 491	76
	Hong Kong-China	4 837	75 548	1 661	25 914	1 450	22 682	87
	Macao-China	5 952	5 978	2 540	2 555	2 519	2 534	99

1. These countries have lower response rates because of whole schools that were unable to participate because of technical difficulties.
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Sampling outcomes

Table A2.5 shows the student response rates for the digital reading assessment and Table A2.6 shows the school response rate for the digital reading assessment.

[Part 1/1]
Table A2.6 School response rates (digital reading assessment)

		Number of schools included in the digital reading assessment database	Weighted number of schools included in the digital reading assessment database	Number of schools sampled for the digital reading assessment	Weighted number of schools sampled for the digital reading assessment	Number of schools participated in the digital reading assessment	Weighted number of schools participated in the digital reading assessment	Unweighted school response rate for the digital reading assessment (%)
OECD	Australia	353	2 284	353	2 284	334	2 132	95
	Austria	282	2 758	273	2 535	256	2 231	94
	Belgium	278	1 687	262	1 531	247	1 378	94
	Chile	200	4 872	200	4 872	198	4 812	99
	Denmark[1]	285	1 686	285	1 686	220	1 236	77
	France	168	11 380	168	11 380	140	8 959	83
	Hungary	187	3 496	187	3 496	183	3 371	98
	Iceland	131	135	131	135	118	121	90
	Ireland	144	681	144	681	141	664	98
	Japan[1]	186	6 740	186	6 740	109	3 717	59
	Korea	157	4 265	157	4 265	156	4 254	99
	New Zealand	163	429	163	429	145	355	89
	Norway	197	1 120	197	1 120	180	916	91
	Poland	185	7 326	179	6 274	179	6 274	100
	Spain	168	7 109	168	7 109	163	6 959	97
	Sweden	189	1 989	189	1 989	179	1 842	95
Partners	Colombia	159	9 411	158	9 393	136	7 942	86
	Hong Kong-China	151	489	151	489	149	483	99
	Macao-China	45	45	44	44	44	44	100

1. These countries have lower response rates because of whole schools that were unable to participate because of technical difficulties.
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ANNEX A3
STANDARD ERRORS, SIGNIFICANCE TESTS AND SUBGROUP COMPARISONS

The statistics in this report represent estimates of national performance based on samples of students, rather than values that could be calculated if every student in every country had answered every question. Consequently, it is important to measure the degree of uncertainty of the estimates. In PISA, each estimate has an associated degree of uncertainty, which is expressed through a standard error. The use of confidence intervals provides a way to make inferences about the population means and proportions in a manner that reflects the uncertainty associated with the sample estimates. From an observed sample statistic and assuming a normal distribution, it can be inferred that the corresponding population result would lie within the confidence interval in 95 out of 100 replications of the measurement on different samples drawn from the same population.

In many cases, readers are primarily interested in whether a given value in a particular country is different from a second value in the same or another country, *e.g.* whether females in a country perform better than males in the same country. In the tables and charts used in this report, differences are labelled as statistically significant when a difference of that size, smaller or larger, would be observed less than 5% of the time, if there were actually no difference in corresponding population values. Similarly, the risk of reporting a correlation as significant if there is, in fact, no correlation between two measures, is contained at 5%.

Throughout the report, significance tests were undertaken to assess the statistical significance of the comparisons made.

Gender differences

Gender differences in student performance or other indices were tested for statistical significance. Positive differences indicate higher scores for boys while negative differences indicate higher scores for girls. Generally, differences marked in bold in the tables in this volume are statistically significant at the 95% confidence level.

Performance differences between the top and bottom quartiles of PISA indices and scales

Differences in average performance between the top and bottom quarters of the PISA indices and scales were tested for statistical significance. Differences marked in bold in the tables indicate that performance between the top and bottom quarters of students on the respective index is statistically significantly different at the 95% confidence level.

Change in the performance per unit of the index

For many tables, the difference in student performance per unit of the index shown was calculated. Differences in bold in the tables indicate that the differences are statistically significantly different from 0 at the 95% confidence level.

Relative risk or increased likelihood

The relative risk is a measure of association between an antecedent factor and an outcome factor. The relative risk is simply the ratio of two risks, *i.e.* the risk of observing the outcome when the antecedent is present and the risk of observing the outcome when the antecedent is not present. Figure A3.1 presents the notation that is used in the following.

■ Figure VI.A3.1 ■

Labels used in a two-way table

p_{11}	p_{12}	$p_{1.}$
p_{21}	p_{22}	$p_{2.}$
$p_{.1}$	$p_{.2}$	$p_{..}$

$p_{..}$ is equal to $\frac{n_{..}}{n_{..}}$, with $n_{..}$ the total number of students and $p_{..}$ is therefore equal to 1, $p_{i.}$, $p_{.j}$ respectively represent the marginal probabilities for each row and for each column. The marginal probabilities are equal to the marginal frequencies divided by the total number of students. Finally, the p_{ij} represent the probabilities for each cell and are equal to the number of observations in a particular cell divided by the total number of observations.

In PISA, the rows represent the antecedent factor with the first row for "having the antecedent" and the second row for "not having the antecedent" and the columns represent the outcome with, the first column for "having the outcome" and the second column for "not having the outcome". The relative risk is then equal to:

$$RR = \frac{(p_{11} / p_{1.})}{(p_{21} / p_{2.})}$$

Values in bold in the tables presented in Annex B of this report indicate that the relative risk is statistically significantly different from 1 at the 95% confidence level.

Difference in digital reading performance between native students and students with an immigrant background

Differences in performance between native and non-native students were tested for statistical significance. For this purpose, first-generation and second-generation students were jointly considered as students with an immigrant background. Positive differences represent higher scores for native students, while negative differences represent higher scores for first-generation and second-generation students. Figures in bold in data tables presented in this volume indicate statistically significantly different scores at the 95% confidence level.

Effect sizes

Sometimes it is useful to compare differences in an index between groups, such as boys and girls, across countries. A problem that may occur in such instances is that the distribution of the index varies across groups or countries. One way to resolve this is to calculate an effect size that accounts for differences in the distributions. An effect size measures the difference between, say, the self-efficacy in reading of male and female students in a given country, relative to the average variation in the index of self-efficacy in reading of those two groups of students in the country.

An effect size also allows a comparison of differences across measures. For example, it is possible to compare effect sizes between the PISA indices and the PISA test scores, as when, for example, gender differences in performance in reading are compared with the gender differences in several of the indices.

In accordance with common practices, effect sizes less than 0.20 are considered small in this volume, effect sizes in the order of 0.50 are considered medium, and effect sizes greater than 0.80 are considered large. Many comparisons in this report consider differences only if the effect sizes are equal to or greater than 0.20, even if smaller differences are still statistically significant; figures in bold in data tables presented in Annex B of this report indicate values equal to or greater than 0.20. Values smaller than 0.20 but that due to rounding are shown as 0.20 in tables and figures have not been highlighted. Light shading represents the absolute value of effect size is equal or more than 0.2 and less than 0.5; medium shading represents the absolute value of effect size is equal or more than 0.5 and less than 0.8; and dark shading represents the absolute value of effect size is equal or more than 0.8.

The effect size between two sub-groups is calculated as:

$$\frac{m_1 - m_2}{\sqrt{\frac{\sigma_1^2 + \sigma_2^2}{2}}}, \textit{ i.e.}$$

m_1 and m_2 respectively represent the mean values for the sub-groups 1 and 2. σ_1^2 and σ_2^2 respectively represent the values of variance for the sub-groups 1 and 2. The effect size between the two sub-groups 1 and 2 is calculated as dividing the mean difference between the two sub-groups ($m_1 - m_2$), by the square root of the sum of the sub-group's variance ($\sigma_1^2 + \sigma_2^2$) divided by 2.

Range of ranks

To calculate the range of ranks for countries, data are simulated from the distribution using the mean and standard deviation for each relevant country. Some 10 000 simulations are implemented and, based on these values, 10 000 rankings for each country are produced. For each country, the counts for each rank are aggregated from largest to smallest until they equal 9 500 or more. Then the range of ranks per country is reported, including all the ranks that have been aggregated. This means that there is at least 95% confidence about the range of ranks, and it is safe to assume unimodality in this distribution of ranks. This method has been used in all cycles of PISA since 2003, including PISA 2009.

The main difference between the range of ranks (*e.g.* Figure VI.2.28) and the comparison of countries' performance (*e.g.* Figure VI.2.27) is that the former takes account of the asymmetry of the rank distribution, while the latter does not. Therefore, sometimes there is a slight difference between the range of ranks and counting the number of countries above a given country, based on a comparison of the selected countries' performance. For example, Australia is ranked between 2nd and 3rd and Japan is ranked 4th among OECD countries in Figure VI.2.28, while in Figure VI.2.27 Japan is counted as 3rd among OECD countries, as the mean scores of Australia and Japan are not statistically significantly different. Since it is safe to assume unimodality in this distribution of ranks, the results of range of ranks for countries should be used when examining countries' rankings.

ANNEX A4
QUALITY ASSURANCE FOR THE DIGITAL READING ASSESSMENT

Quality assurance procedures were implemented in all parts of PISA 2009, as was done for all previous PISA surveys.

Quality assurance prior to data collection

The quality and linguistic equivalence of the PISA 2009 digital reading instruments were ensured by providing countries with a source version of the material in English and requiring countries (other than those assessing students in English) to prepare and consolidate two independent translations of the source version. Precise translation and adaptation guidelines were supplied, including instructions for selecting and training the translators. For each country, the translation and format of the assessment instruments, including test materials and marking guides, were verified by expert translators appointed by the PISA Consortium before they were used in the PISA 2009 field trial and main study. These translators' mother tongue was the language of instruction in the country concerned and they were knowledgeable about their respective education systems. For further information on the PISA translation procedures, see the *PISA 2009 Technical Report* (OECD, forthcoming).

The digital reading tests were mostly administered using schools' computers. Therefore, to ensure equivalence in the quality of the test experience it was essential to ensure minimum hardware requirements. These included the computers meeting four criteria: they must

- be manufactured in 2001 or later;
- have a keyboard and a pointing device (*e.g.* a mouse);
- have a 15-inch or larger colour display; and
- have at least one accessible USB port.

The computers had to be located so that the test could be supervised by a single test administrator, and in such a way that students could not easily observe each others' screens.

To determine a computer's suitability for delivering the digital reading assessment in the main survey, a hardware diagnostic tool was distributed to participating schools prior to the assessment. The digital reading assessment hardware diagnostic was provided in the form of software loaded onto a USB drive and was designed to emulate the test-delivery system and provide feedback on the suitability of the computer's memory, processing power and screen resolution.

Quality assurance during data collection

The survey was implemented through standardised procedures. The PISA Consortium provided comprehensive manuals that explained the implementation of the survey, including precise instructions for the work of school co-ordinators and scripts for test administrators to use during the assessment sessions. Proposed adaptations to survey procedures, or proposed modifications to the assessment session script, were submitted to the PISA Consortium for approval prior to verification. The PISA Consortium then verified the national translation and adaptation of these manuals. The workflows of the translation and verification processes were facilitated with an online translation-management system (TMS) developed by the Consortium.

To establish the credibility of PISA as valid and unbiased and to encourage uniformity in administering the assessment sessions, test administrators in participating countries were selected using the following criteria:

- It was required that the test administrator not be the reading instructor of any students in the digital reading sessions he or she would administer for PISA.
- It was recommended that the test administrator not be a member of the staff of any school where he or she would administer for PISA.
- It was considered preferable that the test administrator not be a member of the staff of any school in the PISA sample.

Participating countries organised an in-person training session for test administrators and ensured that: test administrators worked with the school co-ordinator to prepare the assessment session, including updating student tracking forms and identifying excluded students; test administrators recorded the student participation status on the student tracking forms and filled in a session report form; no digital reading instrument was permitted to be photographed; and no digital reading instrument could be viewed by school staff before the assessment session.

Timing of the digital reading assessment sessions (40 minutes) was uniformly applied by the test-delivery software.

Finally, quality monitors from the PISA Consortium visited a sample of 15 schools during the assessment. For further information on the field operations, see the *PISA 2009 Technical Report* (OECD, forthcoming).

Quality assurance following data collection

Coding procedures were designed to ensure consistent and accurate application of the coding guides outlined in the PISA Operations manuals. National Project Managers were required to submit proposed modifications to these procedures to the PISA Consortium for approval.

Most digital reading items (21 of the 29) were of types for which the responses could be coded automatically on receipt of the student response datafiles. The remaining open-constructed response items (eight items) were collated from the raw results datafiles, and then inserted into an Online Coding System (OCS) that was developed by the PISA Consortium, to be coded by experts trained within each national centre.

The quality of coding was monitored by double-coding a minimum of 25% of responses for each item. Any response given a different code in second coding to that given in first coding was coded a third time by a leading coder (this is known as discrepancy coding) and that became the final code. Second coders were not made aware of the code already assigned to the response.

In addition, during first coding of items, leading coders spot-checked the work of coders each day. Spot checking involved a review of codes assigned to responses. It was suggested that about 2.5% of first codings should be spot-checked.

If a coder was uncertain about the code to assign to a particular response, the response could be marked for review and it would be sent automatically to a leading coder for advice.

The OCS provided several reports to help the coding supervisor manage the quality and workflow of the coding process, including discrepancy reports giving the total number of responses first coded by each coder that were second coded, the number that required third coding (*i.e.* the number of discrepancies), the number of times the third code agreed with the first code, and the accuracy percentage.

For a more detailed description of the quality-assurance procedures and the mechanism with which they were applied in the digital reading assessment, see the *PISA 2009 Technical Report* (OECD, forthcoming).

For the PISA 2009 assessment in Austria, a dispute between teachers' unions and the education minister led to the announcement of a boycott of PISA, which was withdrawn after the first week of testing. The boycott required the OECD to remove identifiable cases from the dataset. Although the Austrian dataset met the PISA 2009 technical standards after the removal of these cases, the negative atmosphere in regard to educational assessment affected the conditions under which the assessment was administered and could have adversely affected student motivation to respond to the PISA tasks. Therefore, the comparability of the 2009 data with data from earlier PISA assessments cannot be ensured, and data for Austria have been excluded from trend comparisons.

ANNEX A5
DEVELOPMENT OF THE PISA ASSESSMENT INSTRUMENTS FOR PRINT AND DIGITAL READING

The development of the PISA 2009 assessment instruments for both print and digital reading was an collaborative process between the PISA Consortium, various international expert groups working under the auspices of the OECD, the PISA Governing Board and national experts.

For all PISA assessment domains, a panel of international experts, in close consultation with participating countries, identifies the range of skills and competencies in the relevant domain that are considered to be crucial for an individual's capacity to fully participate in and contribute to modern society. A description of the assessment domains – the assessment framework – is then used by participating countries and other test-development professionals as they contribute assessment materials. The development of this assessment framework involves the following steps:

- developing a working definition for the assessment area and description of the assumptions that underlay that definition;
- evaluating how to organise the set of tasks constructed in order to report to policy makers and researchers on 15-year-old students' performance in each assessment area in participating countries;
- identifying a set of key characteristics to be taken into account when assessment tasks were constructed for international use;
- operationalising the set of key characteristics to be used in test construction, with definitions based on existing literature and the experience of other large-scale assessments;
- validating the variables and assessing the contribution that each made to understanding task difficulty in participating countries; and
- preparing an interpretative scheme for the results.

Since a framework for PISA reading had been developed for the first PISA survey in 2000, the PISA 2009 work began with a review of the existing framework at the initial Reading Expert Group (REG) meeting in October 2006. It was agreed that much of the substance of the PISA 2000 framework should be retained for PISA 2009, but new elements were to be added or given additional emphasis – notably, the incorporation of digital reading. The reading framework was agreed at both scientific and policy levels and subsequently provided the basis for the development of the print and digital reading assessment instruments. The reading framework is described in *PISA 2009 Assessment Framework: Key Competencies in Reading, Mathematics and Science* (OECD, 2009b). It provided a common language and a vehicle for participating countries to develop a consensus as to the measurement goals of PISA.

Assessment items were then developed to reflect the intentions of the framework and were piloted in a field trial in all participating countries before a final set of items was selected for the PISA 2009 main survey. Tables A5.1 and A5.2 show the distribution of PISA 2009 assessment items according to the various dimensions of the PISA frameworks.

Due attention was paid to reflecting the national, cultural and linguistic variety among OECD countries. As part of this effort, the PISA Consortium used professional test item-development teams in several countries. In addition to the items that were developed by the international experts working with the PISA Consortium, assessment material was contributed by participating countries. The Consortium's multi-national team of test developers deemed a substantial amount of this submitted material as appropriate, given the requirements laid out by the PISA assessment frameworks. As a result, the item pool for print reading included assessment items from Australia, Belgium, Canada, China, Colombia, Finland, France, Germany, Greece, Hungary, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Portugal, Serbia, Spain, Sweden, Switzerland and the United States. The smaller item pool for digital reading comprised material originating from Consortium test-development teams and national centres in Australia, Belgium, Canada and Germany.

Each item included in the assessment pool was rated by each country: for potential cultural, gender or other bias; for relevance to 15-year-olds in school and non-school contexts; and for familiarity and level of interest. For digital reading items, countries were also asked to comment on whether the level of ICT demand of each item was appropriate. A first consultation of countries on the item pool was undertaken as part of the process of developing the field trial assessment instruments. A second consultation was undertaken after the field trial to assist in the final selection of items for the main survey. For print reading, countries were invited to submit their item reviews using a customised spreadsheet. For digital reading, item reviews were collected via an online survey, using a secure online review system developed by the Consortium. Each national centre was provided with one primary account to securely view, rate and comment upon each item. Several secondary accounts (as many as requested) were also provided to national experts for the same purpose.

Following the field trial, in which all items were tested in all participating countries, test developers and expert groups considered a variety of aspects in selecting the items for the main survey: the results from the field trial, the outcome of the item review from countries, and queries received during the field trial coding process. The test developers and expert groups selected a final set of items in September 2008 which was adopted by participating countries at both scientific and policy levels following a period of negotiation.

[Part 1/1]
Table A5.1 **Distribution of items by the dimensions of the PISA framework for the assessment of print reading**

	Number of items	Number of multiple-choice items	Number of complex multiple-choice items	Number of closed-constructed response items	Number of open-constructed response items	Number of short-response items
Distribution of reading items by text format						
Continuous	81	36	6	4	31	4
Non-continuous	38	10	3	7	12	6
Mixed	7	4	1	0	1	1
Multiple	5	2	0	2	1	0
Total	131	52	10	13	45	11
Distribution of reading items by aspect						
Access and retrieve	31	6	3	9	3	10
Integrate and interpret	67	38	6	4	18	1
Reflect and evaluate	33	8	1	0	24	0
Total	131	52	10	13	45	11
Total	131	52	10	13	45	11
Distribution of reading items by situation						
Personal	37	10	2	5	17	3
Public	35	19	2	2	10	2
Occupational	21	4	3	3	10	1
Educational	38	19	3	3	8	5
Total	131	52	10	13	45	11

StatLink http://dx.doi.org/10.1787/888932435549

[Part 1/1]
Table A5.2 **Distribution of items by the dimensions of the PISA framework for the assessment of digital reading**

	Number of items	Number of multiple-choice items	Number of complex multiple-choice items	Number of open-constructed response items
Distribution of digital reading items by environment				
Authored	19	14	0	5
Message-based	8	4	3	1
Mixed	2	0	0	2
Total	29	18	3	8
Distribution of digital reading items by text format				
Continuous	2	2	0	0
Non-continuous	3	2	0	1
Mixed	2	1	0	1
Multiple	22	13	3	6
Total	29	18	3	8
Distribution of digital reading items by text type				
Argumentation	6	4	0	2
Description	9	6	1	2
Exposition	9	7	0	2
Transaction	4	1	2	1
Not specified	1	0	0	1
Total	29	18	3	8
Distribution of digital reading items by aspect				
Access and retrieve	7	7	0	0
Integrate and interpret	10	9	1	0
Reflect and evaluate	6	2	0	4
Complex	6	0	2	4
Total	29	18	3	8
Distribution of digital reading items by situation				
Personal	6	2	2	2
Public	13	10	0	3
Occupational	7	4	1	2
Educational	3	2	0	1
Total	29	18	3	8

StatLink http://dx.doi.org/10.1787/888932435549

The main survey included 37 print reading units with 131 test items. Nineteen of these units originated from material submitted by participating countries. Sixteen of the units came from one or the other of the Consortium teams, and two originated as IALS material. The digital reading item pool for the main survey comprised nine units with 29 test items. One of the units originated from a national centre, the others from Consortium teams.

Five item types were used in the PISA print reading assessment:

- *Open-constructed response items:* These items required students to construct a longer response, allowing for the possibility of a broad range of divergent, individual responses and differing viewpoints. These items sometimes asked students to relate information or ideas in the stimulus text to their own experience or opinions, with the acceptability depending on the student's ability to use what he or she had read when justifying or explaining that position, rather than on the position taken by the student. Other items in this format asked students to interpret or integrate information provided in the text, or to summarise part of a text in their own words. For selected items, partial credit was awarded for partially correct or less complete answers. All of these items were coded by hand.
- *Closed-constructed response items:* These items required students to construct their own responses, with a limited range of acceptable answers. Most of these items were scored dichotomously, by hand.
- *Short-response items:* These items required students to provide a brief answer, as in the closed-constructed response items, but there was a wider range of possible answers here. These items were coded by hand, thus allowing for partial credit as well as dichotomous scoring.
- *Complex multiple-choice items:* These items required students to make a series of choices, usually binary. Students indicated their answer by circling a word or short phrase (for example "yes" or "no") for each point. These items were scored dichotomously for each choice, yielding the possibility of full or partial credit for the whole item.
- *Multiple-choice items:* These items required students to circle a letter to indicate one choice among four or five alternatives, each of which might be a number, a word, a phrase or a sentence. They were scored dichotomously.

The digital reading assessment employed three of these item formats: open-constructed response, complex multiple choice and multiple choice. Most of the items were presented in formats similar to the paper-based versions, adapted to the digital environment, with open-constructed response items involving text entry in a designated text box, and multiple choice requiring clicks on radio buttons. However, there were a few variations to simulate and take advantage of the digital medium. A variation on the open-constructed response type was items requiring the construction of an e-mail message. For some multiple-choice items, instead of the conventional format, the items required the student to select an option from a dropdown menu within a simulated web page. All responses to the digital reading assessment were collected electronically. The open-constructed response items were scored by hand, using an online scoring system that displayed responses to the coders and allowed them to enter their scores electronically. The multiple-choice and complex multiple-choice items were automatically scored.

PISA 2009 was designed to yield group-level information in a broad range of content. The PISA assessment of print reading included material allowing for a total of 270 minutes of assessment time, made up of nine 30-minute clusters. The mathematics and science assessments each comprised 90 minutes of assessment time, each made up of three 30-minute clusters. Each student sat a paper-based assessment lasting a total of 120 minutes, which could include material from reading, mathematics and science. Since reading was the major domain in PISA 2009, every student was administered some reading items as part of the assessment.

This assessment design was balanced so that each item cluster appeared four times, once in each of four possible locations in a booklet. Further, each cluster appeared once with each other cluster. The final design, therefore, ensured that a representative sample responded to each cluster of items.

The main survey assessment of digital reading included material allowing for a total of 60 minutes of assessment time, made up of three 20-minute clusters. The items were presented to students in six test forms, with each form being composed of two clusters: that is, 40 minutes of testing time per student. Each cluster was paired with each of the other clusters in two forms, once in the first position and once in the second position, and each sampled student was randomly assigned one of the six forms.

For further information on the development of the PISA assessment instruments and the PISA assessment design, see the *PISA 2009 Technical Report* (OECD, forthcoming).

ANNEX A6
TABLES SHOWING THE RELATIONSHIPS BETWEEN ICT ACTIVITIES AND PERFORMANCE IN PRINT READING, MATHEMATICS AND SCIENCE

Annex A6 is available on line at *www.pisa.oecd.org*.

Annex B

TABLES OF RESULTS

All tables in Annex B are available on line

Annex B1: Results for countries and economies

Annex B2: Results for regions within countries

Adjudicated regions
Data for which adherence to the PISA sampling standards and international comparability was internationally adjudicated.

Non-adjudicated regions
Data for which adherence to the PISA sampling standards at subnational levels was assessed by the countries concerned.

In these countries, adherence to the PISA sampling standards and international comparability was internationally adjudicated only for the combined set of all subnational entities.

Note: Unless otherwise specified, all the data contained in the following tables are drawn from the OECD PISA Database.

ANNEX B1
RESULTS FOR COUNTRIES AND ECONOMIES

[Part 1/1]

Table VI.2.1 **Percentage of students at each proficiency level on the digital, print and composite reading scales**

Digital reading scale

		Below Level 2 (less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 or above (625.61 score points or above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	9.6	(0.6)	16.5	(0.6)	28.2	(0.7)	28.5	(0.8)	17.3	(0.9)
	Austria	28.5	(1.6)	25.7	(1.1)	28.3	(1.2)	14.9	(1.0)	2.6	(0.4)
	Belgium	15.9	(0.8)	20.2	(0.7)	28.8	(0.9)	26.3	(1.1)	8.8	(0.7)
	Chile	37.7	(1.7)	30.6	(1.0)	22.5	(1.1)	8.0	(0.7)	1.1	(0.3)
	Denmark	16.4	(1.0)	26.8	(1.2)	33.9	(1.1)	19.2	(1.0)	3.7	(0.4)
	France	16.7	(1.5)	22.4	(1.1)	32.3	(1.5)	23.6	(1.2)	5.1	(0.7)
	Hungary	26.8	(1.6)	25.0	(1.6)	27.1	(1.2)	16.3	(1.2)	4.8	(0.7)
	Iceland	12.9	(0.7)	21.1	(0.8)	32.2	(1.0)	24.1	(1.0)	9.7	(0.6)
	Ireland	12.1	(0.9)	23.4	(1.0)	32.7	(0.9)	24.0	(1.0)	7.8	(0.8)
	Japan	6.7	(0.7)	20.5	(0.9)	38.9	(1.2)	28.2	(1.0)	5.7	(0.6)
	Korea	1.8	(0.4)	8.3	(1.0)	28.7	(1.4)	42.0	(1.4)	19.2	(1.6)
	New Zealand	10.2	(0.6)	16.1	(0.8)	27.2	(1.0)	27.8	(1.0)	18.6	(0.8)
	Norway	13.3	0.9	25.5	(1.0)	34.4	(1.1)	21.4	(1.0)	5.4	(0.5)
	Poland	26.3	(1.3)	28.4	(1.0)	28.6	(1.0)	14.7	(0.9)	2.0	(0.3)
	Spain	23.1	(1.4)	25.4	(1.1)	30.2	(1.1)	17.3	(1.0)	3.9	(0.6)
	Sweden	13.0	(1.0)	21.2	(1.0)	32.4	(0.8)	24.7	(1.1)	8.6	(0.8)
	OECD average-16	16.9	(0.3)	22.3	(0.3)	30.4	(0.3)	22.6	(0.3)	7.8	(0.2)
Partners	Colombia	68.4	(1.7)	22.4	(1.1)	7.7	(0.9)	1.4	(0.3)	0.1	(0.1)
	Hong Kong-China	9.8	(0.9)	20.3	(1.1)	36.8	(1.1)	26.8	(1.1)	6.3	(0.7)
	Macao-China	10.5	(0.5)	31.8	(0.8)	39.9	(0.8)	15.8	(0.5)	2.0	(0.2)

Print reading scale

		Below Level 1b (less than 262.04 score points)		Level 1b (from 262.04 to less than 334.75 score points)		Level 1a (from 334.75 to less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 (from 625.61 to less than 698.32 score points)		Level 6 (698.32 score points or above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	1.0	(0.1)	3.3	(0.3)	10.0	(0.4)	20.4	(0.6)	28.5	(0.7)	24.1	(0.7)	10.7	(0.5)	2.1	(0.3)
	Austria	1.9	(0.4)	8.1	(0.8)	17.5	(1.0)	24.1	(1.0)	26.0	(0.9)	17.4	(0.9)	4.5	(0.4)	0.4	(0.1)
	Belgium	1.1	(0.3)	4.7	(0.5)	11.9	(0.6)	20.3	(0.7)	25.8	(0.9)	24.9	(0.7)	10.1	(0.5)	1.1	(0.2)
	Chile	1.3	(0.2)	7.4	(0.8)	21.9	(1.0)	33.2	(1.1)	25.6	(1.1)	9.3	(0.7)	1.3	(0.2)	0.0	(0.0)
	Denmark	0.4	(0.1)	3.1	(0.3)	11.7	(0.7)	26.0	(0.9)	33.1	(1.2)	20.9	(1.1)	4.4	(0.4)	0.3	(0.1)
	France	2.3	(0.5)	5.6	(0.5)	11.8	(0.8)	21.1	(1.0)	27.2	(1.0)	22.4	(1.1)	8.5	(0.8)	1.1	(0.3)
	Hungary	0.6	(0.2)	4.7	(0.8)	12.3	(1.0)	23.8	(1.2)	31.0	(1.3)	21.6	(1.1)	5.8	(0.7)	0.3	(0.1)
	Iceland	1.1	(0.2)	4.2	(0.4)	11.5	(0.7)	22.2	(0.8)	30.6	(0.9)	21.9	(0.8)	7.5	(0.6)	1.0	(0.2)
	Ireland	1.5	(0.4)	3.9	(0.5)	11.8	(0.7)	23.3	(1.0)	30.6	(0.9)	21.9	(0.9)	6.3	(0.5)	0.7	(0.2)
	Japan	1.3	(0.4)	3.4	(0.5)	8.9	(0.7)	18.0	(0.8)	28.0	(0.9)	27.0	(0.9)	11.5	(0.7)	1.9	(0.4)
	Korea	0.2	(0.2)	0.9	(0.3)	4.7	(0.6)	15.4	(1.0)	33.0	(1.2)	32.9	(1.4)	11.9	(1.0)	1.0	(0.2)
	New Zealand	0.9	(0.2)	3.2	(0.4)	10.2	(0.6)	19.3	(0.8)	25.8	(0.8)	24.8	(0.8)	12.9	(0.8)	2.9	(0.4)
	Norway	0.5	(0.1)	3.4	(0.4)	11.0	(0.7)	23.6	(0.8)	30.9	(0.9)	22.1	(1.2)	7.6	(0.9)	0.8	(0.2)
	Poland	0.6	(0.1)	3.1	(0.3)	11.3	(0.7)	24.5	(1.1)	31.0	(1.0)	22.3	(1.0)	6.5	(0.5)	0.7	(0.1)
	Spain	1.1	(0.3)	4.8	(0.6)	14.4	(0.8)	27.1	(1.0)	31.8	(1.0)	17.2	(0.9)	3.4	(0.4)	0.2	(0.1)
	Sweden	1.5	(0.3)	4.3	(0.4)	11.7	(0.7)	23.5	(1.0)	29.8	(1.0)	20.3	(0.9)	7.7	(0.6)	1.3	(0.3)
	OECD average-16	1.1	(0.1)	4.3	(0.1)	12.0	(0.2)	22.9	(0.2)	29.3	(0.2)	21.9	(0.2)	7.5	(0.2)	1.0	(0.1)
Partners	Colombia	4.3	(0.8)	14.7	(0.9)	29.0	(1.2)	30.0	(1.1)	16.9	(1.0)	4.6	(0.6)	0.5	(0.2)	0.0	(0.0)
	Hong Kong-China	0.2	(0.1)	1.5	(0.3)	6.6	(0.6)	16.1	(0.8)	31.4	(0.9)	31.8	(0.9)	11.2	(0.7)	1.2	(0.3)
	Macao-China	0.3	(0.1)	2.6	(0.3)	12.0	(0.4)	30.6	(0.6)	34.8	(0.7)	16.9	(0.5)	2.8	(0.2)	0.1	(0.1)

Composite reading scale

		Below Level 1b		Level 1b		Level 1a		Level 2		Level 3		Level 4		Level 5		Level 6	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.7	(0.1)	2.4	(0.2)	7.9	(0.4)	18.6	(0.6)	29.5	(0.6)	27.0	(0.6)	11.7	(0.6)	2.2	(0.4)
	Austria	2.4	(0.6)	8.4	(0.8)	17.0	(0.9)	25.0	(1.0)	28.0	(1.1)	16.2	(0.8)	2.8	(0.4)	0.1	(0.1)
	Belgium	0.7	(0.2)	3.9	(0.4)	12.0	(0.6)	20.4	(0.7)	27.3	(0.8)	26.4	(1.0)	8.8	(0.6)	0.5	(0.2)
	Chile	1.5	(0.3)	8.7	(0.8)	23.2	(1.0)	33.3	(1.0)	24.3	(1.1)	8.0	(0.7)	0.9	(0.2)	0.0	c
	Denmark	0.4	(0.1)	2.9	(0.4)	11.8	(0.6)	26.2	(1.0)	35.6	(0.9)	19.7	(1.0)	3.2	(0.4)	0.2	(0.1)
	France	1.1	(0.3)	5.0	(0.6)	12.2	(0.8)	21.9	(1.1)	30.2	(1.3)	23.2	(1.2)	6.1	(0.8)	0.3	(0.1)
	Hungary	1.0	(0.3)	6.4	(0.9)	14.0	(0.9)	25.3	(1.3)	29.9	(1.2)	18.7	(1.2)	4.4	(0.6)	0.2	(0.1)
	Iceland	0.6	(0.2)	3.1	(0.3)	10.5	(0.6)	21.9	(0.8)	32.5	(1.0)	23.2	(0.8)	7.4	(0.5)	0.8	(0.2)
	Ireland	0.8	(0.2)	2.9	(0.4)	10.1	(0.6)	24.0	(1.1)	32.6	(1.2)	23.1	(1.0)	6.0	(0.6)	0.5	(0.2)
	Japan	0.5	(0.2)	1.7	(0.3)	7.1	(0.7)	19.5	(0.9)	33.8	(0.9)	29.8	(1.0)	7.2	(0.7)	0.3	(0.1)
	Korea	0.1	(0.1)	0.4	(0.2)	2.2	(0.5)	11.8	(1.0)	32.0	(1.2)	39.1	(1.3)	13.6	(1.1)	0.8	(0.2)
	New Zealand	0.7	(0.2)	2.5	(0.3)	8.3	(0.5)	18.2	(0.7)	27.1	(0.8)	26.9	(0.8)	13.8	(0.7)	2.5	(0.3)
	Norway	0.4	(0.1)	2.5	(0.3)	10.4	(0.7)	25.1	(0.9)	33.7	(0.8)	22.0	(1.0)	5.7	(0.6)	0.3	(0.1)
	Poland	0.7	(0.2)	4.6	(0.5)	14.2	(0.8)	27.5	(1.1)	31.0	(1.0)	18.7	(0.9)	3.2	(0.4)	0.2	(0.1)
	Spain	1.1	(0.3)	5.1	(0.6)	14.8	(0.8)	26.8	(1.1)	32.0	(1.0)	17.1	(1.0)	3.0	(0.4)	0.1	(0.1)
	Sweden	0.8	(0.2)	3.4	(0.4)	10.1	(0.7)	23.0	(1.0)	31.8	(0.9)	23.0	(0.9)	7.0	(0.6)	0.8	(0.2)
	OECD average-16	0.8	(0.1)	4.0	(0.1)	11.6	(0.2)	23.0	(0.2)	30.7	(0.3)	22.6	(0.2)	6.6	(0.2)	0.6	(0.0)
Partners	Colombia	5.4	(0.7)	20.0	(1.1)	33.4	(1.2)	27.6	(1.2)	11.3	(0.9)	2.1	(0.3)	0.2	(0.1)	0.0	c
	Hong Kong-China	0.3	(0.1)	1.4	(0.2)	6.3	(0.5)	18.1	(0.8)	35.5	(1.1)	31.1	(1.1)	7.0	(0.6)	0.4	(0.1)
	Macao-China	0.1	(0.0)	1.3	(0.2)	10.2	(0.4)	31.9	(0.6)	39.5	(0.7)	15.5	(0.5)	1.6	(0.2)	0.0	c

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Table VI.2.2 Percentage of boys at each proficiency level on the digital, print and composite reading scales

Digital reading scale

		Below Level 2 (less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 or above (625.61 score points and above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	13.1	(0.9)	18.7	(0.9)	28.1	(1.1)	25.4	(1.1)	14.7	(1.1)
	Austria	33.4	(2.0)	25.7	(1.5)	25.7	(1.4)	13.2	(1.1)	2.1	(0.5)
	Belgium	19.1	(1.2)	21.8	(1.0)	28.0	(1.1)	23.9	(1.3)	7.2	(0.8)
	Chile	42.9	(2.0)	28.8	(1.4)	19.7	(1.4)	7.8	(1.0)	0.9	(0.3)
	Denmark	17.2	(1.1)	27.5	(1.5)	33.1	(1.7)	18.8	(1.3)	3.3	(0.5)
	France	19.6	(1.8)	24.4	(1.3)	32.1	(1.8)	20.3	(1.5)	3.6	(0.8)
	Hungary	30.4	(1.9)	25.0	(1.7)	26.0	(1.4)	14.3	(1.4)	4.2	(0.8)
	Iceland	17.3	(1.1)	23.1	(1.2)	31.5	(1.2)	20.7	(0.9)	7.5	(0.8)
	Ireland	16.6	(1.3)	25.5	(1.3)	31.4	(1.3)	20.7	(1.2)	5.8	(0.8)
	Japan	9.4	(1.2)	23.8	(1.6)	37.9	(1.5)	24.4	(1.4)	4.4	(0.6)
	Korea	2.5	(0.6)	10.4	(1.5)	30.6	(1.7)	40.0	(1.7)	16.4	(1.8)
	New Zealand	15.4	(1.0)	18.6	(1.1)	26.7	(1.1)	24.3	(1.3)	15.0	(1.0)
	Norway	18.1	(1.3)	28.5	(1.2)	33.3	(1.9)	16.7	(1.6)	3.3	(0.4)
	Poland	32.6	(1.5)	27.9	(1.3)	25.0	(1.1)	12.9	(0.9)	1.6	(0.3)
	Spain	26.8	(1.7)	25.4	(1.3)	28.8	(1.4)	15.9	(1.2)	3.1	(0.6)
	Sweden	17.1	(1.3)	22.5	(1.4)	32.1	(1.2)	21.2	(1.2)	7.1	(0.7)
	OECD average-16	20.7	(0.4)	23.6	(0.3)	29.4	(0.4)	20.0	(0.3)	6.3	(0.2)
Partners	Colombia	70.1	(2.3)	20.5	(1.6)	7.5	(1.2)	1.7	(0.6)	0.2	(0.1)
	Hong Kong-China	10.7	(1.1)	21.3	(1.4)	36.7	(1.3)	25.0	(1.5)	6.3	(0.8)
	Macao-China	12.6	(1.0)	33.6	(1.1)	37.8	(1.0)	14.2	(0.6)	1.8	(0.3)

Print reading scale

		Below Level 1b (less than 262.04 score points)		Level 1b (from 262.04 to less than 334.75 score points)		Level 1a (from 334.75 to less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 (from 625.61 to less than 698.32 score points)		Level 6 (698.32 score points or above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	1.5	(0.2)	4.9	(0.5)	13.2	(0.6)	22.5	(0.8)	27.4	(0.8)	20.6	(0.9)	8.3	(0.6)	1.6	(0.3)
	Austria	3.1	(0.6)	10.8	(1.2)	21.3	(1.4)	25.1	(1.3)	23.2	(1.2)	13.7	(1.3)	2.7	(0.5)	0.1	(0.1)
	Belgium	1.7	(0.3)	6.2	(0.7)	13.7	(0.8)	22.0	(0.9)	24.7	(1.0)	22.4	(1.0)	8.6	(0.7)	0.8	(0.3)
	Chile	1.9	(0.4)	9.4	(1.1)	24.8	(1.2)	32.1	(1.4)	22.7	(1.4)	8.1	(0.8)	1.0	(0.3)	0.0	(0.0)
	Denmark	0.6	(0.2)	4.3	(0.5)	14.1	(1.1)	29.2	(1.3)	31.6	(1.5)	17.0	(1.4)	3.0	(0.6)	0.2	(0.1)
	France	3.4	(0.7)	8.1	(0.9)	14.1	(1.2)	23.3	(1.4)	25.4	(1.5)	18.6	(1.3)	6.3	(0.8)	0.7	(0.3)
	Hungary	0.9	(0.4)	6.6	(1.1)	16.1	(1.4)	25.6	(1.7)	29.7	(1.4)	17.3	(1.4)	3.8	(0.7)	0.1	c
	Iceland	1.8	(0.3)	6.6	(0.6)	15.5	(0.9)	24.4	(1.1)	28.2	(1.1)	18.0	(1.1)	5.1	(0.7)	0.6	(0.3)
	Ireland	2.5	(0.6)	5.7	(0.7)	15.0	(1.3)	25.0	(1.6)	29.5	(1.3)	17.8	(1.6)	4.1	(0.7)	0.4	(0.2)
	Japan	2.0	(0.7)	5.0	(0.8)	11.9	(1.0)	20.3	(1.2)	26.7	(1.5)	24.1	(1.4)	8.9	(0.9)	1.2	(0.4)
	Korea	0.4	(0.3)	1.4	(0.5)	7.0	(1.0)	19.3	(1.6)	34.3	(1.6)	28.4	(1.9)	8.7	(1.1)	0.7	(0.2)
	New Zealand	1.7	(0.4)	5.1	(0.7)	13.9	(0.9)	21.3	(1.0)	25.7	(1.1)	20.6	(1.1)	10.1	(1.1)	1.8	(0.4)
	Norway	1.0	(0.3)	5.5	(0.6)	14.9	(0.9)	27.4	(1.2)	28.8	(1.1)	17.4	(1.1)	4.5	(0.8)	0.5	(0.2)
	Poland	1.2	(0.3)	5.4	(0.6)	16.1	(1.0)	28.3	(1.3)	27.9	(1.3)	16.9	(1.0)	4.0	(0.7)	0.3	(0.2)
	Spain	1.4	(0.4)	6.3	(0.8)	17.2	(1.2)	28.6	(1.2)	30.2	(1.4)	13.9	(1.1)	2.2	(0.4)	0.1	c
	Sweden	2.3	(0.4)	6.5	(0.6)	15.4	(1.1)	25.8	(1.4)	27.8	(1.2)	16.3	(1.0)	5.3	(0.6)	0.7	(0.2)
	OECD average-16	1.7	(0.1)	6.1	(0.2)	15.3	(0.3)	25.0	(0.3)	27.7	(0.3)	18.2	(0.3)	5.4	(0.2)	0.6	(0.1)
Partners	Colombia	4.5	(0.9)	16.0	(1.3)	29.6	(1.5)	29.4	(1.4)	15.5	(1.3)	4.3	(0.7)	0.5	(0.2)	0.0	c
	Hong Kong-China	0.4	(0.2)	2.1	(0.5)	8.8	(1.0)	18.7	(1.2)	33.2	(1.4)	27.9	(1.4)	8.1	(0.9)	0.8	(0.3)
	Macao-China	0.4	(0.1)	3.9	(0.5)	16.2	(0.8)	33.8	(0.9)	31.7	(0.8)	12.3	(0.7)	1.6	(0.3)	0.1	(0.1)

Composite reading scale

		Below Level 1b		Level 1b		Level 1a		Level 2		Level 3		Level 4		Level 5		Level 6	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	1.1	(0.2)	3.7	(0.3)	10.5	(0.6)	21.2	(1.0)	28.8	(1.0)	23.5	(0.9)	9.3	(0.7)	1.8	(0.5)
	Austria	3.2	(0.6)	10.5	(1.1)	20.1	(1.3)	25.8	(1.4)	25.2	(1.3)	13.2	(1.0)	1.9	(0.4)	0.0	c
	Belgium	1.1	(0.2)	5.2	(0.6)	13.9	(1.0)	22.1	(1.0)	26.4	(1.0)	23.8	(1.3)	7.2	(0.7)	0.3	(0.2)
	Chile	2.1	(0.5)	10.6	(1.1)	26.3	(1.4)	31.7	(1.4)	21.1	(1.5)	7.4	(1.0)	0.7	(0.3)	0.0	c
	Denmark	0.5	(0.2)	3.6	(0.6)	13.3	(0.8)	28.1	(1.3)	34.6	(1.3)	17.4	(1.1)	2.2	(0.4)	0.2	(0.1)
	France	1.5	(0.4)	6.8	(1.0)	14.6	(1.1)	23.7	(1.5)	29.1	(1.6)	19.6	(1.3)	4.4	(0.7)	0.2	(0.1)
	Hungary	1.5	(0.4)	8.4	(1.2)	16.4	(1.3)	26.4	(1.6)	28.6	(1.5)	15.2	(1.3)	3.3	(0.6)	0.1	(0.1)
	Iceland	1.0	(0.3)	4.6	(0.6)	14.3	(1.0)	24.5	(1.4)	30.8	(1.1)	19.1	(1.0)	5.2	(0.5)	0.4	(0.2)
	Ireland	1.4	(0.3)	4.5	(0.7)	13.1	(1.0)	26.5	(1.4)	31.4	(1.3)	18.8	(1.1)	4.1	(0.6)	0.3	(0.2)
	Japan	0.5	(0.2)	2.7	(0.6)	10.0	(1.1)	23.0	(1.3)	32.6	(1.2)	25.7	(1.3)	5.4	(0.7)	0.2	(0.1)
	Korea	0.2	(0.1)	0.6	(0.3)	3.3	(0.8)	15.2	(1.6)	34.4	(1.6)	34.9	(1.9)	10.8	(1.3)	0.6	(0.3)
	New Zealand	1.1	(0.3)	4.2	(0.5)	11.8	(0.8)	20.6	(1.1)	26.7	(1.1)	22.7	(1.0)	11.2	(0.9)	1.6	(0.3)
	Norway	0.7	(0.2)	3.7	(0.6)	14.2	(1.0)	29.4	(1.1)	31.6	(1.0)	16.8	(1.0)	3.3	(0.5)	0.2	(0.1)
	Poland	1.4	(0.3)	7.4	(0.8)	18.7	(0.9)	28.6	(1.3)	27.0	(1.3)	14.7	(1.0)	2.2	(0.4)	0.0	(0.0)
	Spain	1.4	(0.4)	6.5	(0.8)	17.5	(1.2)	27.5	(1.2)	30.3	(1.2)	14.6	(1.2)	2.1	(0.4)	0.0	c
	Sweden	1.2	(0.3)	5.3	(0.6)	13.1	(0.9)	25.4	(1.3)	30.5	(1.3)	18.9	(1.3)	5.1	(0.6)	0.5	(0.2)
	OECD average-16	1.2	(0.1)	5.5	(0.2)	14.5	(0.3)	25.0	(0.3)	29.3	(0.3)	19.2	(0.3)	4.9	(0.2)	0.4	(0.0)
Partners	Colombia	5.5	(0.9)	20.9	(1.7)	34.6	(1.8)	26.2	(1.9)	10.3	(1.4)	2.3	(0.6)	0.2	(0.1)	0.0	c
	Hong Kong-China	0.4	(0.2)	1.7	(0.3)	7.8	(0.8)	20.1	(1.1)	36.5	(1.4)	27.6	(1.4)	5.6	(0.8)	0.3	(0.2)
	Macao-China	0.1	(0.1)	1.8	(0.3)	13.3	(0.6)	35.0	(1.1)	36.5	(0.8)	11.9	(0.7)	1.3	(0.3)	0.0	c

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Table VI.2.3 **Percentage of girls at each proficiency level on the digital, print and composite reading scales**

Digital reading scale

		Below Level 2 (less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 or above (625.61 score points or above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	6.2	(0.5)	14.3	(0.7)	28.2	(0.8)	31.5	(1.1)	19.8	(1.1)
	Austria	23.8	(2.0)	25.8	(1.4)	30.8	(1.7)	16.5	(1.5)	3.1	(0.6)
	Belgium	12.4	(0.8)	18.6	(0.9)	29.6	(1.2)	28.8	(1.2)	10.6	(0.8)
	Chile	32.4	(1.8)	32.5	(1.5)	25.3	(1.3)	8.3	(1.0)	1.4	(0.4)
	Denmark	15.6	(1.2)	26.0	(1.7)	34.7	(1.7)	19.6	(1.3)	4.0	(0.5)
	France	13.9	(1.5)	20.4	(1.4)	32.5	(1.7)	26.7	(1.5)	6.5	(1.0)
	Hungary	23.1	(2.0)	24.9	(1.9)	28.1	(1.6)	18.4	(1.5)	5.5	(0.9)
	Iceland	8.5	(0.7)	19.2	(1.1)	32.9	(1.6)	27.4	(1.6)	11.9	(0.9)
	Ireland	7.4	(0.9)	21.3	(1.3)	33.9	(1.5)	27.5	(1.7)	9.9	(1.2)
	Japan	3.9	(0.6)	17.0	(1.1)	40.0	(1.4)	32.1	(1.4)	7.1	(0.9)
	Korea	1.0	(0.3)	6.0	(1.0)	26.5	(1.9)	44.1	(1.8)	22.4	(2.2)
	New Zealand	4.7	(0.6)	13.6	(1.0)	27.8	(1.4)	31.6	(1.1)	22.4	(1.3)
	Norway	8.3	(0.9)	22.3	(1.5)	35.6	(1.7)	26.3	(1.4)	7.6	(0.9)
	Poland	20.0	(1.4)	28.9	(1.4)	32.2	(1.4)	16.4	(1.2)	2.4	(0.4)
	Spain	19.3	(1.4)	25.5	(1.4)	31.6	(1.5)	18.9	(1.2)	4.7	(0.7)
	Sweden	8.8	(1.1)	19.8	(1.1)	32.8	(1.2)	28.3	(1.4)	10.2	(1.1)
	OECD average-16	13.1	(0.3)	21.0	(0.3)	31.4	(0.4)	25.1	(0.3)	9.3	(0.3)
Partners	Colombia	66.8	(2.1)	24.1	(1.5)	8.0	(1.1)	1.1	(0.3)	0.0	c
	Hong Kong-China	8.7	(1.0)	19.3	(1.4)	36.8	(1.7)	28.8	(1.6)	6.3	(0.8)
	Macao-China	8.3	(0.6)	30.0	(1.1)	42.1	(1.1)	17.5	(0.8)	2.1	(0.4)

Print reading scale

		Below Level 1b (less than 262.04 score points)		Level 1b (from 262.04 to less than 334.75 score points)		Level 1a (from 334.75 to less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 (from 625.61 to less than 698.32 score points)		Level 6 (698.32 score points or above)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.4	(0.1)	1.8	(0.2)	6.8	(0.5)	18.4	(0.8)	29.5	(1.0)	27.4	(0.8)	13.0	(0.7)	2.6	(0.4)
	Austria	0.9	(0.4)	5.6	(0.9)	13.8	(1.1)	23.1	(1.4)	28.7	(1.3)	21.1	(1.2)	6.3	(0.7)	0.6	(0.2)
	Belgium	0.6	(0.2)	3.2	(0.6)	10.0	(0.9)	18.5	(0.9)	27.1	(1.1)	27.6	(1.1)	11.6	(0.8)	1.4	(0.3)
	Chile	0.7	(0.3)	5.2	(0.7)	18.9	(1.2)	34.4	(1.5)	28.7	(1.5)	10.6	(1.2)	1.5	(0.4)	0.0	c
	Denmark	0.2	(0.1)	2.0	(0.3)	9.3	(0.8)	22.9	(1.2)	34.6	(1.7)	24.8	(1.3)	5.7	(0.6)	0.4	(0.2)
	France	1.3	(0.5)	3.3	(0.6)	9.6	(0.8)	19.0	(1.2)	28.9	(1.4)	25.9	(1.4)	10.6	(1.2)	1.5	(0.4)
	Hungary	0.2	(0.2)	2.8	(0.8)	8.4	(1.1)	21.9	(1.7)	32.5	(1.9)	26.0	(1.7)	7.8	(1.0)	0.5	(0.2)
	Iceland	0.4	(0.2)	1.9	(0.5)	7.6	(0.9)	19.9	(1.0)	33.1	(1.6)	25.7	(1.4)	9.9	(1.0)	1.4	(0.4)
	Ireland	0.6	(0.2)	2.1	(0.5)	8.6	(0.8)	21.4	(1.4)	31.6	(1.1)	26.2	(1.3)	8.6	(0.9)	1.0	(0.4)
	Japan	0.6	(0.3)	1.6	(0.4)	5.7	(0.7)	15.5	(1.2)	29.4	(1.3)	30.2	(1.3)	14.2	(1.2)	2.7	(0.6)
	Korea	0.1	c	0.3	(0.1)	2.1	(0.5)	11.1	(1.3)	31.6	(1.7)	38.0	(1.9)	15.4	(1.4)	1.5	(0.3)
	New Zealand	0.2	(0.1)	1.3	(0.4)	6.3	(0.6)	17.3	(1.0)	25.9	(1.1)	29.3	(1.1)	15.8	(1.0)	4.0	(0.7)
	Norway	0.1	c	1.3	(0.3)	7.0	(0.8)	19.6	(1.0)	33.1	(1.4)	27.0	(1.6)	10.8	(1.2)	1.2	(0.3)
	Poland	0.1	c	0.9	(0.2)	6.5	(0.8)	20.7	(1.3)	34.1	(1.3)	27.6	(1.5)	9.1	(0.9)	1.0	(0.2)
	Spain	0.7	(0.3)	3.2	(0.6)	11.5	(0.9)	25.5	(1.5)	33.4	(1.5)	20.7	(1.4)	4.7	(0.6)	0.3	(0.2)
	Sweden	0.7	(0.3)	2.0	(0.5)	7.8	(0.7)	21.1	(1.1)	31.8	(1.3)	24.5	(1.3)	10.2	(0.9)	2.0	(0.4)
	OECD average-16	0.5	(0.1)	2.4	(0.1)	8.7	(0.2)	20.6	(0.3)	30.9	(0.4)	25.8	(0.3)	9.7	(0.2)	1.4	(0.1)
Partners	Colombia	4.0	(0.9)	13.5	(1.2)	28.4	(1.6)	30.5	(1.4)	18.3	(1.2)	4.7	(0.8)	0.6	(0.2)	0.0	(0.0)
	Hong Kong-China	0.0	c	0.8	(0.2)	4.1	(0.7)	13.1	(0.9)	29.4	(1.2)	36.2	(1.2)	14.7	(1.0)	1.7	(0.4)
	Macao-China	0.1	(0.1)	1.3	(0.2)	7.6	(0.6)	27.2	(0.8)	38.0	(1.0)	21.6	(0.7)	4.0	(0.4)	0.1	c

Composite reading scale

		Below Level 1b		Level 1b		Level 1a		Level 2		Level 3		Level 4		Level 5		Level 6	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	0.4	(0.1)	1.1	(0.2)	5.4	(0.5)	16.1	(0.7)	30.1	(0.8)	30.4	(0.9)	14.0	(0.8)	2.6	(0.4)
	Austria	1.7	(0.6)	6.3	(0.9)	14.0	(1.2)	24.2	(1.5)	30.8	(1.5)	19.1	(1.2)	3.8	(0.6)	0.2	(0.1)
	Belgium	0.3	(0.1)	2.6	(0.4)	10.0	(0.8)	18.6	(0.9)	28.3	(1.1)	29.0	(1.1)	10.5	(0.7)	0.6	(0.2)
	Chile	0.9	(0.3)	6.6	(0.8)	20.1	(1.2)	35.0	(1.3)	27.6	(1.4)	8.6	(1.0)	1.1	(0.3)	0.0	c
	Denmark	0.2	(0.1)	2.3	(0.4)	10.3	(0.9)	24.4	(1.2)	36.6	(1.4)	21.9	(1.3)	4.2	(0.5)	0.2	(0.1)
	France	0.7	(0.3)	3.3	(0.5)	9.9	(0.8)	20.1	(1.4)	31.2	(1.6)	26.5	(1.4)	7.8	(1.1)	0.5	(0.2)
	Hungary	0.6	(0.3)	4.4	(0.9)	11.5	(1.2)	24.1	(1.6)	31.3	(1.7)	22.3	(1.5)	5.6	(0.8)	0.3	(0.2)
	Iceland	0.3	(0.1)	1.7	(0.3)	6.6	(0.8)	19.4	(0.9)	34.1	(1.4)	27.3	(1.3)	9.5	(0.9)	1.2	(0.3)
	Ireland	0.3	(0.2)	1.3	(0.3)	7.0	(0.8)	21.4	(1.2)	33.8	(1.7)	27.4	(1.9)	8.1	(1.0)	0.6	(0.3)
	Japan	0.4	(0.2)	0.7	(0.2)	4.0	(0.7)	15.9	(1.2)	35.2	(1.4)	34.2	(1.4)	9.2	(1.0)	0.4	(0.2)
	Korea	0.0	c	0.1	(0.1)	1.0	(0.3)	8.0	(1.1)	29.4	(1.7)	43.7	(2.0)	16.8	(1.7)	1.0	(0.4)
	New Zealand	0.1	(0.1)	0.8	(0.2)	4.5	(0.6)	15.6	(0.9)	27.5	(1.3)	31.4	(1.2)	16.5	(1.0)	3.5	(0.5)
	Norway	0.1	c	1.2	(0.4)	6.4	(0.6)	20.5	(1.2)	35.8	(1.5)	27.4	(1.3)	8.1	(1.0)	0.4	(0.2)
	Poland	0.1	(0.1)	1.8	(0.4)	9.8	(1.1)	26.4	(1.4)	35.0	(1.3)	22.6	(1.3)	4.2	(0.7)	0.3	(0.1)
	Spain	0.8	(0.3)	3.7	(0.7)	11.9	(0.9)	26.1	(1.5)	33.8	(1.5)	19.6	(1.3)	3.9	(0.6)	0.2	(0.1)
	Sweden	0.5	(0.2)	1.5	(0.4)	7.0	(0.8)	20.5	(1.0)	33.2	(1.1)	27.1	(1.2)	9.0	(0.9)	1.1	(0.3)
	OECD average-16	0.5	(0.1)	2.5	(0.1)	8.7	(0.2)	21.0	(0.3)	32.1	(0.4)	26.2	(0.3)	8.3	(0.2)	0.8	(0.1)
Partners	Colombia	5.2	(0.9)	19.2	(1.4)	32.3	(1.3)	28.9	(1.4)	12.3	(1.0)	1.9	(0.4)	0.1	(0.1)	0.0	c
	Hong Kong-China	0.1	(0.1)	1.0	(0.2)	4.5	(0.6)	16.0	(1.1)	34.4	(1.4)	34.9	(1.5)	8.6	(0.7)	0.5	(0.2)
	Macao-China	0.0	c	0.7	(0.2)	6.9	(0.6)	28.6	(0.8)	42.6	(1.0)	19.1	(0.8)	2.0	(0.3)	0.0	c

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[Part 1/1]

Table VI.2.4 Mean score, variation and gender differences in student performance on the digital, print and composite reading scales

		Digital reading scale																				
		All students				Gender differences						Percentiles											
		Mean score		Standard deviation		Boys		Girls		Difference (B – G)		5th		10th		25th		75th		90th		95th	
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score diff.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	537	(2.8)	97	(1.7)	522	(3.6)	550	(2.9)	**-28**	(3.5)	367	(4.4)	411	(3.7)	477	(3.1)	603	(2.9)	654	(3.7)	684	(5.5)
	Austria	459	(3.9)	103	(3.9)	447	(4.6)	469	(5.1)	**-22**	(6.0)	282	(12.1)	323	(7.8)	395	(5.7)	533	(3.8)	579	(4.4)	605	(5.0)
	Belgium	507	(2.1)	94	(1.7)	496	(3.0)	520	(2.4)	**-24**	(3.7)	341	(4.8)	377	(4.1)	444	(3.5)	577	(2.2)	621	(2.9)	645	(3.2)
	Chile	435	(3.6)	89	(1.9)	425	(4.3)	444	(3.8)	**-19**	(3.9)	283	(6.0)	316	(4.9)	374	(4.8)	497	(4.2)	549	(4.6)	578	(5.2)
	Denmark	489	(2.6)	84	(1.3)	486	(3.1)	492	(2.9)	**-6**	(3.1)	341	(4.9)	378	(4.4)	436	(3.4)	547	(3.3)	592	(2.8)	617	(3.3)
	France	494	(5.2)	96	(7.1)	484	(5.2)	504	(5.7)	**-20**	(3.3)	328	(14.6)	371	(8.7)	439	(6.3)	561	(3.7)	603	(4.0)	626	(4.2)
	Hungary	468	(4.2)	103	(2.7)	458	(5.0)	479	(4.8)	**-21**	(5.1)	288	(8.5)	328	(7.5)	401	(5.8)	542	(5.0)	596	(5.1)	624	(6.3)
	Iceland	512	(1.4)	91	(1.1)	497	(2.1)	527	(1.8)	**-30**	(2.6)	353	(4.5)	392	(3.4)	455	(2.7)	574	(2.3)	624	(2.9)	654	(3.2)
	Ireland	509	(2.8)	87	(1.6)	494	(3.7)	525	(2.9)	**-31**	(3.9)	357	(6.9)	398	(4.3)	453	(3.3)	570	(2.8)	616	(3.5)	643	(4.6)
	Japan	519	(2.4)	76	(2.8)	508	(3.2)	531	(2.9)	**-23**	(4.0)	394	(5.0)	426	(4.3)	475	(2.9)	570	(2.6)	608	(3.2)	630	(3.8)
	Korea	568	(3.0)	68	(1.9)	559	(4.3)	577	(3.5)	**-18**	(5.2)	452	(6.2)	479	(5.8)	526	(3.7)	614	(3.4)	650	(4.3)	671	(4.8)
	New Zealand	537	(2.3)	99	(1.8)	518	(3.5)	558	(2.7)	**-40**	(4.1)	363	(6.7)	406	(4.8)	476	(3.5)	607	(2.6)	658	(3.0)	687	(3.5)
	Norway	500	(2.8)	83	(1.5)	483	(3.2)	518	(3.0)	**-35**	(2.6)	356	(5.5)	392	(4.3)	448	(3.4)	557	(3.4)	602	(2.9)	629	(4.1)
	Poland	464	(3.1)	91	(1.5)	449	(3.4)	478	(3.3)	**-29**	(2.7)	306	(6.4)	343	(4.0)	404	(4.2)	529	(3.2)	577	(2.8)	601	(3.2)
	Spain	475	(3.8)	95	(2.3)	466	(4.3)	485	(3.8)	**-19**	(3.1)	308	(9.0)	347	(6.7)	414	(5.2)	543	(4.0)	592	(4.3)	618	(4.3)
	Sweden	510	(3.3)	89	(1.8)	497	(3.5)	524	(3.5)	**-26**	(2.3)	354	(6.6)	392	(5.5)	454	(4.4)	573	(3.7)	619	(3.7)	645	(3.3)
	OECD average-16	499	(0.8)	90	(0.7)	487	(1.0)	511	(0.9)	**-24**	(1.0)	342	(1.9)	380	(1.4)	442	(1.1)	562	(0.8)	609	(0.9)	635	(1.1)
Partners	Colombia	368	(3.4)	83	(1.9)	367	(4.5)	370	(3.8)	-3	(4.8)	236	(4.8)	264	(3.7)	311	(3.6)	424	(4.2)	477	(5.5)	507	(6.3)
	Hong Kong-China	515	(2.6)	82	(2.3)	511	(3.2)	519	(3.2)	**-8**	(3.9)	371	(6.0)	409	(5.7)	467	(3.6)	570	(2.7)	610	(3.0)	634	(3.5)
	Macao-China	492	(0.7)	66	(0.8)	486	(1.0)	498	(1.1)	**-12**	(1.6)	381	(3.0)	406	(1.8)	448	(1.5)	537	(1.6)	576	(2.0)	600	(1.8)
		Print reading scale																					
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	515	(2.3)	99	(1.4)	496	(2.9)	533	(2.6)	**-37**	(3.1)	343	(3.8)	384	(3.1)	450	(2.9)	584	(2.7)	638	(3.2)	668	(3.9)
	Austria	470	(2.9)	100	(2.0)	449	(3.8)	490	(4.0)	**-41**	(5.5)	299	(5.2)	334	(6.1)	399	(4.3)	545	(3.3)	596	(3.3)	625	(4.3)
	Belgium	506	(2.3)	102	(1.7)	493	(3.4)	520	(2.9)	**-27**	(4.4)	326	(6.1)	368	(4.3)	436	(3.8)	583	(2.2)	631	(2.7)	657	(2.9)
	Chile	449	(3.1)	83	(1.7)	439	(3.9)	461	(3.6)	**-22**	(4.1)	310	(5.1)	342	(5.0)	393	(4.1)	506	(3.3)	556	(3.6)	584	(5.1)
	Denmark	495	(2.1)	84	(1.2)	480	(2.5)	509	(2.5)	**-29**	(2.9)	350	(3.8)	383	(3.7)	440	(2.9)	554	(2.8)	599	(3.0)	624	(2.9)
	France	496	(3.4)	106	(2.8)	475	(4.3)	515	(3.4)	**-40**	(3.7)	305	(8.2)	352	(7.0)	429	(4.7)	572	(4.0)	624	(3.9)	651	(4.6)
	Hungary	494	(3.2)	90	(2.4)	475	(3.9)	513	(3.6)	**-38**	(4.0)	332	(7.4)	371	(6.9)	435	(4.3)	559	(3.6)	607	(3.5)	632	(4.0)
	Iceland	500	(1.4)	96	(1.2)	478	(2.1)	522	(1.9)	**-44**	(2.8)	332	(5.0)	371	(4.1)	439	(2.9)	567	(2.0)	619	(2.6)	648	(3.9)
	Ireland	496	(3.0)	95	(2.2)	476	(4.2)	515	(3.1)	**-39**	(4.7)	330	(7.8)	373	(4.7)	435	(3.9)	562	(2.8)	611	(2.8)	638	(3.2)
	Japan	520	(3.5)	100	(2.9)	501	(5.6)	540	(3.7)	**-39**	(6.8)	339	(9.8)	386	(7.1)	459	(4.8)	590	(3.0)	639	(3.6)	667	(4.6)
	Korea	539	(3.5)	79	(2.1)	523	(4.9)	558	(3.8)	**-35**	(5.9)	400	(7.6)	435	(5.9)	490	(4.1)	595	(3.4)	635	(3.0)	658	(3.8)
	New Zealand	521	(2.4)	103	(1.7)	499	(3.6)	544	(2.6)	**-46**	(4.3)	344	(5.8)	383	(4.5)	452	(3.1)	595	(2.8)	649	(2.7)	678	(3.7)
	Norway	503	(2.6)	91	(1.2)	480	(3.0)	527	(2.9)	**-47**	(2.9)	346	(4.5)	382	(4.0)	443	(3.6)	568	(2.9)	619	(3.9)	647	(4.4)
	Poland	500	(2.6)	89	(1.3)	476	(2.8)	525	(2.9)	**-50**	(2.5)	346	(5.6)	382	(4.2)	441	(3.4)	565	(3.2)	613	(3.3)	640	(3.6)
	Spain	480	(3.1)	88	(1.4)	466	(3.5)	495	(3.2)	**-29**	(3.0)	327	(5.4)	363	(5.0)	423	(3.7)	543	(3.5)	589	(3.6)	615	(3.7)
	Sweden	497	(2.9)	99	(1.5)	475	(3.2)	521	(3.1)	**-46**	(2.7)	326	(5.3)	368	(5.5)	437	(3.3)	565	(3.2)	620	(3.7)	651	(3.9)
	OECD average-16	499	(0.7)	94	(0.5)	480	(0.9)	518	(0.8)	**-38**	(1.0)	335	(1.6)	374	(1.3)	438	(0.9)	566	(0.8)	615	(0.8)	643	(1.0)
Partners	Colombia	412	(3.6)	87	(2.0)	407	(4.2)	415	(4.2)	-8	(4.5)	268	(7.2)	299	(5.3)	353	(5.0)	472	(4.1)	523	(4.1)	554	(4.3)
	Hong Kong-China	533	(2.1)	84	(1.7)	518	(3.3)	550	(2.8)	**-33**	(4.4)	380	(5.5)	418	(4.5)	482	(3.0)	592	(2.5)	634	(2.9)	659	(3.1)
	Macao-China	487	(0.9)	76	(0.8)	470	(1.3)	504	(1.2)	**-34**	(1.7)	357	(2.7)	388	(1.9)	437	(1.4)	540	(1.4)	582	(1.8)	608	(1.8)
		Composite reading scale																					
		Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
OECD	Australia	526	(2.4)	95	(1.4)	509	(3.1)	542	(2.6)	**-32**	(3.2)	361	(4.2)	401	(3.1)	466	(2.7)	591	(2.5)	642	(3.4)	671	(4.6)
	Austria	464	(3.1)	98	(2.4)	448	(3.9)	480	(4.2)	**-32**	(5.5)	293	(7.4)	331	(5.6)	397	(4.8)	538	(2.9)	584	(3.5)	610	(3.6)
	Belgium	507	(2.1)	95	(1.6)	494	(3.0)	520	(2.5)	**-26**	(3.9)	339	(4.8)	375	(4.0)	441	(3.5)	579	(1.9)	623	(2.8)	647	(2.8)
	Chile	442	(3.1)	82	(1.7)	432	(3.9)	452	(3.4)	**-20**	(3.8)	304	(4.9)	333	(4.8)	386	(4.2)	500	(3.5)	548	(3.5)	575	(4.2)
	Denmark	492	(2.1)	80	(1.1)	483	(2.6)	501	(2.5)	**-18**	(2.9)	352	(4.1)	385	(3.6)	440	(2.9)	549	(2.3)	590	(2.8)	614	(2.5)
	France	495	(3.7)	94	(2.4)	479	(4.2)	510	(3.8)	**-30**	(3.3)	324	(7.8)	364	(6.2)	433	(5.4)	564	(3.6)	609	(4.3)	634	(4.3)
	Hungary	481	(3.4)	93	(2.4)	467	(4.0)	496	(4.1)	**-30**	(4.1)	316	(7.5)	353	(7.3)	420	(4.8)	548	(4.0)	598	(4.3)	623	(4.8)
	Iceland	506	(1.3)	90	(1.1)	487	(2.0)	525	(1.7)	**-37**	(2.6)	349	(4.6)	386	(3.6)	449	(3.0)	567	(1.6)	617	(2.5)	645	(3.3)
	Ireland	502	(2.6)	87	(1.6)	485	(3.5)	520	(2.7)	**-35**	(3.9)	350	(6.3)	389	(4.3)	446	(3.0)	564	(2.8)	609	(2.8)	635	(4.2)
	Japan	520	(2.6)	82	(2.1)	505	(4.2)	536	(2.9)	**-31**	(5.2)	374	(7.9)	412	(5.5)	470	(3.9)	577	(2.3)	616	(2.8)	638	(3.3)
	Korea	553	(3.1)	70	(1.9)	541	(4.4)	567	(3.5)	**-27**	(5.3)	430	(7.0)	462	(5.0)	510	(3.6)	602	(3.3)	638	(3.4)	659	(3.4)
	New Zealand	529	(2.2)	98	(1.6)	508	(3.3)	551	(2.5)	**-43**	(4.0)	359	(5.2)	397	(4.8)	466	(2.8)	599	(2.4)	651	(2.8)	678	(3.3)
	Norway	502	(2.5)	83	(1.2)	482	(2.9)	522	(2.8)	**-41**	(2.6)	358	(4.7)	392	(3.6)	447	(3.5)	561	(3.0)	606	(3.3)	632	(3.7)
	Poland	482	(2.6)	86	(1.2)	462	(2.8)	502	(2.9)	**-39**	(2.4)	332	(5.2)	367	(4.3)	424	(3.5)	545	(2.9)	590	(2.9)	613	(3.4)
	Spain	478	(3.2)	87	(1.7)	466	(3.6)	490	(3.2)	**-24**	(2.9)	324	(5.3)	360	(5.2)	420	(3.9)	541	(3.3)	585	(3.4)	611	(3.7)
	Sweden	504	(2.9)	91	(1.5)	486	(3.2)	522	(3.1)	**-36**	(2.4)	343	(5.0)	383	(5.4)	447	(3.7)	567	(3.2)	616	(3.0)	643	(3.9)
	OECD average-16	499	(0.7)	88	(0.4)	483	(0.9)	515	(0.8)	**-31**	(0.9)	344	(1.5)	381	(1.2)	441	(0.9)	562	(0.7)	608	(0.8)	633	(0.9)
Partners	Colombia	390	(3.2)	81	(1.8)	387	(4.1)	393	(3.7)	-6	(4.4)	260	(4.9)	287	(4.6)	334	(4.1)	445	(4.2)	495	(3.9)	524	(4.6)
	Hong Kong-China	524	(2.0)	78	(1.7)	514	(3.0)	535	(2.8)	**-20**	(3.9)	384	(6.5)	421	(5.0)	477	(3.4)	578	(2.0)	616	(2.5)	638	(2.8)
	Macao-China	489	(0.7)	67	(0.7)	478	(1.0)	501	(1.0)	**-23**	(1.4)	375	(1.9)	402	(1.6)	445	(1.2)	535	(1.2)	574	(1.5)	597	(1.9)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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[Part 1/1]

Table VI.3.1 **Descriptive statistics for the number of relevant pages visited, the number of visits to relevant pages and the number of page visits**

		Number of relevant pages visited								Number of visits to relevant pages								Number of page visits							
		Mean	S.E.	S.D.	S.E.	Median	S.E.	Skewness	S.E.	Mean	S.E.	S.D.	S.E.	Median	S.E.	Skewness	S.E.	Mean	S.E.	S.D.	S.E.	Median	S.E.	Skewness	S.E.
OECD	Australia	49.6	(0.3)	9.3	(0.2)	52	(1.1)	-0.87	(0.05)	63.0	(0.5)	15.4	(0.3)	63	(0.0)	-0.02	(0.07)	76.3	(0.6)	22.9	(0.4)	73	(0.9)	0.61	(0.08)
	Austria	43.3	(0.4)	11.1	(0.2)	45	(0.9)	-0.38	(0.05)	54.5	(0.7)	17.2	(0.3)	55	(1.1)	-0.04	(0.06)	68.8	(1.0)	26.4	(0.4)	67	(1.2)	0.48	(0.08)
	Belgium	47.7	(0.2)	9.8	(0.2)	50	(0.9)	-0.66	(0.04)	60.2	(0.4)	15.3	(0.3)	61	(1.4)	-0.05	(0.07)	73.9	(0.6)	23.4	(0.5)	72	(0.9)	0.76	(0.12)
	Chile	37.7	(0.4)	11.3	(0.2)	38	(0.6)	-0.04	(0.05)	51.0	(0.7)	18.6	(0.6)	52	(1.5)	0.56	(0.37)	66.3	(1.0)	28.2	(0.6)	65	(1.6)	0.69	(0.14)
	Denmark	47.2	(0.4)	9.3	(0.3)	49	(1.0)	-0.67	(0.07)	58.6	(0.6)	14.3	(0.4)	59	(0.6)	0.00	(0.08)	72.6	(0.9)	22.6	(0.8)	70	(1.1)	0.79	(0.14)
	France	46.1	(0.6)	10.4	(0.7)	48	(0.7)	-0.87	(0.28)	59.0	(0.6)	15.6	(0.9)	59	(0.7)	0.21	(0.24)	72.6	(0.9)	22.4	(0.9)	71	(1.2)	0.80	(0.29)
	Hungary	41.6	(0.5)	11.5	(0.3)	43	(0.5)	-0.32	(0.05)	52.2	(0.8)	17.8	(0.5)	53	(1.4)	0.04	(0.05)	65.1	(1.2)	26.9	(0.7)	63	(1.0)	0.55	(0.07)
	Iceland	47.5	(0.3)	9.1	(0.2)	49	(0.3)	-0.81	(0.06)	61.1	(0.5)	16.2	(0.4)	61	(1.1)	0.18	(0.13)	78.7	(0.9)	26.9	(0.7)	75	(1.6)	0.65	(0.08)
	Ireland	47.4	(0.3)	10.0	(0.2)	49	(0.6)	-0.64	(0.06)	60.7	(0.5)	16.0	(0.4)	61	(0.9)	-0.02	(0.09)	74.9	(0.8)	24.1	(0.7)	72	(1.1)	0.64	(0.10)
	Japan	50.1	(0.6)	8.7	(0.3)	51	(0.7)	-0.75	(0.06)	70.6	(0.9)	17.5	(0.5)	70	(1.5)	0.07	(0.10)	95.7	(1.6)	32.7	(1.0)	91	(1.4)	0.67	(0.10)
	Korea	52.8	(0.3)	7.3	(0.2)	53	(0.4)	-0.83	(0.12)	74.2	(0.6)	15.8	(0.4)	74	(0.5)	0.09	(0.11)	98.9	(1.0)	29.0	(0.8)	95	(0.7)	0.75	(0.11)
	New Zealand	49.7	(0.2)	9.3	(0.2)	51	(0.3)	-0.83	(0.05)	64.2	(0.4)	14.9	(0.3)	64	(0.4)	-0.08	(0.08)	78.9	(0.7)	23.1	(0.5)	76	(0.8)	0.64	(0.09)
	Norway	46.9	(0.3)	9.4	(0.2)	49	(0.2)	-0.74	(0.05)	58.1	(0.4)	15.3	(0.4)	59	(1.2)	0.20	(0.22)	72.2	(0.7)	24.1	(0.6)	70	(0.8)	0.73	(0.13)
	Poland	42.0	(0.4)	11.1	(0.2)	43	(0.9)	-0.31	(0.04)	53.5	(0.6)	17.5	(0.3)	54	(0.8)	0.14	(0.07)	66.9	(0.9)	26.2	(0.5)	66	(1.4)	0.54	(0.06)
	Spain	44.2	(0.4)	10.4	(0.2)	46	(0.7)	-0.48	(0.05)	57.0	(0.6)	16.8	(0.4)	58	(1.1)	0.13	(0.17)	71.9	(0.9)	24.7	(0.5)	70	(1.0)	0.45	(0.09)
	Sweden	47.8	(0.3)	9.6	(0.2)	49	(0.9)	-0.67	(0.04)	61.2	(0.5)	15.9	(0.3)	61	(0.3)	-0.04	(0.05)	77.0	(0.8)	25.0	(0.4)	75	(1.5)	0.60	(0.07)
	OECD average-16	46.3	(0.1)	9.8	(0.1)	48	(0.2)	-0.62	(0.02)	59.9	(0.2)	16.3	(0.1)	60	(0.3)	0.09	(0.04)	75.7	(0.2)	25.5	(0.2)	73	(0.3)	0.65	(0.03)
Partners	Colombia	31.5	(0.6)	10.9	(0.2)	29	(1.4)	0.49	(0.07)	43.8	(1.0)	20.0	(0.6)	41	(1.7)	0.95	(0.23)	58.2	(1.5)	31.5	(1.0)	53	(2.2)	1.19	(0.19)
	Hong Kong-China	48.1	(0.3)	9.4	(0.2)	49	(1.1)	-0.66	(0.06)	68.2	(0.6)	18.4	(0.6)	68	(1.0)	0.21	(0.19)	94.1	(1.2)	32.4	(1.0)	91	(1.6)	0.68	(0.09)
	Macao-China	46.5	(0.2)	8.8	(0.1)	47	(0.8)	-0.49	(0.05)	68.4	(0.3)	17.2	(0.3)	68	(0.8)	0.38	(0.10)	100.0	(0.6)	34.1	(0.8)	95	(0.8)	1.04	(0.09)

Navigation indices, before accounting for print reading performance

		Number of relevant pages visited						Number of visits to relevant pages						Number of page visits					
		Boys		Girls		Difference (B – G)		Boys		Girls		Difference (B – G)		Boys		Girls		Difference (B – G)	
		Mean	S.E.	Mean	S.E.	Dif.	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.
OECD	Australia	-1.2	(0.4)	1.1	(0.3)	**-2.3**	(0.4)	-1.4	(0.6)	1.4	(0.5)	**-2.8**	(0.6)	-0.9	(0.8)	0.8	(0.7)	-1.7	(0.9)
	Austria	-1.1	(0.5)	1.1	(0.6)	**-2.2**	(0.8)	-1.3	(0.8)	1.2	(0.9)	**-2.6**	(1.1)	-1.1	(1.1)	1.0	(1.3)	-2.0	(1.5)
	Belgium	-0.8	(0.3)	0.8	(0.3)	**-1.7**	(0.4)	-1.0	(0.5)	1.1	(0.4)	**-2.1**	(0.7)	-0.2	(0.8)	0.2	(0.7)	-0.3	(1.0)
	Chile	-0.3	(0.6)	0.3	(0.5)	-0.6	(0.6)	-0.2	(0.9)	0.2	(0.7)	-0.4	(1.0)	1.6	(1.4)	-1.7	(1.0)	**3.3**	(1.5)
	Denmark	-0.6	(0.5)	0.6	(0.5)	**-1.2**	(0.6)	-1.0	(0.7)	0.9	(0.7)	**-1.9**	(0.9)	-0.3	(1.1)	0.3	(1.1)	-0.7	(1.3)
	France	-0.8	(0.7)	0.7	(0.6)	**-1.5**	(0.6)	-0.4	(0.9)	0.4	(0.6)	-0.8	(0.9)	1.0	(1.3)	-0.9	(0.9)	1.9	(1.3)
	Hungary	-1.3	(0.6)	1.4	(0.6)	**-2.8**	(0.7)	-1.5	(0.9)	1.6	(0.9)	**-3.1**	(1.0)	-0.9	(1.4)	1.0	(1.3)	-1.9	(1.4)
	Iceland	-1.8	(0.5)	1.6	(0.3)	**-3.3**	(0.5)	-1.8	(0.7)	1.6	(0.5)	**-3.4**	(0.9)	-0.9	(1.2)	0.8	(0.9)	-1.6	(1.5)
	Ireland	-1.5	(0.5)	1.6	(0.3)	**-3.1**	(0.6)	-1.8	(0.7)	1.9	(0.5)	**-3.7**	(0.9)	-1.2	(1.1)	1.3	(0.8)	-2.4	(1.3)
	Japan	-0.7	(0.8)	0.8	(0.6)	-1.5	(1.1)	-0.5	(1.3)	0.5	(1.0)	-1.0	(1.5)	0.5	(2.2)	-0.5	(1.6)	1.0	(2.3)
	Korea	-0.5	(0.4)	0.5	(0.3)	**-0.9**	(0.5)	0.3	(0.8)	-0.3	(0.7)	0.6	(1.0)	1.8	(1.6)	-1.9	(1.2)	3.7	(1.9)
	New Zealand	-1.7	(0.4)	1.6	(0.3)	**-3.3**	(0.5)	-2.0	(0.7)	1.9	(0.5)	**-3.9**	(0.8)	-0.8	(1.1)	0.8	(0.7)	-1.6	(1.2)
	Norway	-1.4	(0.4)	1.4	(0.3)	**-2.8**	(0.4)	-1.5	(0.5)	1.5	(0.4)	**-3.0**	(0.6)	-1.3	(0.9)	1.4	(0.8)	**-2.7**	(0.9)
	Poland	-0.8	(0.5)	0.8	(0.5)	**-1.6**	(0.5)	-0.6	(0.8)	0.6	(0.7)	-1.2	(0.9)	0.2	(1.2)	-0.2	(1.1)	0.4	(1.4)
	Spain	-0.5	(0.5)	0.5	(0.5)	**-1.1**	(0.5)	-0.2	(0.8)	0.2	(0.7)	-0.4	(0.8)	0.5	(1.1)	-0.6	(0.9)	1.1	(1.1)
	Sweden	-1.2	(0.4)	1.2	(0.4)	**-2.3**	(0.4)	-1.4	(0.6)	1.3	(0.6)	**-2.7**	(0.6)	-0.7	(1.0)	0.7	(1.0)	-1.3	(1.1)
	OECD average-16	-1.0	(0.1)	1.0	(0.1)	**-2.0**	(0.1)	-1.0	(0.2)	1.0	(0.2)	**-2.0**	(0.2)	-0.2	(0.3)	0.1	(0.3)	-0.3	(0.3)
Partners	Colombia	0.6	(0.7)	-0.6	(0.7)	1.2	(0.7)	1.8	(1.1)	-1.8	(1.1)	**3.6**	(1.1)	3.6	(1.8)	-3.5	(1.6)	**7.1**	(1.7)
	Hong Kong-China	-0.4	(0.4)	0.5	(0.4)	-0.9	(0.5)	0.3	(0.9)	-0.3	(0.7)	0.6	(1.0)	2.4	(1.6)	-2.7	(1.1)	**5.2**	(1.7)
	Macao-China	0.0	(0.2)	0.0	(0.2)	0.1	(0.3)	1.2	(0.5)	-1.1	(0.4)	**2.3**	(0.7)	4.1	(1.0)	-3.9	(0.7)	**8.0**	(1.4)

Navigation indices, after accounting for print reading performance

		Number of relevant pages visited						Number of visits to relevant pages						Number of page visits					
		Boys		Girls		Difference (B – G)		Boys		Girls		Difference (B – G)		Boys		Girls		Difference (B – G)	
		Mean	S.E.	Mean	S.E.	Dif.	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.	Mean	S.E.	Mean	S.E.	Dif.	S.E.
OECD	Australia	-0.3	(0.3)	0.3	(0.2)	-0.5	(0.3)	-0.3	(0.5)	0.3	(0.4)	-0.7	(0.5)	0.2	(0.7)	-0.2	(0.7)	0.3	(0.9)
	Austria	0.4	(0.4)	-0.4	(0.4)	0.8	(0.5)	0.6	(0.7)	-0.6	(0.6)	1.2	(0.8)	1.1	(1.0)	-1.1	(0.9)	2.2	(1.2)
	Belgium	-0.1	(0.2)	0.1	(0.2)	-0.2	(0.3)	-0.2	(0.4)	0.2	(0.4)	-0.3	(0.6)	0.7	(0.7)	-0.7	(0.6)	1.4	(0.9)
	Chile	0.6	(0.4)	-0.7	(0.4)	**1.3**	(0.5)	1.0	(0.6)	-1.1	(0.6)	**2.2**	(0.8)	3.0	(1.1)	-3.3	(0.9)	**6.3**	(1.3)
	Denmark	0.2	(0.4)	-0.2	(0.4)	0.5	(0.5)	0.1	(0.6)	-0.1	(0.6)	0.1	(0.8)	0.7	(1.0)	-0.7	(1.0)	1.3	(1.2)
	France	0.3	(0.6)	-0.3	(0.6)	0.5	(0.5)	0.8	(0.8)	-0.8	(0.5)	**1.6**	(0.8)	2.2	(1.2)	-2.1	(0.8)	**4.3**	(1.2)
	Hungary	0.3	(0.3)	-0.3	(0.4)	0.6	(0.4)	0.6	(0.6)	-0.7	(0.6)	1.3	(0.8)	1.7	(1.1)	-1.8	(0.9)	**3.5**	(1.2)
	Iceland	-0.3	(0.4)	0.3	(0.2)	-0.6	(0.5)	0.1	(0.7)	-0.1	(0.5)	0.1	(0.9)	1.2	(1.2)	-1.0	(0.9)	2.2	(1.4)
	Ireland	-0.5	(0.4)	0.5	(0.3)	-1.0	(0.5)	-0.5	(0.7)	0.6	(0.5)	-1.1	(0.8)	0.0	(1.1)	0.0	(0.8)	-0.1	(1.3)
	Japan	-0.3	(0.4)	0.3	(0.3)	-0.5	(0.5)	0.1	(0.9)	-0.1	(0.7)	0.3	(1.0)	1.3	(1.9)	-1.3	(1.3)	2.6	(1.8)
	Korea	0.1	(0.3)	-0.1	(0.2)	0.3	(0.3)	1.2	(0.7)	-1.2	(0.6)	**2.4**	(0.9)	2.6	(1.5)	-2.8	(1.2)	**5.4**	(1.8)
	New Zealand	-0.5	(0.3)	0.5	(0.2)	**-1.0**	(0.4)	-0.8	(0.6)	0.8	(0.4)	**-1.6**	(0.7)	0.0	(1.1)	0.0	(0.7)	0.0	(1.2)
	Norway	-0.2	(0.3)	0.2	(0.2)	-0.3	(0.3)	0.1	(0.5)	-0.1	(0.4)	0.1	(0.5)	0.5	(0.8)	-0.5	(0.7)	0.9	(0.8)
	Poland	1.0	(0.4)	-1.1	(0.3)	**2.1**	(0.4)	1.7	(0.7)	-1.8	(0.6)	**3.5**	(0.8)	2.9	(1.1)	-3.0	(0.9)	**5.9**	(1.3)
	Spain	0.5	(0.3)	-0.5	(0.4)	**0.9**	(0.3)	1.0	(0.6)	-1.0	(0.6)	**2.0**	(0.7)	1.7	(1.0)	-1.8	(0.9)	**3.5**	(1.0)
	Sweden	0.1	(0.3)	0.0	(0.3)	0.1	(0.3)	0.1	(0.5)	-0.1	(0.5)	0.3	(0.5)	0.9	(0.9)	-0.9	(0.9)	1.9	(1.0)
	OECD average-16	0.1	(0.1)	-0.1	(0.1)	0.2	(0.1)	0.4	(0.2)	-0.4	(0.1)	**0.7**	(0.2)	1.3	(0.3)	-1.3	(0.2)	**2.6**	(0.3)
Partners	Colombia	0.6	(0.5)	-0.6	(0.5)	**1.2**	(0.6)	1.8	(0.9)	-1.8	(0.8)	**3.6**	(0.9)	3.6	(1.5)	-3.6	(1.3)	**7.2**	(1.6)
	Hong Kong-China	0.4	(0.4)	-0.4	(0.4)	0.8	(0.4)	1.3	(0.8)	-1.5	(0.7)	**2.8**	(0.9)	3.5	(1.6)	-4.0	(1.1)	**7.5**	(1.6)
	Macao-China	0.9	(0.2)	-0.9	(0.2)	**1.8**	(0.3)	2.2	(0.5)	-2.1	(0.4)	**4.2**	(0.7)	4.6	(1.0)	-4.3	(0.7)	**9.0**	(1.4)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Navigation indices for boys, girls and difference between boys and girls are centred on the test mean for each test and the country mean for each country (see Annex A1b).

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Table VI.3.2 Correlations of navigation indices with digital reading scores (WLEs)

		Correlations of navigation indices with digital reading scores (WLEs) by country					
		Number of relevant pages visited		Number of visits to relevant pages		Number of page visits	
		Correlation	S.E.	Correlation	S.E.	Correlation	S.E.
OECD	Australia	0.80	(0.01)	0.60	(0.02)	0.37	(0.02)
	Austria	0.84	(0.01)	0.72	(0.01)	0.55	(0.02)
	Belgium	0.82	(0.01)	0.63	(0.01)	0.38	(0.03)
	Chile	0.81	(0.01)	0.63	(0.02)	0.47	(0.03)
	Denmark	0.81	(0.02)	0.63	(0.03)	0.41	(0.04)
	France	0.85	(0.02)	0.62	(0.04)	0.42	(0.04)
	Hungary	0.86	(0.01)	0.75	(0.02)	0.59	(0.03)
	Iceland	0.79	(0.01)	0.58	(0.03)	0.37	(0.03)
	Ireland	0.82	(0.01)	0.64	(0.02)	0.42	(0.03)
	Japan	0.74	(0.02)	0.51	(0.04)	0.35	(0.04)
	Korea	0.68	(0.03)	0.39	(0.04)	0.20	(0.04)
	New Zealand	0.79	(0.01)	0.56	(0.02)	0.29	(0.03)
	Norway	0.81	(0.01)	0.65	(0.02)	0.49	(0.02)
	Poland	0.85	(0.01)	0.70	(0.01)	0.55	(0.02)
	Spain	0.84	(0.01)	0.65	(0.03)	0.47	(0.03)
	Sweden	0.79	(0.01)	0.61	(0.02)	0.41	(0.03)
	OECD average-16	0.81	(0.00)	0.62	(0.01)	0.42	(0.01)
Partners	Colombia	0.76	(0.01)	0.56	(0.03)	0.46	(0.03)
	Hong Kong-China	0.77	(0.01)	0.56	(0.03)	0.35	(0.03)
	Macao-China	0.71	(0.01)	0.42	(0.02)	0.15	(0.03)

Note: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b).
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Table VI.3.3 Correlations of navigation indices with print reading scores (WLEs)

		Correlations of navigation indices with print reading scores (WLEs) by country					
		Number of relevant pages visited		Number of visits to relevant pages		Number of page visits	
		Correlation	S.E.	Correlation	S.E.	Correlation	S.E.
OECD	Australia	0.63	(0.01)	0.48	(0.02)	0.31	(0.02)
	Austria	0.67	(0.01)	0.57	(0.02)	0.43	(0.02)
	Belgium	0.69	(0.01)	0.55	(0.01)	0.35	(0.02)
	Chile	0.64	(0.02)	0.52	(0.02)	0.41	(0.03)
	Denmark	0.61	(0.03)	0.47	(0.03)	0.30	(0.04)
	France	0.58	(0.06)	0.46	(0.04)	0.32	(0.04)
	Hungary	0.72	(0.02)	0.63	(0.03)	0.51	(0.03)
	Iceland	0.62	(0.02)	0.47	(0.03)	0.31	(0.03)
	Ireland	0.61	(0.02)	0.46	(0.02)	0.29	(0.03)
	Japan	0.48	(0.03)	0.33	(0.04)	0.22	(0.03)
	Korea	0.54	(0.04)	0.35	(0.04)	0.18	(0.04)
	New Zealand	0.62	(0.02)	0.42	(0.03)	0.19	(0.03)
	Norway	0.58	(0.02)	0.46	(0.02)	0.35	(0.02)
	Poland	0.67	(0.02)	0.55	(0.02)	0.43	(0.02)
	Spain	0.64	(0.02)	0.49	(0.03)	0.35	(0.03)
	Sweden	0.64	(0.02)	0.48	(0.02)	0.32	(0.02)
	OECD average-16	0.62	(0.01)	0.48	(0.01)	0.33	(0.01)
Partners	Colombia	0.58	(0.03)	0.47	(0.04)	0.41	(0.03)
	Hong Kong-China	0.48	(0.03)	0.32	(0.04)	0.20	(0.04)
	Macao-China	0.43	(0.02)	0.24	(0.02)	0.06	(0.03)

Note: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b).
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Table VI.3.4 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of relevant pages visited

		Intercept		Number of relevant pages visited				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR^2	Effect size f^2	Change in score	S.E.	ΔR^2	Effect size f^2	R^2	S.E.
OECD	Australia	352	(7.37)	**6.63**	(0.18)	0.19	0.67	**0.37**	(0.01)	0.08	0.28	**0.72**	(0.01)
	Austria	316	(11.58)	**6.37**	(0.24)	0.23	0.95	**0.30**	(0.02)	0.05	0.21	**0.76**	(0.01)
	Belgium	331	(7.45)	**6.13**	(0.18)	0.17	0.67	**0.35**	(0.01)	0.07	0.28	**0.75**	(0.01)
	Chile	283	(11.05)	**5.83**	(0.19)	0.23	0.79	**0.32**	(0.02)	0.05	0.17	**0.71**	(0.01)
	Denmark	325	(16.65)	**6.44**	(0.36)	0.24	0.88	**0.33**	(0.03)	0.07	0.26	**0.73**	(0.02)
	France	371	(16.78)	**6.93**	(0.59)	0.31	1.32	**0.25**	(0.04)	0.05	0.21	**0.77**	(0.03)
	Hungary	295	(10.31)	**6.31**	(0.21)	0.20	0.90	**0.33**	(0.02)	0.04	0.18	**0.78**	(0.01)
	Iceland	374	(12.27)	**6.89**	(0.28)	0.24	0.74	**0.28**	(0.02)	0.05	0.15	**0.68**	(0.02)
	Ireland	376	(11.02)	**6.73**	(0.24)	0.27	0.99	**0.26**	(0.02)	0.05	0.18	**0.73**	(0.01)
	Japan	407	(8.06)	**6.15**	(0.26)	0.28	0.71	**0.23**	(0.02)	0.06	0.15	**0.61**	(0.03)
	Korea	380	(10.72)	**5.59**	(0.24)	0.16	0.38	**0.34**	(0.02)	0.11	0.26	**0.57**	(0.03)
	New Zealand	335	(9.68)	**6.60**	(0.22)	0.18	0.66	**0.39**	(0.02)	0.10	0.37	**0.73**	(0.01)
	Norway	362	(8.40)	**6.55**	(0.16)	0.28	0.99	**0.27**	(0.02)	0.06	0.21	**0.72**	(0.01)
	Poland	322	(9.56)	**6.27**	(0.14)	0.25	1.03	**0.28**	(0.02)	0.04	0.17	**0.76**	(0.01)
	Spain	349	(13.31)	**6.84**	(0.34)	0.27	1.02	**0.27**	(0.03)	0.04	0.15	**0.73**	(0.01)
	Sweden	350	(10.23)	**6.15**	(0.25)	0.19	0.64	**0.33**	(0.02)	0.07	0.23	**0.70**	(0.01)
	OECD average-16	345	(2.81)	**6.40**	(0.07)	0.23	0.83	**0.31**	(0.01)	0.06	0.22	**0.71**	(0.00)
Partners	Colombia	253	(10.26)	**5.22**	(0.23)	0.23	0.61	**0.28**	(0.03)	0.06	0.16	**0.63**	(0.02)
	Hong Kong-China	353	(9.89)	**6.16**	(0.16)	0.29	0.86	**0.30**	(0.02)	0.08	0.24	**0.66**	(0.02)
	Macao-China	334	(5.94)	**5.22**	(0.13)	0.25	0.65	**0.32**	(0.01)	0.11	0.29	**0.62**	(0.01)

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.3.5 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of visits to relevant pages

		Intercept		Number of visits to relevant pages				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR^2	Effect size f^2	Change in score	S.E.	ΔR^2	Effect size f^2	R^2	S.E.
OECD	Australia	252	(7.81)	**2.42**	(0.15)	0.08	0.21	**0.56**	(0.01)	0.25	0.64	**0.61**	(0.01)
	Austria	235	(11.76)	**2.99**	(0.16)	0.14	0.42	**0.47**	(0.02)	0.15	0.45	**0.67**	(0.01)
	Belgium	220	(8.11)	**2.09**	(0.13)	0.06	0.17	**0.57**	(0.02)	0.25	0.69	**0.64**	(0.01)
	Chile	176	(13.17)	**2.11**	(0.16)	0.10	0.23	**0.56**	(0.03)	0.18	0.42	**0.57**	(0.02)
	Denmark	227	(14.20)	**2.63**	(0.21)	0.11	0.28	**0.53**	(0.03)	0.21	0.53	**0.60**	(0.02)
	France	270	(9.34)	**2.67**	(0.16)	0.12	0.28	**0.45**	(0.02)	0.19	0.44	**0.57**	(0.07)
	Hungary	200	(11.14)	**2.90**	(0.15)	0.12	0.40	**0.53**	(0.02)	0.14	0.47	**0.70**	(0.02)
	Iceland	263	(17.49)	**2.23**	(0.26)	0.09	0.19	**0.49**	(0.03)	0.20	0.43	**0.53**	(0.02)
	Ireland	279	(14.75)	**2.68**	(0.17)	0.13	0.32	**0.46**	(0.03)	0.19	0.47	**0.59**	(0.02)
	Japan	330	(10.91)	**1.89**	(0.13)	0.12	0.21	**0.38**	(0.02)	0.18	0.32	**0.44**	(0.03)
	Korea	291	(12.50)	**1.03**	(0.12)	0.03	0.05	**0.51**	(0.02)	0.29	0.53	**0.45**	(0.03)
	New Zealand	226	(9.98)	**2.37**	(0.17)	0.08	0.21	**0.60**	(0.02)	0.31	0.83	**0.63**	(0.02)
	Norway	281	(10.65)	**2.83**	(0.16)	0.16	0.40	**0.43**	(0.02)	0.17	0.42	**0.60**	(0.02)
	Poland	215	(10.51)	**2.62**	(0.13)	0.14	0.40	**0.49**	(0.02)	0.16	0.45	**0.65**	(0.02)
	Spain	230	(15.69)	**2.70**	(0.29)	0.13	0.32	**0.52**	(0.03)	0.17	0.42	**0.60**	(0.02)
	Sweden	256	(9.67)	**2.27**	(0.16)	0.09	0.23	**0.52**	(0.02)	0.23	0.58	**0.60**	(0.02)
	OECD average-16	247	(3.01)	**2.40**	(0.04)	0.11	0.27	**0.50**	(0.01)	0.20	0.50	**0.59**	(0.01)
Partners	Colombia	180	(11.37)	**1.70**	(0.15)	0.09	0.18	**0.46**	(0.03)	0.17	0.33	**0.49**	(0.03)
	Hong Kong-China	269	(11.67)	**2.04**	(0.11)	0.14	0.29	**0.46**	(0.02)	0.21	0.44	**0.52**	(0.02)
	Macao-China	264	(8.43)	**1.42**	(0.10)	0.08	0.14	**0.47**	(0.02)	0.27	0.49	**0.45**	(0.02)

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.3.6 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of page visits

		Intercept		Number of page visits				Print reading (WLE)				Model fit	
		Intercept	S.E.	Change in score	S.E.	ΔR^2	Effect size f^2	Change in score	S.E.	ΔR^2	Effect size f^2	R^2	S.E.
OECD	Australia	198	(7.45)	**0.84**	(0.09)	0.03	0.07	**0.66**	(0.01)	0.41	0.92	**0.55**	(0.01)
	Austria	171	(12.73)	**1.26**	(0.10)	0.07	0.17	**0.61**	(0.03)	0.30	0.75	**0.60**	(0.01)
	Belgium	163	(8.83)	**0.62**	(0.10)	0.02	0.05	**0.68**	(0.02)	0.45	1.11	**0.59**	(0.01)
	Chile	125	(11.49)	**0.85**	(0.09)	0.04	0.08	**0.68**	(0.03)	0.30	0.62	**0.52**	(0.02)
	Denmark	169	(14.69)	**0.99**	(0.14)	0.05	0.11	**0.65**	(0.03)	0.36	0.77	**0.53**	(0.02)
	France	220	(10.63)	**1.08**	(0.11)	0.05	0.10	**0.56**	(0.02)	0.32	0.64	**0.50**	(0.08)
	Hungary	127	(10.54)	**1.19**	(0.12)	0.05	0.14	**0.68**	(0.02)	0.28	0.77	**0.64**	(0.02)
	Iceland	211	(15.15)	**0.72**	(0.12)	0.03	0.06	**0.60**	(0.03)	0.34	0.64	**0.47**	(0.02)
	Ireland	224	(15.17)	**1.06**	(0.12)	0.05	0.10	**0.57**	(0.03)	0.34	0.70	**0.51**	(0.02)
	Japan	299	(12.56)	**0.66**	(0.08)	0.05	0.08	**0.43**	(0.02)	0.26	0.42	**0.38**	(0.03)
	Korea	266	(13.61)	**0.26**	(0.06)	0.01	0.02	**0.55**	(0.02)	0.38	0.66	**0.42**	(0.03)
	New Zealand	175	(9.78)	**0.79**	(0.11)	0.02	0.05	**0.70**	(0.02)	0.49	1.14	**0.57**	(0.02)
	Norway	234	(10.78)	**1.24**	(0.10)	0.08	0.17	**0.53**	(0.02)	0.28	0.58	**0.52**	(0.02)
	Poland	158	(10.40)	**1.20**	(0.08)	0.07	0.17	**0.61**	(0.02)	0.28	0.67	**0.58**	(0.02)
	Spain	170	(13.33)	**1.17**	(0.15)	0.06	0.13	**0.64**	(0.03)	0.31	0.65	**0.53**	(0.02)
	Sweden	209	(9.15)	**0.85**	(0.09)	0.04	0.09	**0.61**	(0.02)	0.38	0.84	**0.55**	(0.02)
	OECD average-16	195	(2.97)	**0.92**	(0.03)	0.05	0.10	**0.61**	(0.01)	0.34	0.74	**0.53**	(0.01)
Partners	Colombia	157	(11.10)	**0.78**	(0.08)	0.05	0.09	**0.51**	(0.03)	0.23	0.42	**0.45**	(0.03)
	Hong Kong-China	229	(13.45)	**0.72**	(0.08)	0.06	0.11	**0.53**	(0.02)	0.31	0.54	**0.43**	(0.02)
	Macao-China	238	(8.87)	**0.28**	(0.05)	0.01	0.02	**0.52**	(0.02)	0.36	0.58	**0.38**	(0.01)

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.3.7 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of page visits including a quadratic trend for the number of page visits

		Intercept		Print reading (WLE)		Number of page visits		Number of page visits (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R^2	S.E.	ΔR^2	Effect size f^2
OECD	Australia	238	(7.19)	**0.61**	(0.01)	**1.09**	(0.08)	**-0.03**	(0.00)	**0.59**	(0.01)	0.04	0.10
	Austria	202	(13.05)	**0.57**	(0.03)	**1.43**	(0.10)	**-0.02**	(0.00)	**0.63**	(0.01)	0.03	0.08
	Belgium	205	(7.59)	**0.62**	(0.01)	**0.94**	(0.08)	**-0.02**	(0.00)	**0.63**	(0.01)	0.03	0.08
	Chile	157	(12.62)	**0.62**	(0.03)	**1.07**	(0.09)	**-0.01**	(0.00)	**0.54**	(0.02)	0.02	0.04
	Denmark	202	(15.66)	**0.60**	(0.03)	**1.26**	(0.14)	**-0.02**	(0.00)	**0.56**	(0.02)	0.03	0.07
	France	263	(15.26)	**0.49**	(0.03)	**1.49**	(0.23)	**-0.03**	(0.00)	**0.57**	(0.04)	0.07	0.16
	Hungary	169	(10.32)	**0.62**	(0.02)	**1.42**	(0.10)	**-0.02**	(0.00)	**0.66**	(0.02)	0.02	0.06
	Iceland	262	(14.79)	**0.52**	(0.03)	**1.10**	(0.11)	**-0.03**	(0.00)	**0.53**	(0.03)	0.06	0.13
	Ireland	263	(15.16)	**0.51**	(0.03)	**1.33**	(0.10)	**-0.02**	(0.00)	**0.55**	(0.02)	0.04	0.09
	Japan	332	(12.34)	**0.39**	(0.02)	**0.96**	(0.07)	**-0.01**	(0.00)	**0.42**	(0.03)	0.04	0.07
	Korea	283	(13.29)	**0.53**	(0.02)	**0.40**	(0.06)	**-0.01**	(0.00)	**0.44**	(0.03)	0.01	0.02
	New Zealand	211	(10.50)	**0.65**	(0.02)	**1.06**	(0.09)	**-0.02**	(0.00)	**0.60**	(0.02)	0.03	0.07
	Norway	270	(10.73)	**0.48**	(0.02)	**1.51**	(0.08)	**-0.02**	(0.00)	**0.57**	(0.02)	0.05	0.12
	Poland	198	(10.80)	**0.55**	(0.02)	**1.39**	(0.07)	**-0.02**	(0.00)	**0.61**	(0.02)	0.03	0.08
	Spain	216	(15.97)	**0.57**	(0.03)	**1.37**	(0.14)	**-0.02**	(0.00)	**0.57**	(0.02)	0.04	0.09
	Sweden	247	(9.61)	**0.55**	(0.02)	**1.12**	(0.09)	**-0.02**	(0.00)	**0.58**	(0.02)	0.03	0.07
	OECD average-16	232	(3.12)	**0.55**	(0.01)	**1.18**	(0.10)	**-0.02**	(0.00)	**0.57**	(0.02)	0.04	0.08
Partners	Colombia	176	(10.69)	**0.48**	(0.03)	**1.03**	(0.08)	**-0.01**	(0.00)	**0.46**	(0.03)	0.02	0.04
	Hong Kong-China	270	(12.61)	**0.48**	(0.02)	**0.95**	(0.06)	**-0.01**	(0.00)	**0.47**	(0.02)	0.04	0.08
	Macao-China	261	(9.30)	**0.49**	(0.02)	**0.54**	(0.06)	**-0.01**	(0.00)	**0.41**	(0.02)	0.03	0.05

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.3.8 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of visits to relevant pages including a quadratic trend for the number of visits to relevant pages

		Intercept		Print reading (WLE)		Number of visits to relevant pages		Number of visits to relevant pages (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R^2	S.E.	ΔR^2	Effect size f^2
OECD	Australia	281	(7.44)	**0.52**	(0.01)	**2.25**	(0.11)	**-0.05**	(0.01)	**0.64**	(0.01)	0.03	0.08
	Austria	249	(12.29)	**0.46**	(0.02)	**2.86**	(0.15)	**-0.03**	(0.01)	**0.68**	(0.01)	0.01	0.03
	Belgium	249	(8.17)	**0.53**	(0.02)	**2.01**	(0.11)	**-0.05**	(0.00)	**0.67**	(0.01)	0.02	0.06
	Chile	198	(13.03)	**0.53**	(0.03)	**2.33**	(0.13)	**-0.02**	(0.00)	**0.59**	(0.02)	0.01	0.02
	Denmark	255	(16.47)	**0.50**	(0.03)	**2.47**	(0.17)	**-0.06**	(0.01)	**0.63**	(0.02)	0.03	0.08
	France	304	(14.52)	**0.41**	(0.03)	**2.73**	(0.26)	**-0.06**	(0.01)	**0.66**	(0.03)	0.09	0.27
	Hungary	217	(11.10)	**0.51**	(0.02)	**2.88**	(0.14)	**-0.02**	(0.00)	**0.71**	(0.02)	0.01	0.03
	Iceland	307	(15.20)	**0.43**	(0.03)	**2.32**	(0.16)	**-0.06**	(0.01)	**0.58**	(0.02)	0.05	0.12
	Ireland	311	(13.62)	**0.42**	(0.03)	**2.57**	(0.13)	**-0.05**	(0.01)	**0.62**	(0.02)	0.03	0.08
	Japan	363	(10.59)	**0.34**	(0.02)	**1.90**	(0.10)	**-0.05**	(0.01)	**0.49**	(0.03)	0.05	0.10
	Korea	315	(12.55)	**0.48**	(0.02)	**1.07**	(0.11)	**-0.03**	(0.00)	**0.47**	(0.03)	0.02	0.04
	New Zealand	255	(10.80)	**0.56**	(0.02)	**2.21**	(0.14)	**-0.05**	(0.01)	**0.65**	(0.02)	0.02	0.06
	Norway	306	(9.23)	**0.40**	(0.02)	**2.83**	(0.15)	**-0.04**	(0.01)	**0.63**	(0.01)	0.03	0.08
	Poland	239	(10.09)	**0.46**	(0.02)	**2.64**	(0.10)	**-0.03**	(0.00)	**0.66**	(0.01)	0.01	0.03
	Spain	265	(15.61)	**0.47**	(0.03)	**2.77**	(0.20)	**-0.04**	(0.01)	**0.63**	(0.02)	0.03	0.08
	Sweden	284	(9.86)	**0.48**	(0.02)	**2.19**	(0.13)	**-0.04**	(0.00)	**0.62**	(0.02)	0.02	0.05
	OECD average-16	275	(3.05)	**0.47**	(0.01)	**2.38**	(0.14)	**-0.04**	(0.00)	**0.62**	(0.02)	0.03	0.08
Partners	Colombia	197	(10.69)	**0.43**	(0.03)	**2.00**	(0.12)	**-0.02**	(0.00)	**0.50**	(0.03)	0.01	0.02
	Hong Kong-China	309	(11.55)	**0.40**	(0.02)	**2.17**	(0.12)	**-0.03**	(0.01)	**0.55**	(0.02)	0.03	0.07
	Macao-China	292	(8.16)	**0.43**	(0.02)	**1.65**	(0.08)	**-0.03**	(0.00)	**0.49**	(0.02)	0.04	0.08

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.3.9 Regression of digital reading scores (WLEs) on print reading scores (WLEs) and the number of relevant pages visited including a quadratic trend for the number of relevant pages visited

		Intercept		Print reading (WLE)		Number of relevant pages visited		Number of relevant pages visited (squared)		Model fit		Increment of quadratic term	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	R^2	S.E.	ΔR^2	Effect size f^2
OECD	Australia	352	(7.36)	**0.36**	(0.01)	**6.70**	(0.22)	0.01	(0.02)	**0.72**	(0.01)	0.00	0.00
	Austria	316	(11.61)	**0.29**	(0.02)	**6.61**	(0.21)	**0.03**	(0.01)	**0.76**	(0.01)	0.00	0.00
	Belgium	331	(7.51)	**0.35**	(0.01)	**6.17**	(0.18)	0.00	(0.01)	**0.75**	(0.01)	0.00	0.00
	Chile	281	(11.09)	**0.32**	(0.02)	**5.86**	(0.19)	0.02	(0.01)	**0.71**	(0.01)	0.00	0.00
	Denmark	325	(16.94)	**0.34**	(0.03)	**6.24**	(0.32)	-0.02	(0.02)	**0.73**	(0.02)	0.00	0.00
	France	365	(10.39)	**0.27**	(0.02)	**6.30**	(0.26)	-0.04	(0.03)	**0.77**	(0.03)	0.00	0.02
	Hungary	290	(10.47)	**0.33**	(0.02)	**6.51**	(0.20)	**0.04**	(0.01)	**0.78**	(0.01)	0.00	0.01
	Iceland	373	(12.26)	**0.28**	(0.02)	**6.48**	(0.37)	-0.04	(0.02)	**0.68**	(0.02)	0.00	0.00
	Ireland	375	(10.79)	**0.26**	(0.02)	**6.78**	(0.25)	0.01	(0.01)	**0.73**	(0.01)	0.00	0.00
	Japan	408	(8.55)	**0.23**	(0.02)	**5.89**	(0.28)	-0.03	(0.03)	**0.61**	(0.03)	0.00	0.00
	Korea	381	(10.87)	**0.34**	(0.02)	**5.44**	(0.31)	-0.02	(0.02)	**0.57**	(0.03)	0.00	0.00
	New Zealand	335	(9.69)	**0.39**	(0.02)	**6.64**	(0.29)	0.00	(0.02)	**0.73**	(0.01)	0.00	0.00
	Norway	362	(8.45)	**0.28**	(0.02)	**6.41**	(0.18)	-0.01	(0.01)	**0.72**	(0.01)	0.00	0.00
	Poland	319	(9.27)	**0.28**	(0.02)	**6.46**	(0.16)	**0.03**	(0.01)	**0.76**	(0.01)	0.00	0.01
	Spain	349	(13.88)	**0.27**	(0.03)	**6.94**	(0.25)	0.01	(0.02)	**0.73**	(0.01)	0.00	0.00
	Sweden	350	(10.28)	**0.33**	(0.02)	**6.29**	(0.28)	0.01	(0.01)	**0.70**	(0.01)	0.00	0.00
	OECD average-16	344	(2.71)	**0.31**	(0.01)	**6.36**	(0.25)	0.00	(0.00)	**0.71**	(0.02)	0.00	0.00
Partners	Colombia	248	(10.73)	**0.27**	(0.03)	**5.03**	(0.24)	**0.07**	(0.01)	**0.63**	(0.02)	0.01	0.02
	Hong Kong-China	353	(10.10)	**0.30**	(0.02)	**6.13**	(0.20)	0.00	(0.01)	**0.66**	(0.02)	0.00	0.00
	Macao-China	334	(5.91)	**0.32**	(0.01)	**5.16**	(0.15)	-0.01	(0.01)	**0.62**	(0.01)	0.00	0.00

Notes: Page visit counts are centred on the test mean for each test and the country mean for each country (see Annex A1b). Changes in score and R^2 values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.3.10 *IWANTTOHELP* Question 1. Summary of student performance

	All students			Boys			Girls		
			Digital reading performance			Digital reading performance			Digital reading performance
Score	Number	% of all students	Mean score	Number	% of all boys	Mean score	Number	% of all girls	Mean score
Full credit	18 840	84.4	518	9 022	80.9	511	9 818	87.9	524
No credit	3 189	14.3	376	1 954	17.5	317	1 235	11.1	385
No response	296	1.3	295	177	1.6	287	119	1.1	306

Note: This table presents unweighted values.

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Table VI.3.11 *IWANTTOHELP* Question 1. Number of pages visited

Number of pages visited	All students: Number	All students: % of all students	All students: Digital reading performance Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance Mean score
1 (starting page only)	18 641	83.5	496	9 005	80.7	482	9 636	86.3	508
2 or more	3 684	16.5	488	2 148	19.3	485	1 536	13.7	493

Note: This table presents unweighted values.
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Table VI.3.12 *IWANTTOHELP* Question 1. Students with full credit: digital reading performance, by number of pages visited

Number of pages visited	Students with full credit: Number	Students with full credit: % of all students	Students with full credit: Digital reading performance Mean score
1	15 805	70.8	519
2	1 797	8.0	513
3	681	3.1	514
4	310	1.4	506
5	124	0.6	493
6 or more	123	0.6	478

Note: This table presents unweighted values.
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[Part 1/1]
Table VI.3.13 *IWANTTOHELP* Question 1. Students with full credit: reading performance, by number of page visits

Number of page visits	Students with full credit: Number	Students with full credit: % of all students	Students with full credit: Digital reading performance Mean score	Students with full credit: Print reading performance Mean score	Boys with full credit: Number	Boys with full credit: % of all boys	Boys with full credit: Digital reading performance Mean score	Boys with full credit: Print reading performance Mean score	Girls with full credit: Number	Girls with full credit: % of all girls	Girls with full credit: Digital reading performance Mean score	Girls with full credit: Print reading performance Mean score
1	15 758	70.6	519	517	7 262	65.1	511	503	8 496	76.0	526	530
2	399	1.8	485	487	205	1.8	478	471	194	1.7	492	504
3	1 174	5.3	520	512	654	5.9	521	507	520	4.7	519	518
4	358	1.6	506	504	210	1.9	502	490	148	1.3	512	524
5	428	1.9	523	514	231	2.1	524	508	197	1.8	521	520
6	151	0.7	512	503	101	0.9	511	496	50	0.4	512	518
7 to 9	361	1.6	506	496	225	2.0	506	490	136	1.2	507	507
10 or more	211	0.9	484	486	134	1.2	484	474	77	0.7	485	506
All students with full credit	18 840	84.4	518	515	9 022	80.9	511	501	9 818	87.9	524	528

Note: This table presents unweighted values.
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[Part 1/1]
Table VI.3.14 *IWANTTOHELP* Question 2. Digital reading performance, by visits to P25

Score	Did students visit P25?	Additional pages visited	All students: Number	All students: % of all students	All students: Digital reading performance Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance Mean score
Full credit	yes	starting page (P24) only	14 442	64.7	532	6 702	60.1	527	7 740	69.3	536
	yes	more than 2 pages	1 764	7.9	512	912	8.2	509	852	7.6	515
	yes	any page(s)	16 206	72.6	530	7 614	68.3	525	8 592	76.9	534
	no		880	3.9	388	546	4.9	381	334	3.0	400
	All students with full credit		17 086	76.5	523	8 160	73.2	515	8 926	79.9	529
No credit	yes	any page(s)	1 545	6.9	442	886	7.9	438	659	5.9	446
	no		3 182	14.3	391	1 827	16.4	381	1 355	12.1	405
	All students with no credit		4 727	21.2	408	2 713	24.3	399	2 014	18.0	419
No response	yes	any page(s)	64	0.3	467	36	0.3	465	28	0.3	469
	no		448	2.0	344	244	2.2	330	204	1.8	362

Note: This table presents unweighted values.
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Table VI.3.15 ***IWANTTOHELP* Question 4. Summary of student performance**

Score	All students			Boys			Girls		
	Number	% of all students	Digital reading performance Mean score	Number	% of all boys	Digital reading performance Mean score	Number	% of all girls	Digital reading performance Mean score
Full credit	9 319	42.3	570	4 176	37.9	568	5 143	46.7	572
Partial credit	3 084	14.0	494	1 798	16.3	489	1 286	11.7	502
No credit	944	4.3	467	546	5.0	464	398	3.6	470
No response	8 689	39.4	417	4 590	41.7	403	4 099	37.2	433

Note: This table presents unweighted values.
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Table VI.3.16 ***IWANTTOHELP* Question 4. Time on task**

Score	All students		Boys		Girls	
	Number	Time (Seconds)	Number	Time (Seconds)	Number	Time (Seconds)
Full credit	9 319	235	4 176	222	5 143	246
Partial credit	3 084	201	1 798	191	1 286	216
No credit	944	227	546	216	398	242
No response	8 689	115	4 499	109	4 190	122
All students	22 036	183	11 019	185	11 017	198

Note: This table presents unweighted values.
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Table VI.3.17 ***IWANTTOHELP* Question 4. Relationship of page visits to digital reading performance**

	Time spent on task (seconds)	Number of pages visited	Number of relevant pages visited	Number of visits to relevant pages	Number of irrelevant pages visited	Number of visits to irrelevant pages	Number of page visits
Correlation with digital reading performance	0.33	0.52	0.63	0.41	-0.09	-0.07	0.32
Mean time, mean pages or mean visits, by score							
Full credit	235	8.2	7.5	12.5	0.8	1.2	13.7
Partial credit	201	8.3	7.1	11.7	1.2	1.9	13.6
No credit	227	8.3	4.6	8.2	3.7	5.1	13.3
No response	115	3.6	2.6	5.1	1.0	1.6	6.6

Note: This table presents unweighted values.
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Table VI.3.18 ***IWANTTOHELP* Question 4. Variations in time spent on the task and pages visited**

		Time spent on task (seconds)	Number of pages visited	Number of relevant pages visited	Number of visits to relevant pages	Number of irrelevant pages visited	Number of visits to irrelevant pages	Number of page visits
OECD	**Australia**	171	6.7	6.1	9.8	0.6	0.9	10.6
	Austria	139	5.1	4.3	6.9	0.8	1.2	8.1
	Belgium	181	6.4	5.5	9.1	0.9	1.4	10.4
	Chile	168	5.1	4.2	6.9	0.9	1.3	8.1
	Denmark	171	6.2	5.2	8.2	1.0	1.4	9.6
	France	188	6.2	5.1	8.9	1.0	1.5	10.4
	Hungary	151	5.6	4.7	7.1	0.8	1.1	8.2
	Iceland	155	6.7	6.0	8.4	0.7	1.0	9.4
	Ireland	189	6.3	5.6	9.1	0.7	1.0	10.1
	Japan	254	7.8	6.3	12.5	1.6	2.5	15.0
	Korea	223	8.7	7.1	13.5	1.6	2.7	16.2
	New Zealand	200	7.0	6.3	10.8	0.7	1.1	11.8
	Norway	163	6.5	5.8	8.1	0.7	0.8	8.9
	Poland	164	5.3	4.1	7.5	1.3	2.0	9.6
	Spain	163	6.0	5.1	7.8	0.8	1.1	9.0
	Sweden	188	6.6	5.6	9.1	1.1	1.6	10.7
	OECD average-16	179	6.4	5.4	9.0	1.0	1.4	10.4
Partners	**Colombia**	161	4.1	3.3	5.4	0.8	1.2	6.7
	Hong Kong-China	238	8.0	6.2	14.4	1.8	3.2	17.6
	Macao-China	241	8.0	6.0	13.0	2.0	3.7	16.8

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]

Table VI.3.19 *IWANTTOHELP* Question 4. Student performance according to initial navigation sequences

Score	Initial pathway	Number	% of all students	Digital reading performance: Mean score
Full credit	Pathway A (efficient)	3 056	13.9	577
	Pathway B (efficient)	277	1.3	535
	Pathway C or D	8	0.0	567
	Any other pathway	5 978	27.1	568
	All students with full credit	9 319	42.3	570
Partial credit	Pathway A (efficient)	661	3.0	500
	Pathway B (efficient)	241	1.1	481
	Pathway C or D	7	0.0	458
	Any other pathway	2 175	9.9	494
	All students with partial credit	3 084	14.0	494
No credit	Pathway A (efficient)	14	0.1	533
	Pathway B (efficient)	4	0.0	425
	Pathway C or D	260	1.2	462
	Any other pathway	666	3.0	467
	All students with no credit	944	4.3	467
No response	Pathway A (efficient)	9	0.0	501
	Pathway B (efficient)	1	0.0	m

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]

Table VI.3.20 *IWANTTOHELP* Question 4. Number of page visits for students obtaining no credit

Score	Number of page visits	Number	% of all students	Digital reading performance: Mean score	Print reading performance: Mean score
No credit	4 or fewer	2	0.0	m	m
	5 to 10	434	2.0	463	484
	11 or more	508	2.3	471	484
	All students with no credit	944	4.3	467	484
No response	1 (starting page only)	1 961	8.9	350	396
	2 to 4	2 512	11.4	412	442
	5 to 10	2 421	11.0	443	463
	11 or more	1 794	8.1	463	481
	no relevant pages beyond starting page	2 215	10.1	350	397
	All students with no response	8 689	39.4	417	446
No credit / No response combined	4 or fewer	4 475	20.3	385	422

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]

Table VI.3.21 *SMELL* Question 1. Summary of student performance

	All students			Boys			Girls		
Score	Number	% of all students	Digital reading performance: Mean score	Number	% of all boys	Digital reading performance: Mean score	Number	% of all girls	Digital reading performance: Mean score
Full credit	9 688	42.4	541	4 540	38.4	535	5 148	44.9	546
No credit	12 393	54.2	465	6 393	54.0	454	6 000	52.3	476
No response	779	3.4	354	450	3.8	346	329	2.9	365

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]

Table VI.3.22 *SMELL* Question 1. Digital reading performance and time spent on P02

		All students			Boys				Girls			
Score	Did student visit P02?	Number	% of all students	Digital reading performance: Mean score	Number	% of all boys	Digital reading performance: Mean score	Mean time on P02: Seconds	Number	% of all girls	Digital reading performance: Mean score	Mean time on P02: Seconds
Full credit	Yes	8 622	37.7	552	4 058	34.3	546	80	4 564	39.8	557	83
	No	1 066	4.7	456	482	4.1	443	-	584	5.1	466	-
	All students with full credit	9 688	42.4	541	4 540	38.4	535		5 148	44.9	546	
No credit	Yes	9 996	43.7	485	4 851	41.0	480	67	4 973	43.3	493	71
	No	3 176	13.9	372	1 542	13.0	371	-	1 027	8.9	393	-
	All students with no credit	12 393	54.2	465	6 843	57.8	447		6 000	52.3	476	
No response	Yes	172	0.8	404	100	0.8	397	46	72	0.6	415	47
	No	607	2.7	340	350	3.0	332	-	257	2.2	351	-
	All students with no response	779	3.4	354	450	3.8	346		329	2.9	365	

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.23 *SMELL* Question 1. Students with full credit: number of page visits and time spent on P02

Number of page visits	Students with full credit: Number	Students with full credit: % of all students	Students with full credit: Digital reading performance – Mean score	Boys with full credit: Number	Boys with full credit: % of all boys	Boys with full credit: Digital reading performance – Mean score	Boys with full credit: Mean time on P02 – Seconds	Girls with full credit: Number	Girls with full credit: % of all girls	Girls with full credit: Digital reading performance – Mean score	Girls with full credit: Mean time on P02 – Seconds
1	911	4.0	456	398	3.4	445	0	513	4.5	469	0
2	7 543	33.0	555	3 449	29.1	550	80	4 094	35.7	560	83
3	296	1.3	500	156	1.3	494	68	140	1.2	506	68
4	398	1.7	533	229	1.9	534	83	169	1.5	532	86
5 to 7	276	1.2	525	152	1.3	526	76	124	1.1	524	79
8 or more	264	1.2	505	156	1.3	495	84	108	0.9	519	84

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.24 *SMELL* Question 1. Digital reading performance, by number of visits to P02

Score	Visits to P02	All students: Number	All students: % of all students	All students: Digital reading performance – Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance – Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance – Mean score
Full credit	**0**	1 066	4.7	456	482	4.2	445	584	5.1	466
	1	7 894	34.5	553	3 645	32.0	547	4 249	37.0	558
	2	509	2.2	539	298	2.6	542	211	1.8	535
	3 or more	219	1.0	525	115	1.0	515	104	0.9	535
No credit	**0**	2 569	11.2	380	1 542	13.5	371	1 027	8.9	393
	1	8 835	38.6	488	4 264	37.5	481	4 571	39.8	494
	2	660	2.9	481	380	3.3	479	280	2.4	484
	3 or more	329	1.4	462	207	1.8	457	122	1.1	471
No response	**0**	607	2.7	340	350	3.1	332	257	2.2	351
	1	122	0.5	412	67	0.6	404	55	0.5	423
	more than 1	50	0.2	385	33	0.3	383	17	0.1	388

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.25 *SMELL* Question 3. Summary of student performance

Score	All students: Number	All students: % of all students	All students: Digital reading performance – Mean score	All students: Print reading performance – Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading score – Mean score	Boys: Print reading score – Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading score – Mean score	Girls: Print reading score – Mean score
Full credit	14 405	63.7	534	530	6 920	61.3	526	514	7 485	66.1	542	544
No credit	7 462	33.0	430	447	3 982	35.4	421	433	3 480	30.7	441	462
No response	736	3.3	355	419	382	3.4	336	399	354	3.1	376	440

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.26 *SMELL* Question 3. Visits to pages with information relevant to SMELL tasks

Page visited	All students: Number	All students: % of all students	All students: Digital reading performance – Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance – Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance – Mean score
P03	12 851	56.9	531	6 063	53.7	524	6 788	60.0	538
P07	15 891	70.3	527	7 504	66.5	521	8 387	74.1	533
P02	6 355	28.1	538	3 021	26.8	531	3 334	29.5	545

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.27 *SMELL* Question 3. Digital reading performance, by visits to relevant pages

Navigation	Score	Number	% of all students	Digital reading performance: Mean score
Visit P01+P03+P07 only	Full credit	2 333	10.3	563
	No credit	522	2.3	488
	No response	25	0.1	459
Visit P01+P07 only	Full credit	2 939	13.0	526
	No credit	1 802	8.0	447
	No response	53	0.2	397
Visit P01+P03 only	Full credit	1 144	5.1	495
	No credit	530	2.3	423
	No response	67	0.3	414
Visit P01 only	Full credit	1 313	5.8	439
	No credit	2 381	10.5	369
	No response	421	1.9	320
All navigation	Full credit	14 405	63.7	534
	No credit	7 462	33.0	430
	No response	736	3.3	355

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.28 *JOB SEARCH* Question 2: Summary of student performance

	All students			Boys			Girls		
			Digital reading performance			Digital reading performance			Digital reading performance
Score	Number	% of all students	Mean score	Number	% of all boys	Mean score	Number	% of all girls	Mean score
Full credit	6 805	29.6	570	3 207	28.1	565	3 598	31.2	575
Partial credit	9 279	40.4	506	4 342	38.0	501	4 937	42.8	511
No credit	3 573	15.6	430	1 993	17.4	424	1 580	13.7	437
No response	3 304	14.4	363	1 881	16.5	356	1 423	12.3	373

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.29 *JOB SEARCH* Question 2. Differences in digital and print reading performance

	All students			Boys			Girls		
	Digital reading performance	Print reading performance	Difference (digital – print)	Digital reading performance	Print reading performance	Difference (digital – print)	Digital reading performance	Print reading performance	Difference (digital – print)
Score	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.	Mean score	Mean score	Score dif.
Full credit	570	553	17	565	549	16	574	557	18
Partial credit	506	508	-2	501	504	-3	511	512	-1
No credit	430	451	-21	424	446	-21	437	458	-20
No response	363	409	-45	356	404	-48	373	415	-43

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.30 *JOB SEARCH* Question 2. Digital reading performance, by navigation sequence

		All students			Boys			Girls		
				Digital reading performance			Digital reading performance			Digital reading performance
Navigation	Score	Number	% of all students	Mean score	Number	% of all boys	Mean score	Number	% of all girls	Mean score
Efficient navigation sequence P02-P03-P13, once only, no other pages	Full credit	2 997	13.1	564	1 303	11.4	557	1 694	14.7	569
	Partial credit	4 535	19.8	500	2 076	18.2	493	2 459	21.3	507
	No credit	1 800	7.8	429	991	8.7	425	809	7.0	435
	No response	483	2.1	380	276	2.4	370	207	1.8	393
	Total	9 815	42.7	501	4 646	40.7	489	5 169	44.8	511
Efficient navigation sequence with multiple visits: P02-P03-P13 only but more than one visit to P03	Full credit	2 721	11.9	586	1 346	11.8	583	1 375	11.9	590
	Partial credit	2 683	11.7	537	1 270	11.1	534	1 413	12.2	540
	No credit	584	2.5	464	303	2.7	458	281	2.4	471
	No response	138	0.6	422	82	0.7	417	56	0.5	429
	Total	6 126	26.7	549	3 001	25.6	545	3 125	26.6	554
All navigation	Full credit	6 805	29.6	570	3 207	28.1	565	3 598	31.2	574
	Partial credit	9 279	40.4	506	4 342	38.0	501	4 937	42.8	511
	No credit	3 573	15.6	430	1 993	17.4	424	1 580	13.7	437
	No response	3 304	14.4	363	1 881	16.5	356	1 423	12.3	373
	Total	22 961	100.0	493	11 423	100.0	482	11 538	100.0	504

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.31 ***JOB SEARCH* Question 2. Students with full credit: digital reading performance, by number of visits to P03**

Number of visits to P03	Students with full credit: Number	Students with full credit: % of all students	Students with full credit: Digital reading performance – Mean score	Boys with full credit: Number	Boys with full credit: % of all boys	Boys with full credit: Digital reading performance – Mean score	Girls with full credit: Number	Girls with full credit: % of all girls	Girls with full credit: Digital reading performance – Mean score
0	150	0.7	532	84	0.7	529	66	0.6	536
1	3 447	15.0	561	1 515	13.3	554	1 932	16.7	567
2	999	4.4	572	462	4.0	567	537	4.7	577
3	746	3.2	579	369	3.2	574	377	3.3	584
4	559	2.4	589	271	2.4	580	288	2.5	598
5	399	1.7	588	225	2.0	587	174	1.5	590
6	243	1.1	590	134	1.2	582	122	1.1	594
more than 6	249	1.1	588	147	1.3	588	102	0.9	586

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.32 ***JOB SEARCH* Question 2. Digital reading performance of students who did and did not visit P03**

Score	Visited P03	All students: Number	All students: % of all students	All students: Digital reading performance – Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance – Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance – Mean score
Full credit	**yes**	6 655	29.0	571	3 123	27.3	566	3 532	30.6	575
	no	150	0.7	532	84	0.7	529	66	0.6	536
Partial credit	**yes**	8 854	38.6	509	4 149	36.3	503	4 705	40.8	514
	no	425	1.9	465	193	1.7	461	232	2.0	467
No credit	**yes**	3 224	14.0	434	1 803	15.8	428	1 421	12.3	441
	no	349	1.5	393	190	1.7	387	159	1.4	400
No response	**yes**	1 654	7.2	384	967	8.5	380	687	6.0	391
	no	1 650	7.2	342	914	8.0	331	736	6.4	356
Total	**yes**	20 387	88.8	507	10 042	87.9	497	10 345	89.7	517
	no	2 574	11.2	380	1 381	12.1	369	1 193	10.3	394
3 or more unique page visits, but not P03										
No credit	**no**	104	0.5	385	58	0.5	375	46	0.4	397
No response	**no**	220	1.0	386	125	1.1	365	95	0.8	412

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/1]
Table VI.3.33 ***JOB SEARCH* Question 2. Digital reading performance, by number of irrelevant page visits**

Visit to irrelevant pages	Score	All students: Number	All students: % of all students	All students: Digital reading performance – Mean score	Boys: Number	Boys: % of all boys	Boys: Digital reading performance – Mean score	Girls: Number	Girls: % of all girls	Girls: Digital reading performance – Mean score
0 irrelevant page visits	**Full credit**	6 153	26.8	573	2 869	25.1	568	3 284	28.5	577
	Partial credit	8 086	35.2	510	3 743	32.8	505	4 343	37.6	515
	No credit	2 872	12.5	433	1 550	13.6	429	1 322	11.5	439
	No response	2 378	10.4	351	1 340	11.7	345	1 038	9.0	359
1 irrelevant page visit	**Full credit**	468	2.0	547	242	2.1	542	226	2.0	553
	Partial credit	801	3.5	484	408	3.6	479	393	3.4	488
	No credit	440	1.9	424	269	2.4	418	171	1.5	432
	No response	591	2.6	390	339	3.0	381	252	2.2	403
2 or more irrelevant page visits	**Full credit**	184	0.8	539	96	0.8	534	88	0.8	545
	Partial credit	392	1.7	479	191	1.7	474	201	1.7	484
	No credit	261	1.1	404	174	1.5	394	87	1.2	425
	No response	335	1.5	401	202	1.8	387	133	1.2	422

Note: This table presents unweighted values.
StatLink http://dx.doi.org/10.1787/888932436575

[Part 1/2]

Table VI.4.1 **Performance groups in reading and socio-economic background**

		Percentage of students who are:								Average index of socio-economic background							
		Top performers (Level 5 or above)		Strong performers (Level 4)		Moderate performers (Level 3 or 2)		Lowest performers (Below Level 2)		Top performers (Level 5 or above)		Strong performers (Level 4)		Moderate performers (Level 3 or 2)		Lowest performers (Below Level 2)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
	Digital reading																
OECD	Australia	17.3	(0.9)	28.5	(0.8)	44.7	(1.0)	9.6	(0.6)	0.71	(0.02)	0.49	(0.01)	0.19	(0.02)	-0.12	(0.03)
	Austria	2.6	(0.4)	14.9	(1.0)	54.0	(1.6)	28.5	(1.6)	0.56	(0.09)	0.49	(0.04)	0.15	(0.02)	-0.39	(0.04)
	Belgium	8.8	(0.7)	26.3	(1.1)	49.0	(1.0)	15.9	(0.8)	0.83	(0.04)	0.58	(0.02)	0.07	(0.02)	-0.48	(0.04)
	Chile	1.1	(0.3)	8.0	(0.7)	53.1	(1.5)	37.7	(1.7)	0.71	(0.14)	0.49	(0.05)	-0.37	(0.04)	-1.13	(0.04)
	Denmark	3.7	(0.4)	19.2	(1.0)	60.7	(1.2)	16.4	(1.0)	0.83	(0.05)	0.59	(0.04)	0.29	(0.03)	-0.15	(0.03)
	France	5.1	(0.7)	23.6	(1.2)	54.7	(1.7)	16.7	(1.5)	0.53	(0.07)	0.26	(0.05)	-0.21	(0.03)	-0.65	(0.07)
	Hungary	4.8	(0.7)	16.3	(1.2)	52.0	(1.8)	26.8	(1.6)	0.71	(0.09)	0.39	(0.04)	-0.13	(0.03)	-0.85	(0.05)
	Iceland	9.7	(0.6)	24.1	(1.0)	53.3	(1.1)	12.9	(0.7)	1.17	(0.04)	0.88	(0.03)	0.67	(0.02)	0.25	(0.05)
	Ireland	7.8	(0.8)	24.0	(1.0)	56.1	(1.0)	12.1	(0.9)	0.59	(0.04)	0.32	(0.04)	-0.06	(0.03)	-0.36	(0.05)
	Japan	5.7	(0.6)	28.2	(1.0)	59.4	(1.3)	6.7	(0.7)	0.30	(0.04)	0.17	(0.02)	-0.08	(0.02)	-0.41	(0.04)
	Korea	19.2	(1.6)	42.0	(1.4)	37.0	(1.6)	1.8	(0.4)	0.20	(0.05)	-0.05	(0.03)	-0.42	(0.03)	-0.86	(0.09)
	New Zealand	18.6	(0.8)	27.8	(1.0)	43.4	(1.1)	10.2	(0.6)	0.52	(0.03)	0.24	(0.02)	-0.09	(0.02)	-0.44	(0.04)
	Norway	5.4	(0.5)	21.4	(1.0)	59.9	(1.1)	13.3	(0.9)	0.83	(0.05)	0.68	(0.02)	0.43	(0.02)	0.21	(0.03)
	Poland	2.0	(0.3)	14.7	(0.9)	57.0	(1.0)	26.3	(1.3)	0.68	(0.09)	0.30	(0.04)	-0.23	(0.02)	-0.78	(0.03)
	Spain	3.9	(0.6)	17.3	(1.0)	55.6	(1.2)	23.1	(1.4)	0.48	(0.14)	0.16	(0.06)	-0.31	(0.04)	-0.89	(0.04)
	Sweden	8.6	(0.8)	24.7	(1.1)	53.7	(1.2)	13.0	(1.0)	0.73	(0.05)	0.57	(0.03)	0.26	(0.02)	-0.15	(0.05)
	OECD average-16	7.8	(0.2)	22.6	(0.3)	52.7	(0.3)	16.9	(0.3)	0.65	(0.02)	0.41	(0.01)	0.01	(0.01)	-0.45	(0.01)
Partners	Colombia	0.1	(0.1)	1.4	(0.3)	30.1	(1.6)	68.4	(1.7)	c	c	0.65	(0.10)	-0.56	(0.06)	-1.52	(0.04)
	Hong Kong-China	6.3	(0.7)	26.8	(1.1)	57.1	(1.2)	9.8	(0.9)	-0.30	(0.10)	-0.58	(0.06)	-0.87	(0.04)	-1.30	(0.06)
	Macao-China	2.0	(0.2)	15.8	(0.5)	71.7	(0.6)	10.5	(0.5)	-0.26	(0.08)	-0.50	(0.03)	-0.74	(0.01)	-0.87	(0.04)
	Print reading																
OECD	Australia	13.0	(0.8)	24.4	(0.6)	49.2	(0.8)	13.4	(0.5)	0.77	(0.02)	0.55	(0.02)	0.24	(0.02)	-0.07	(0.02)
	Austria	5.0	(0.5)	17.6	(0.9)	50.2	(1.4)	27.3	(1.3)	0.64	(0.07)	0.48	(0.04)	0.09	(0.02)	-0.38	(0.04)
	Belgium	11.3	(0.6)	25.3	(0.8)	46.5	(1.0)	16.9	(0.9)	0.84	(0.03)	0.55	(0.03)	0.07	(0.02)	-0.42	(0.04)
	Chile	1.3	(0.3)	9.5	(0.7)	59.2	(1.3)	30.1	(1.5)	0.85	(0.16)	0.37	(0.06)	-0.47	(0.04)	-1.11	(0.05)
	Denmark	4.8	(0.5)	21.2	(1.1)	59.4	(1.2)	14.7	(0.9)	0.89	(0.06)	0.69	(0.03)	0.24	(0.03)	-0.22	(0.04)
	France	9.7	(1.0)	22.7	(1.1)	48.5	(1.5)	19.0	(1.2)	0.46	(0.06)	0.18	(0.04)	-0.20	(0.03)	-0.64	(0.04)
	Hungary	6.1	(0.7)	21.6	(1.1)	54.8	(1.8)	17.5	(1.4)	0.73	(0.08)	0.32	(0.04)	-0.26	(0.02)	-0.95	(0.06)
	Iceland	8.6	(0.6)	22.1	(0.8)	53.1	(0.9)	16.2	(0.6)	1.14	(0.05)	0.92	(0.04)	0.67	(0.02)	0.39	(0.04)
	Ireland	7.1	(0.5)	22.2	(0.9)	54.2	(1.1)	16.4	(1.0)	0.54	(0.06)	0.38	(0.04)	-0.02	(0.03)	-0.40	(0.04)
	Japan	13.6	(0.9)	27.3	(0.9)	46.1	(1.2)	13.1	(1.1)	0.33	(0.04)	0.16	(0.02)	-0.12	(0.02)	-0.33	(0.03)
	Korea	12.9	(1.1)	32.9	(1.4)	48.4	(1.7)	5.8	(0.8)	0.26	(0.06)	0.02	(0.04)	-0.31	(0.03)	-0.70	(0.05)
	New Zealand	16.1	(0.8)	25.2	(0.8)	45.4	(0.9)	13.4	(0.7)	0.57	(0.03)	0.29	(0.03)	-0.05	(0.02)	-0.42	(0.04)
	Norway	8.5	(0.9)	22.2	(1.2)	54.7	(1.1)	14.6	(0.8)	0.88	(0.04)	0.66	(0.03)	0.42	(0.02)	0.12	(0.04)
	Poland	7.3	(0.6)	22.4	(1.0)	55.7	(1.1)	14.7	(0.8)	0.41	(0.06)	0.07	(0.04)	-0.38	(0.02)	-0.76	(0.04)
	Spain	3.4	(0.3)	17.8	(0.7)	59.6	(0.7)	19.3	(0.9)	0.50	(0.07)	0.21	(0.05)	-0.33	(0.03)	-0.88	(0.04)
	Sweden	9.1	(0.7)	20.5	(0.9)	53.6	(1.0)	16.8	(0.9)	0.82	(0.04)	0.61	(0.03)	0.28	(0.02)	-0.13	(0.04)
	OECD average-16	8.6	(0.2)	22.2	(0.2)	52.4	(0.3)	16.8	(0.2)	0.66	(0.02)	0.40	(0.01)	-0.01	(0.01)	-0.43	(0.01)
Partners	Colombia	0.6	(0.2)	4.6	(0.5)	47.8	(1.7)	47.0	(1.9)	0.00	(0.00)	0.04	(0.12)	-0.86	(0.05)	-1.59	(0.05)
	Hong Kong-China	12.5	(0.8)	31.9	(0.9)	47.5	(1.1)	8.1	(0.7)	-0.49	(0.07)	-0.62	(0.05)	-0.94	(0.04)	-1.16	(0.10)
	Macao-China	2.9	(0.2)	16.9	(0.5)	65.4	(0.6)	14.8	(0.5)	-0.26	(0.10)	-0.53	(0.04)	-0.74	(0.02)	-0.82	(0.04)

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Table VI.4.1 **Performance groups in reading and socio-economic background**

		Percentiles in student performance on the reading scale												Performance on the reading scale	
		5th		10th		25th		75th		90th		95th			
		Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Mean score	S.E.
Digital reading															
OECD	Australia	367	(4.4)	411	(3.7)	477	(3.1)	603	(2.9)	654	(3.7)	684	(5.5)	537	(2.8)
	Austria	282	(12.1)	323	(7.8)	395	(5.7)	533	(3.8)	579	(4.4)	605	(5.0)	459	(3.9)
	Belgium	341	(4.8)	377	(4.1)	444	(3.5)	577	(2.2)	621	(2.9)	645	(3.2)	507	(2.1)
	Chile	283	(6.0)	316	(4.9)	374	(4.8)	497	(4.2)	549	(4.6)	578	(5.2)	435	(3.6)
	Denmark	341	(4.9)	378	(4.4)	436	(3.4)	547	(3.3)	592	(2.8)	617	(3.3)	489	(2.6)
	France	328	(14.6)	371	(8.7)	439	(6.3)	561	(3.7)	603	(4.0)	626	(4.2)	494	(5.2)
	Hungary	288	(8.5)	328	(7.5)	401	(5.8)	542	(5.0)	596	(5.1)	624	(6.3)	468	(4.2)
	Iceland	353	(4.5)	392	(3.4)	455	(2.7)	574	(2.3)	624	(2.9)	654	(3.2)	512	(1.4)
	Ireland	357	(6.9)	398	(4.3)	453	(3.3)	570	(2.8)	616	(3.5)	643	(4.6)	509	(2.8)
	Japan	394	(5.0)	426	(4.3)	475	(2.9)	570	(2.6)	608	(3.2)	630	(3.8)	519	(2.4)
	Korea	452	(6.2)	479	(5.8)	526	(3.7)	614	(3.4)	650	(4.3)	671	(4.8)	568	(3.0)
	New Zealand	363	(6.7)	406	(4.8)	476	(3.5)	607	(2.6)	658	(3.0)	687	(3.5)	537	(2.3)
	Norway	356	(5.5)	392	(4.3)	448	(3.4)	557	(3.4)	602	(2.9)	629	(4.1)	500	(2.8)
	Poland	306	(6.4)	343	(4.0)	404	(4.2)	529	(3.2)	577	(2.8)	601	(3.2)	464	(3.1)
	Spain	308	(9.0)	347	(6.7)	414	(5.2)	543	(4.0)	592	(4.3)	618	(4.3)	475	(3.8)
	Sweden	354	(6.6)	392	(5.5)	454	(4.4)	573	(3.7)	619	(3.7)	645	(3.3)	510	(3.3)
	OECD average-16	342	(1.9)	380	(1.4)	442	(1.1)	562	(0.8)	609	(0.9)	635	(1.1)	499	(0.8)
Partners	Colombia	236	(4.8)	264	(3.7)	311	(3.6)	424	(4.2)	477	(5.5)	507	(6.3)	368	(3.4)
	Hong Kong-China	371	(6.0)	409	(5.7)	467	(3.6)	570	(2.7)	610	(3.0)	634	(3.5)	515	(2.6)
	Macao-China	381	(3.0)	406	(1.8)	448	(1.5)	537	(1.6)	576	(2.0)	600	(1.8)	492	(0.7)
Print reading															
OECD	Australia	343	(3.8)	384	(3.1)	450	(2.9)	584	(2.7)	638	(3.2)	668	(3.9)	515	(2.3)
	Austria	299	(5.2)	334	(6.1)	399	(4.3)	545	(3.3)	596	(3.4)	625	(4.3)	470	(2.9)
	Belgium	326	(6.1)	368	(4.3)	436	(3.8)	583	(2.2)	631	(2.7)	657	(2.9)	506	(2.3)
	Chile	310	(5.1)	342	(5.0)	393	(4.1)	506	(3.3)	556	(3.6)	584	(5.1)	449	(3.1)
	Denmark	350	(3.8)	383	(3.7)	440	(2.9)	554	(2.8)	599	(3.0)	624	(2.9)	495	(2.1)
	France	305	(8.2)	352	(7.0)	429	(4.7)	572	(4.0)	624	(3.9)	651	(4.6)	496	(3.4)
	Hungary	332	(7.4)	371	(6.9)	435	(4.3)	559	(3.6)	607	(3.5)	632	(4.0)	494	(3.2)
	Iceland	331	(4.9)	371	(4.1)	439	(2.9)	567	(2.0)	619	(2.6)	648	(3.9)	500	(1.4)
	Ireland	330	(7.8)	373	(4.7)	435	(3.9)	562	(2.8)	611	(2.8)	638	(3.2)	496	(3.0)
	Japan	339	(9.8)	386	(7.1)	459	(4.8)	590	(3.0)	639	(3.6)	667	(4.6)	520	(3.5)
	Korea	400	(7.6)	435	(5.9)	490	(4.1)	595	(3.4)	635	(3.0)	658	(3.8)	539	(3.5)
	New Zealand	344	(5.8)	383	(4.5)	452	(3.1)	595	(2.8)	649	(2.7)	678	(3.7)	521	(2.4)
	Norway	346	(4.5)	382	(4.0)	443	(3.6)	568	(2.9)	619	(3.9)	647	(4.4)	503	(2.6)
	Poland	346	(5.6)	382	(4.2)	441	(3.4)	565	(3.2)	613	(3.3)	640	(3.6)	500	(2.6)
	Spain	326	(4.2)	364	(3.5)	426	(3.3)	543	(2.0)	588	(2.0)	613	(2.4)	481	(2.0)
	Sweden	326	(5.3)	368	(5.5)	437	(3.3)	565	(3.2)	620	(3.7)	651	(3.9)	497	(2.9)
	OECD average-16	335	(1.5)	374	(1.3)	438	(0.9)	566	(0.7)	615	(0.8)	643	(1.0)	499	(0.7)
Partners	Colombia	269	(6.4)	302	(5.2)	355	(4.4)	473	(3.9)	524	(4.1)	554	(4.0)	413	(3.7)
	Hong Kong-China	380	(5.5)	418	(4.5)	482	(3.0)	592	(2.5)	634	(2.9)	659	(3.1)	533	(2.1)
	Macao-China	357	(2.7)	388	(1.8)	437	(1.4)	540	(1.4)	582	(1.8)	608	(1.8)	487	(0.9)

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Table VI.4.2 **PISA index of economic, social and cultural status and reading performance, by national quarters of this index**

		PISA index of economic, social and cultural status										Performance on the reading scale, by national quarters of this index							
		All students		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
Digital reading																			
OECD	Australia	0.34	(0.01)	-0.63	(0.01)	0.09	(0.00)	0.63	(0.00)	1.29	(0.01)	**497**	(3.0)	527	(3.0)	552	(3.2)	**581**	(3.5)
	Austria	0.06	(0.02)	-0.97	(0.02)	-0.22	(0.00)	0.28	(0.00)	1.15	(0.01)	**408**	(6.7)	448	(5.1)	472	(4.0)	**510**	(3.6)
	Belgium	0.20	(0.02)	-1.00	(0.02)	-0.13	(0.00)	0.54	(0.00)	1.37	(0.01)	**457**	(3.2)	492	(2.9)	527	(2.3)	**563**	(2.8)
	Chile	-0.57	(0.04)	-2.00	(0.01)	-1.00	(0.01)	-0.22	(0.01)	0.95	(0.02)	**384**	(4.0)	417	(3.9)	445	(4.2)	**494**	(3.7)
	Denmark	0.30	(0.02)	-0.83	(0.01)	0.00	(0.01)	0.62	(0.01)	1.39	(0.01)	**455**	(3.1)	482	(3.7)	502	(3.1)	**523**	(3.3)
	France	-0.13	(0.03)	-1.19	(0.02)	-0.42	(0.00)	0.15	(0.01)	0.93	(0.02)	**447**	(5.0)	487	(5.4)	510	(5.5)	**540**	(8.2)
	Hungary	-0.20	(0.03)	-1.38	(0.03)	-0.56	(0.00)	0.06	(0.01)	1.10	(0.02)	**398**	(6.0)	459	(4.5)	485	(4.7)	**533**	(5.6)
	Iceland	0.72	(0.01)	-0.46	(0.02)	0.45	(0.01)	1.10	(0.01)	1.79	(0.01)	**478**	(3.1)	509	(3.2)	526	(3.1)	**541**	(2.6)
	Ireland	0.05	(0.03)	-1.01	(0.01)	-0.27	(0.01)	0.31	(0.01)	1.15	(0.02)	**471**	(3.4)	500	(3.7)	523	(3.7)	**545**	(4.9)
	Japan	-0.01	(0.01)	-0.93	(0.01)	-0.28	(0.00)	0.24	(0.00)	0.93	(0.01)	**494**	(3.1)	516	(3.1)	534	(2.9)	**541**	(3.0)
	Korea	-0.15	(0.03)	-1.22	(0.01)	-0.42	(0.01)	0.14	(0.01)	0.88	(0.02)	**537**	(4.0)	566	(3.1)	574	(3.3)	**594**	(4.4)
	New Zealand	0.09	(0.02)	-0.93	(0.01)	-0.17	(0.00)	0.36	(0.01)	1.08	(0.01)	**495**	(3.9)	528	(3.7)	551	(3.0)	**589**	(3.4)
	Norway	0.47	(0.02)	-0.47	(0.01)	0.23	(0.00)	0.73	(0.00)	1.40	(0.01)	**471**	(3.8)	493	(3.3)	513	(3.6)	**524**	(3.6)
	Poland	-0.28	(0.02)	-1.29	(0.01)	-0.66	(0.00)	-0.15	(0.00)	0.97	(0.01)	**411**	(3.9)	450	(3.3)	477	(3.6)	**519**	(3.0)
	Spain	-0.33	(0.04)	-1.69	(0.02)	-0.75	(0.01)	0.01	(0.01)	1.11	(0.02)	**434**	(4.9)	463	(4.9)	485	(4.6)	**524**	(4.8)
	Sweden	0.33	(0.02)	-0.72	(0.02)	0.08	(0.00)	0.63	(0.01)	1.33	(0.01)	**472**	(4.6)	503	(3.7)	524	(3.8)	**548**	(3.9)
	OECD average-16	0.06	(0.01)	-1.04	(0.00)	-0.25	(0.00)	0.34	(0.00)	1.18	(0.00)	**457**	(1.1)	490	(1.0)	513	(0.9)	**542**	(1.1)
Partners	Colombia	-1.19	(0.05)	-2.83	(0.02)	-1.65	(0.01)	-0.71	(0.01)	0.43	(0.03)	**324**	(3.9)	353	(4.0)	376	(3.2)	**423**	(5.2)
	Hong Kong-China	-0.80	(0.04)	-2.07	(0.01)	-1.19	(0.01)	-0.51	(0.01)	0.56	(0.03)	**489**	(4.1)	507	(3.1)	523	(3.3)	**542**	(4.1)
	Macao-China	-0.70	(0.01)	-1.77	(0.01)	-1.01	(0.00)	-0.48	(0.00)	0.44	(0.01)	**479**	(1.6)	490	(1.9)	496	(1.8)	**503**	(2.1)
Print reading																			
OECD	Australia	0.34	(0.01)	-0.63	(0.01)	0.09	(0.00)	0.63	(0.00)	1.29	(0.01)	**471**	(2.7)	504	(2.4)	532	(3.0)	**562**	(3.1)
	Austria	0.06	(0.02)	-0.97	(0.02)	-0.22	(0.00)	0.28	(0.00)	1.15	(0.01)	**421**	(4.3)	457	(4.2)	482	(3.8)	**525**	(3.9)
	Belgium	0.20	(0.02)	-1.00	(0.02)	-0.13	(0.00)	0.54	(0.00)	1.37	(0.01)	**452**	(3.3)	489	(3.3)	525	(2.5)	**567**	(2.6)
	Chile	-0.57	(0.04)	-2.00	(0.01)	-1.00	(0.01)	-0.22	(0.01)	0.95	(0.02)	**409**	(3.5)	435	(3.6)	457	(3.5)	**501**	(3.5)
	Denmark	0.30	(0.02)	-0.83	(0.01)	0.00	(0.01)	0.62	(0.01)	1.39	(0.01)	**455**	(2.7)	486	(3.4)	509	(2.9)	**536**	(2.4)
	France	-0.13	(0.03)	-1.19	(0.02)	-0.42	(0.00)	0.15	(0.01)	0.93	(0.02)	**443**	(5.2)	484	(4.6)	513	(4.4)	**553**	(4.8)
	Hungary	-0.20	(0.03)	-1.38	(0.03)	-0.56	(0.00)	0.06	(0.01)	1.10	(0.02)	**435**	(5.3)	485	(3.4)	505	(4.1)	**553**	(4.1)
	Iceland	0.72	(0.01)	-0.46	(0.02)	0.45	(0.01)	1.10	(0.01)	1.79	(0.01)	**470**	(3.1)	494	(3.3)	513	(3.0)	**530**	(2.8)
	Ireland	0.05	(0.03)	-1.01	(0.01)	-0.27	(0.01)	0.31	(0.01)	1.15	(0.02)	**454**	(3.8)	486	(4.0)	511	(3.9)	**539**	(3.5)
	Japan	-0.01	(0.01)	-0.93	(0.01)	-0.28	(0.00)	0.24	(0.00)	0.93	(0.01)	**483**	(4.8)	510	(4.8)	536	(4.0)	**558**	(3.5)
	Korea	-0.15	(0.03)	-1.22	(0.01)	-0.42	(0.01)	0.14	(0.01)	0.88	(0.02)	**503**	(5.1)	534	(2.8)	548	(3.9)	**572**	(4.6)
	New Zealand	0.09	(0.02)	-0.93	(0.01)	-0.17	(0.00)	0.36	(0.01)	1.08	(0.01)	**475**	(3.9)	508	(3.1)	534	(3.3)	**578**	(3.6)
	Norway	0.47	(0.02)	-0.47	(0.01)	0.23	(0.00)	0.73	(0.00)	1.40	(0.01)	**468**	(3.4)	495	(3.3)	517	(2.9)	**536**	(3.9)
	Poland	-0.28	(0.02)	-1.29	(0.01)	-0.66	(0.00)	-0.15	(0.00)	0.97	(0.01)	**461**	(3.4)	488	(3.1)	507	(2.9)	**550**	(3.8)
	Spain	-0.31	(0.03)	-1.68	(0.02)	-0.74	(0.00)	0.03	(0.01)	1.14	(0.01)	**443**	(3.3)	468	(2.3)	491	(2.2)	**525**	(3.3)
	Sweden	0.33	(0.02)	-0.72	(0.02)	0.08	(0.00)	0.63	(0.01)	1.33	(0.01)	**452**	(4.0)	488	(3.3)	515	(3.3)	**543**	(4.1)
	OECD average-16	0.06	(0.01)	-1.04	(0.00)	-0.25	(0.00)	0.34	(0.00)	1.18	(0.00)	**456**	(1.0)	488	(0.9)	512	(0.9)	**545**	(0.9)
Partners	Colombia	-1.15	(0.05)	-2.82	(0.02)	-1.60	(0.01)	-0.67	(0.01)	0.47	(0.03)	**371**	(4.7)	398	(4.4)	422	(3.9)	**462**	(4.7)
	Hong Kong-China	-0.80	(0.04)	-2.07	(0.01)	-1.19	(0.01)	-0.51	(0.01)	0.56	(0.03)	**509**	(3.9)	527	(2.8)	542	(2.9)	**557**	(3.4)
	Macao-China	-0.70	(0.01)	-1.77	(0.01)	-1.01	(0.00)	-0.48	(0.00)	0.44	(0.01)	**473**	(2.1)	485	(2.0)	491	(2.1)	**498**	(2.1)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.4.2 **PISA index of economic, social and cultural status and reading performance, by national quarters of this index**

		Difference in performance between students in the top and bottom quarters of this index		Performance on the reading scale		Change in the reading score per unit of this index		Increased likelihood of students in the bottom quarter of the PISA index of social, economic and cultural status, scoring in the bottom quarter of the national reading performance distribution		Explained variance in student performance (r-squared x 100)	
		Mean score	S.E.	Mean score	S.E.	Effect	S.E.	Ratio	S.E.	%	S.E.
	Digital reading										
OECD	Australia	**84**	(3.5)	537	(2.8)	**43.1**	(1.81)	**2.0**	(0.09)	**11.7**	(0.78)
	Austria	**102**	(7.1)	459	(3.9)	**48.6**	(3.13)	**2.4**	(0.18)	**16.1**	(1.56)
	Belgium	**106**	(4.1)	507	(2.1)	**44.0**	(1.50)	**2.6**	(0.12)	**19.8**	(1.19)
	Chile	**110**	(5.1)	435	(3.6)	**37.2**	(1.60)	**2.5**	(0.16)	**22.5**	(1.54)
	Denmark	**68**	(3.8)	489	(2.6)	**31.2**	(1.55)	**1.9**	(0.13)	**10.6**	(0.98)
	France	**93**	(8.5)	494	(5.2)	**42.9**	(3.37)	**2.5**	(0.24)	**14.5**	(4.06)
	Hungary	**135**	(7.9)	468	(4.2)	**53.8**	(2.72)	**3.3**	(0.27)	**25.9**	(2.28)
	Iceland	**64**	(3.9)	512	(1.4)	**28.8**	(1.67)	**1.9**	(0.12)	**8.1**	(0.91)
	Ireland	**74**	(5.9)	509	(2.8)	**33.7**	(2.68)	**2.0**	(0.14)	**10.7**	(1.57)
	Japan	**48**	(3.7)	519	(2.4)	**26.3**	(1.92)	**1.8**	(0.11)	**7.2**	(0.92)
	Korea	**57**	(5.5)	568	(3.0)	**26.6**	(2.26)	**2.1**	(0.16)	**10.4**	(1.57)
	New Zealand	**94**	(4.5)	537	(2.3)	**47.2**	(1.95)	**2.2**	(0.11)	**15.1**	(1.14)
	Norway	**53**	(4.1)	500	(2.8)	**27.7**	(1.96)	**1.7**	(0.10)	**6.1**	(0.81)
	Poland	**107**	(4.1)	464	(3.1)	**46.5**	(1.71)	**2.5**	(0.15)	**20.7**	(1.24)
	Spain	**90**	(6.3)	475	(3.8)	**32.8**	(2.09)	**2.1**	(0.17)	**14.3**	(1.86)
	Sweden	**76**	(5.3)	510	(3.3)	**36.2**	(2.35)	**2.0**	(0.15)	**11.2**	(1.44)
	OECD average-16	**85**	(1.4)	493	(0.7)	**37.9**	(0.55)	**2.2**	(0.04)	**14.1**	(0.42)
Partners	Colombia	**99**	(5.8)	368	(3.4)	**30.4**	(1.68)	**2.2**	(0.16)	**21.7**	(1.98)
	Hong Kong-China	**53**	(5.8)	515	(2.6)	**19.4**	(2.04)	**1.8**	(0.14)	**5.9**	(1.15)
	Macao-China	**23**	(2.9)	492	(0.7)	**11.2**	(1.15)	**1.4**	(0.09)	**2.2**	(0.46)
	Print reading										
OECD	Australia	**91**	(3.4)	515	(2.3)	**46.0**	(1.77)	**2.1**	(0.08)	**12.7**	(0.85)
	Austria	**105**	(5.5)	470	(2.9)	**48.1**	(2.28)	**2.4**	(0.13)	**16.6**	(1.39)
	Belgium	**115**	(3.9)	506	(2.3)	**47.1**	(1.48)	**2.4**	(0.12)	**19.3**	(1.01)
	Chile	**92**	(5.1)	449	(3.1)	**31.2**	(1.51)	**2.3**	(0.15)	**18.7**	(1.56)
	Denmark	**81**	(3.4)	495	(2.1)	**36.3**	(1.42)	**2.1**	(0.14)	**14.5**	(1.02)
	France	**110**	(7.4)	496	(3.4)	**50.6**	(2.94)	**2.4**	(0.17)	**16.7**	(1.97)
	Hungary	**118**	(6.6)	494	(3.2)	**47.5**	(2.17)	**3.0**	(0.23)	**26.0**	(2.17)
	Iceland	**60**	(4.3)	500	(1.4)	**26.7**	(1.79)	**1.7**	(0.10)	**6.2**	(0.81)
	Ireland	**85**	(4.9)	496	(3.0)	**39.4**	(2.05)	**2.2**	(0.16)	**12.6**	(1.17)
	Japan	**75**	(5.5)	520	(3.5)	**40.1**	(2.83)	**1.8**	(0.10)	**8.6**	(0.96)
	Korea	**68**	(6.3)	539	(3.5)	**31.9**	(2.46)	**2.2**	(0.16)	**11.0**	(1.51)
	New Zealand	**104**	(4.5)	521	(2.4)	**52.3**	(1.94)	**2.2**	(0.12)	**16.6**	(1.08)
	Norway	**68**	(4.4)	503	(2.6)	**36.0**	(2.14)	**2.0**	(0.11)	**8.6**	(0.96)
	Poland	**88**	(4.6)	500	(2.6)	**38.5**	(1.94)	**2.0**	(0.12)	**14.8**	(1.38)
	Spain	**82**	(4.5)	481	(2.0)	**29.4**	(1.49)	**2.0**	(0.10)	**13.6**	(1.30)
	Sweden	**91**	(5.1)	497	(2.9)	**43.5**	(2.17)	**2.2**	(0.13)	**13.4**	(1.33)
	OECD average-16	**89**	(1.3)	499	(0.7)	**40.3**	(0.52)	**2.2**	(0.03)	**14.4**	(0.33)
Partners	Colombia	**90**	(6.2)	413	(3.7)	**27.7**	(1.77)	**2.1**	(0.17)	**16.6**	(1.90)
	Hong Kong-China	**48**	(5.5)	533	(2.1)	**17.4**	(2.15)	**1.7**	(0.12)	**4.5**	(1.08)
	Macao-China	**25**	(3.1)	487	(0.9)	**11.6**	(1.16)	**1.3**	(0.08)	**1.8**	(0.35)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.4.3 Relationship between students' reading performance and the index of economic, social and cultural status (ESCS)

		Unadjusted mean score		Mean score if the mean ESCS were equal in all OECD countries		Strength of the relationship between student performance and the ESCS		Slope of the socio-economic gradient[1]		Length of the projection of the gradient line: 5th percentile of the ESCS		Length of the projection of the gradient line: 95th percentile of the ESCS		Length of the projection of the gradient line: Difference between 95th and 5th percentile of the ESCS	
		Mean score	S.E.	Mean score	S.E.	Percentage of explained variance in student performance	S.E.	Score point difference associated with one unit on the ESCS	S.E.	Index	S.E.	Index	S.E.	Difference	S.E.
	Digital reading																
OECD	Australia	**537**	(2.8)	524	(2.5)	11.7	(0.78)	**43**	(1.8)	-0.87	(0.02)	1.51	(0.01)	2.38	(0.02)
	Austria	**459**	(3.9)	456	(3.8)	16.1	(1.56)	**49**	(3.1)	-1.23	(0.04)	1.49	(0.04)	2.73	(0.06)
	Belgium	**507**	(2.1)	501	(1.9)	**19.8**	(1.19)	**44**	(1.5)	-1.29	(0.03)	1.64	(0.04)	2.93	(0.06)
	Chile	**435**	(3.6)	456	(3.0)	**22.5**	(1.54)	37	(1.6)	-2.37	(0.04)	1.36	(0.04)	3.73	(0.05)
	Denmark	489	(2.6)	481	(2.4)	**10.6**	(0.98)	**31**	(1.6)	-1.14	(0.02)	1.67	(0.02)	2.81	(0.03)
	France	494	(5.2)	502	(5.1)	14.5	(4.06)	43	(3.4)	-1.50	(0.03)	1.25	(0.06)	2.74	(0.06)
	Hungary	**468**	(4.2)	479	(3.4)	**25.9**	(2.28)	**54**	(2.7)	-1.71	(0.06)	1.43	(0.03)	3.14	(0.06)
	Iceland	**512**	(1.4)	493	(2.0)	**8.1**	(0.91)	**29**	(1.7)	-0.83	(0.03)	2.06	(0.02)	2.88	(0.04)
	Ireland	**509**	(2.8)	508	(2.6)	10.7	(1.57)	34	(2.7)	-1.28	(0.03)	1.44	(0.04)	2.72	(0.04)
	Japan	**519**	(2.4)	522	(2.2)	**7.2**	(0.92)	**26**	(1.9)	-1.16	(0.02)	1.16	(0.01)	2.32	(0.02)
	Korea	**568**	(3.0)	572	(2.7)	10.4	(1.57)	**27**	(2.3)	-1.53	(0.03)	1.18	(0.04)	2.71	(0.05)
	New Zealand	**537**	(2.3)	537	(2.0)	15.1	(1.14)	**47**	(2.0)	-1.20	(0.02)	1.33	(0.02)	2.53	(0.03)
	Norway	500	(2.8)	487	(2.9)	**6.1**	(0.81)	**28**	(2.0)	-0.72	(0.02)	1.64	(0.02)	2.36	(0.03)
	Poland	**464**	(3.1)	477	(2.3)	**20.7**	(1.24)	**47**	(1.7)	-1.50	(0.03)	1.35	(0.02)	2.86	(0.03)
	Spain	**475**	(3.8)	487	(3.5)	14.3	(1.86)	**33**	(2.1)	-2.05	(0.04)	1.52	(0.07)	3.57	(0.07)
	Sweden	**510**	(3.3)	500	(3.1)	11.2	(1.44)	36	(2.3)	-1.01	(0.04)	1.55	(0.04)	2.57	(0.05)
	OECD average-16	499	(0.8)	499	(0.7)	14.1	(0.42)	38	(0.6)	-1.34	(0.01)	1.47	(0.01)	2.81	(0.01)
Partners	Colombia	**368**	(3.4)	405	(3.6)	**21.7**	(1.98)	**30**	(1.7)	-3.22	(0.05)	0.89	(0.07)	4.11	(0.08)
	Hong Kong-China	**515**	(2.6)	530	(2.8)	**5.9**	(1.15)	**19**	(2.0)	-2.42	(0.04)	1.00	(0.07)	3.42	(0.08)
	Macao-China	492	(0.7)	500	(1.2)	**2.2**	(0.46)	**11**	(1.1)	-2.09	(0.02)	0.83	(0.04)	2.92	(0.04)
	Print reading																
OECD	Australia	**515**	(2.3)	502	(2.0)	12.7	(0.85)	**46**	(1.8)	-0.87	(0.02)	1.51	(0.01)	2.38	(0.02)
	Austria	**470**	(2.9)	468	(2.6)	16.6	(1.39)	**48**	(2.3)	-1.23	(0.04)	1.49	(0.04)	2.73	(0.06)
	Belgium	**506**	(2.3)	499	(2.0)	**19.3**	(1.01)	**47**	(1.5)	-1.29	(0.03)	1.64	(0.04)	2.93	(0.06)
	Chile	**449**	(3.1)	468	(2.6)	**18.7**	(1.56)	**31**	(1.5)	-2.37	(0.04)	1.36	(0.04)	3.73	(0.05)
	Denmark	495	(2.1)	485	(1.8)	14.5	(1.02)	**36**	(1.4)	-1.14	(0.02)	1.67	(0.02)	2.81	(0.03)
	France	496	(3.4)	505	(2.9)	16.7	(1.97)	**51**	(2.9)	-1.50	(0.03)	1.25	(0.06)	2.74	(0.06)
	Hungary	494	(3.2)	504	(2.5)	**26.0**	(2.17)	**48**	(2.2)	-1.71	(0.06)	1.43	(0.03)	3.14	(0.06)
	Iceland	500	(1.4)	483	(2.0)	**6.2**	(0.81)	**27**	(1.8)	-0.83	(0.03)	2.06	(0.02)	2.88	(0.04)
	Ireland	496	(3.0)	496	(2.6)	12.6	(1.17)	39	(2.0)	-1.28	(0.03)	1.44	(0.04)	2.72	(0.04)
	Japan	**520**	(3.5)	522	(3.0)	**8.6**	(0.96)	40	(2.8)	-1.16	(0.02)	1.16	(0.01)	2.32	(0.02)
	Korea	**539**	(3.5)	544	(3.0)	11.0	(1.51)	**32**	(2.5)	-1.53	(0.03)	1.18	(0.04)	2.71	(0.05)
	New Zealand	**521**	(2.4)	519	(2.0)	16.6	(1.08)	**52**	(1.9)	-1.20	(0.02)	1.33	(0.02)	2.53	(0.03)
	Norway	503	(2.6)	487	(2.4)	**8.6**	(0.96)	**36**	(2.1)	-0.72	(0.02)	1.64	(0.02)	2.36	(0.03)
	Poland	500	(2.6)	512	(2.2)	14.8	(1.38)	39	(1.9)	-1.50	(0.03)	1.35	(0.02)	2.86	(0.03)
	Spain	**481**	(2.0)	491	(1.8)	13.6	(1.30)	**29**	(1.5)	-2.04	(0.04)	1.54	(0.03)	3.58	(0.04)
	Sweden	497	(2.9)	485	(2.4)	13.4	(1.33)	43	(2.2)	-1.01	(0.04)	1.55	(0.04)	2.57	(0.05)
	OECD average-16	499	(0.7)	498	(0.6)	14.4	(0.33)	40	(0.5)	-1.34	(0.01)	1.47	(0.01)	2.81	(0.01)
Partners	Colombia	**413**	(3.7)	445	(3.3)	16.6	(1.90)	**28**	(1.8)	-3.21	(0.05)	0.95	(0.06)	4.15	(0.07)
	Hong Kong-China	**533**	(2.1)	548	(2.5)	**4.5**	(1.08)	**17**	(2.2)	-2.42	(0.04)	1.00	(0.07)	3.42	(0.08)
	Macao-China	**487**	(0.9)	495	(1.1)	**1.8**	(0.35)	**12**	(1.2)	-2.09	(0.02)	0.83	(0.04)	2.92	(0.04)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. Single-level bivariate regression of reading performance on the ESCS, the slope is the regression coefficient for the ESCS.
2. Student-level regression of reading performance on the ESCS and the squared term of the ESCS, the index of curvelinearity is the regression coefficient for the squared term.

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Table VI.4.3 **Relationship between students' reading performance and the index of economic, social and cultural status (ESCS)**

		ESCS mean		Variability in the ESCS		Index of curvelinearity[2]		Percentage of students that fall within the lowest 15% of the international distribution on the ESCS	
		Mean index	S.E.	Standard deviation	S.E.	Score point difference associated with one unit on the ESCS squared	S.E.	Approximated by the percentage of students with a value on the ESCS smaller than -1	S.E.
Digital reading									
OECD	Australia	0.34	(0.01)	0.75	(0.01)	-2.71	(1.51)	3.3	(0.2)
	Austria	0.06	(0.02)	0.84	(0.01)	-4.40	(2.29)	8.2	(0.6)
	Belgium	0.20	(0.02)	0.93	(0.01)	-0.12	(0.97)	8.8	(0.5)
	Chile	-0.57	(0.04)	1.14	(0.02)	**2.13**	(0.97)	36.6	(1.4)
	Denmark	0.30	(0.02)	0.87	(0.01)	**-4.36**	(1.27)	7.1	(0.4)
	France	-0.13	(0.03)	0.84	(0.02)	-2.55	(1.47)	13.7	(0.8)
	Hungary	-0.20	(0.03)	0.97	(0.02)	**-7.11**	(1.59)	19.0	(1.0)
	Iceland	0.72	(0.01)	0.89	(0.01)	**-7.53**	(1.65)	3.4	(0.3)
	Ireland	0.05	(0.03)	0.85	(0.01)	-2.23	(1.64)	10.2	(0.6)
	Japan	-0.01	(0.01)	0.72	(0.01)	**-6.55**	(1.41)	7.8	(0.4)
	Korea	-0.15	(0.03)	0.82	(0.01)	-0.56	(1.43)	15.8	(0.8)
	New Zealand	0.09	(0.02)	0.79	(0.01)	-1.40	(1.71)	8.4	(0.5)
	Norway	0.47	(0.02)	0.74	(0.01)	**-4.07**	(1.73)	2.4	(0.3)
	Poland	-0.28	(0.02)	0.88	(0.01)	**-7.28**	(1.32)	20.4	(0.8)
	Spain	-0.33	(0.04)	1.08	(0.02)	-0.71	(1.29)	29.0	(1.1)
	Sweden	0.33	(0.02)	0.81	(0.01)	-1.85	(1.29)	5.0	(0.4)
	OECD average-16	0.06	(0.01)	0.87	(0.00)	**-3.21**	(0.38)	12.4	(0.2)
Partners	Colombia	-1.19	(0.05)	1.26	(0.03)	**3.74**	(1.05)	54.3	(1.5)
	Hong Kong-China	-0.80	(0.04)	1.02	(0.02)	-1.56	(1.11)	44.4	(1.4)
	Macao-China	-0.70	(0.01)	0.87	(0.01)	-0.89	(0.90)	37.9	(0.7)
Print reading									
OECD	Australia	0.34	(0.01)	0.75	(0.01)	-2.58	(1.42)	3.4	(0.2)
	Austria	0.06	(0.02)	0.84	(0.01)	-1.29	(1.68)	8.4	(0.6)
	Belgium	0.20	(0.02)	0.93	(0.01)	1.87	(0.96)	9.0	(0.5)
	Chile	-0.57	(0.04)	1.14	(0.02)	**3.53**	(0.80)	37.2	(1.4)
	Denmark	0.30	(0.02)	0.87	(0.01)	**-2.67**	(1.23)	7.2	(0.4)
	France	-0.13	(0.03)	0.84	(0.02)	-1.50	(1.86)	13.9	(0.8)
	Hungary	-0.20	(0.03)	0.97	(0.02)	**-4.71**	(1.32)	19.1	(1.0)
	Iceland	0.72	(0.01)	0.89	(0.01)	**-4.85**	(1.62)	3.5	(0.3)
	Ireland	0.05	(0.03)	0.85	(0.01)	**-3.50**	(1.39)	10.4	(0.6)
	Japan	-0.01	(0.01)	0.72	(0.01)	**-4.91**	(2.15)	7.9	(0.4)
	Korea	-0.15	(0.03)	0.82	(0.01)	-0.06	(1.39)	15.8	(0.8)
	New Zealand	0.09	(0.02)	0.79	(0.01)	-0.15	(1.70)	8.6	(0.5)
	Norway	0.47	(0.02)	0.74	(0.01)	**-5.03**	(1.80)	2.4	(0.3)
	Poland	-0.28	(0.02)	0.88	(0.01)	**-3.10**	(1.49)	20.7	(0.8)
	Spain	-0.31	(0.03)	1.09	(0.01)	-0.58	(0.90)	29.0	(1.0)
	Sweden	0.33	(0.02)	0.81	(0.01)	**-2.45**	(1.18)	5.1	(0.4)
	OECD average-16	0.06	(0.01)	0.87	(0.00)	**-2.00**	(0.37)	12.6	(0.2)
Partners	Colombia	-1.15	(0.05)	1.27	(0.02)	**3.23**	(0.94)	53.4	(1.8)
	Hong Kong-China	-0.80	(0.04)	1.02	(0.02)	**-3.22**	(1.19)	44.6	(1.4)
	Macao-China	-0.70	(0.01)	0.87	(0.01)	-0.92	(0.97)	38.0	(0.7)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. Single-level bivariate regression of reading performance on the ESCS, the slope is the regression coefficient for the ESCS.
2. Student-level regression of reading performance on the ESCS and the squared term of the ESCS, the index of curvelinearity is the regression coefficient for the squared term.

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[Part 1/2]
Table VI.4.4 Percentage of students, reading performance and difference in the index of economic, social and cultural status (ESCS), by students' immigrant background
Results based on students' self-reports

		Native students						Second-generation students						First-generation students					
		Percentage of students		Performance on the reading scale		% scoring below Level 2		Percentage of students		Performance on the reading scale		% scoring below Level 2		Percentage of students		Performance on the reading scale		% scoring below Level 2	
			S.E.	Mean score	S.E.	%	S.E.		S.E.	Mean score	S.E.	%	S.E.		S.E.	Mean score	S.E.	%	S.E.
	Digital reading																		
OECD	Australia	76.8	(1.1)	539	(2.5)	8.7	(0.5)	12.1	(0.7)	554	(7.2)	6.2	(1.0)	11.1	(0.6)	525	(6.7)	13.8	(1.8)
	Austria	84.8	(1.2)	472	(3.3)	23.7	(1.4)	10.5	(0.9)	411	(9.8)	45.9	(4.0)	4.8	(0.6)	359	(15.9)	63.9	(6.1)
	Belgium	85.2	(1.1)	520	(2.1)	11.7	(0.7)	7.8	(0.7)	456	(6.2)	28.8	(3.0)	6.9	(0.7)	447	(7.6)	35.8	(3.9)
	Chile	99.5	(0.1)	436	(3.5)	37.1	(1.6)	0.1	(0.0)	c	c	c	c	0.4	(0.1)	c	c	c	c
	Denmark	91.4	(0.4)	497	(2.6)	13.3	(1.0)	5.9	(0.3)	426	(5.3)	39.5	(2.8)	2.8	(0.2)	419	(6.7)	45.0	(4.5)
	France	86.9	(1.4)	501	(5.3)	14.6	(1.6)	10.0	(1.0)	457	(9.9)	27.6	(3.8)	3.2	(0.5)	442	(11.5)	37.0	(6.3)
	Hungary	97.9	(0.3)	469	(4.1)	26.6	(1.6)	0.9	(0.1)	467	(17.6)	21.7	(7.2)	1.2	(0.2)	476	(15.7)	22.1	(8.1)
	Iceland	97.6	(0.2)	516	(1.4)	11.5	(0.6)	0.4	(0.1)	c	c	c	c	1.9	(0.2)	410	(12.5)	47.2	(8.1)
	Ireland	91.7	(0.6)	513	(2.9)	10.9	(0.9)	1.4	(0.2)	499	(13.4)	14.2	(5.4)	6.8	(0.5)	481	(8.0)	20.8	(3.6)
	Japan	99.7	(0.1)	521	(2.3)	6.4	(0.6)	0.1	(0.0)	c	c	c	c	0.1	(0.0)	c	c	c	c
	Korea	100.0	(0.0)	569	(3.0)	1.5	(0.4)	0.0	(0.0)	c	c	c	c	0.0	c	c	c	c	c
	New Zealand	75.3	(1.0)	543	(2.7)	8.2	(0.7)	8.0	(0.6)	530	(7.6)	12.4	(2.5)	16.7	(0.7)	530	(4.3)	12.3	(1.4)
	Norway	93.2	(0.6)	503	(2.8)	12.2	(0.9)	3.6	(0.4)	471	(7.8)	21.0	(5.0)	3.2	(0.3)	460	(8.9)	27.4	(5.6)
	Poland	100.0	(0.0)	465	(3.1)	25.7	(1.3)	0.0	c	c	c	c	c	0.0	(0.0)	c	c	c	c
	Spain	90.4	(0.7)	482	(3.7)	20.5	(1.4)	1.0	(0.2)	480	(16.0)	17.8	(6.7)	8.6	(0.6)	422	(8.0)	42.7	(3.9)
	Sweden	88.3	(1.2)	519	(3.1)	10.1	(0.8)	8.0	(0.8)	472	(7.9)	24.1	(3.8)	3.7	(0.5)	430	(11.5)	42.7	(6.1)
	OECD average-16	91.2	(0.2)	504	(0.8)	15.2	(0.3)	4.7	(0.1)	475	(3.2)	23.6	(1.3)	4.8	(0.1)	450	(3.0)	34.2	(1.5)
Partners	Colombia	99.6	(0.1)	372	(3.4)	67.4	(1.7)	0.4	(0.1)	c	c	c	c	0.1	(0.0)	c	c	c	c
	Hong Kong-China	60.6	(1.5)	521	(2.9)	8.2	(0.9)	23.9	(0.8)	521	(3.2)	7.6	(1.0)	15.5	(1.0)	482	(5.5)	18.8	(2.5)
	Macao-China	29.6	(0.6)	489	(1.6)	11.6	(0.9)	54.9	(0.6)	497	(1.0)	8.6	(0.6)	15.5	(0.4)	482	(2.1)	13.2	(1.5)
	Print reading																		
OECD	Australia	76.8	(1.1)	515	(2.1)	13.8	(0.6)	12.1	(0.7)	530	(6.2)	10.9	(1.2)	11.1	(0.6)	518	(6.3)	15.0	(1.5)
	Austria	84.8	(1.2)	482	(2.9)	23.0	(1.2)	10.5	(0.9)	427	(6.0)	43.1	(3.8)	4.8	(0.6)	384	(10.3)	64.1	(6.0)
	Belgium	85.2	(1.1)	519	(2.2)	13.6	(0.8)	7.8	(0.7)	454	(7.0)	32.5	(2.7)	6.9	(0.7)	448	(8.3)	36.2	(3.8)
	Chile	99.5	(0.1)	452	(3.0)	29.5	(1.5)	0.1	(0.0)	c	c	c	c	0.4	(0.1)	c	c	c	c
	Denmark	91.4	(0.4)	502	(2.2)	12.8	(0.9)	5.9	(0.3)	446	(4.3)	31.7	(2.1)	2.8	(0.2)	422	(6.2)	42.8	(3.9)
	France	86.9	(1.4)	505	(3.8)	16.8	(1.3)	10.0	(1.0)	449	(8.9)	35.2	(4.0)	3.2	(0.5)	428	(15.9)	42.1	(7.1)
	Hungary	97.9	(0.3)	495	(3.1)	17.3	(1.4)	0.9	(0.1)	527	(12.4)	7.3	(5.3)	1.2	(0.2)	493	(11.6)	15.4	(5.4)
	Iceland	97.6	(0.2)	504	(1.4)	15.6	(0.6)	0.4	(0.1)	c	c	c	c	1.9	(0.2)	417	(12.4)	44.1	(6.9)
	Ireland	91.7	(0.6)	502	(3.0)	14.7	(1.1)	1.4	(0.2)	508	(12.8)	11.4	(6.4)	6.8	(0.5)	466	(7.6)	30.8	(3.7)
	Japan	99.7	(0.1)	521	(3.4)	13.3	(1.1)	0.1	(0.0)	c	c	c	c	0.1	(0.0)	c	c	c	c
	Korea	100.0	(0.0)	540	(3.4)	5.5	(0.8)	0.0	(0.0)	c	c	c	c	0.0	c	c	c	c	c
	New Zealand	75.3	(1.0)	526	(2.6)	12.5	(0.8)	8.0	(0.6)	498	(8.3)	21.5	(3.4)	16.7	(0.7)	520	(4.5)	15.3	(1.5)
	Norway	93.2	(0.6)	508	(2.6)	13.5	(0.8)	3.6	(0.4)	463	(8.0)	25.8	(5.0)	3.2	(0.3)	447	(7.8)	35.8	(5.2)
	Poland	100.0	(0.0)	502	(2.6)	14.3	(0.8)	0.0	c	c	c	c	c	0.0	(0.0)	0	(0.0)	0.0	(0.0)
	Spain	90.5	(0.5)	488	(2.0)	17.1	(0.8)	1.1	(0.1)	461	(9.3)	25.6	(5.3)	8.4	(0.5)	426	(4.1)	40.2	(2.7)
	Sweden	88.3	(1.2)	507	(2.7)	14.3	(0.9)	8.0	(0.8)	454	(7.5)	30.4	(2.9)	3.7	(0.5)	416	(11.3)	47.7	(5.2)
	OECD average-16	91.2	(0.2)	504	(0.7)	15.5	(0.2)	4.7	(0.1)	474	(2.6)	25.0	(1.2)	4.8	(0.1)	449	(2.7)	35.8	(1.4)
Partners	Colombia	99.7	(0.1)	415	(3.6)	46.1	(1.9)	0.3	(0.1)	c	c			0.0	(0.0)	c	c	c	c
	Hong Kong-China	60.6	(1.5)	535	(2.7)	8.0	(0.9)	23.9	(0.8)	543	(3.2)	6.1	(0.8)	15.5	(1.0)	512	(5.5)	11.7	(2.0)
	Macao-China	29.6	(0.6)	482	(2.0)	16.9	(1.1)	54.9	(0.6)	489	(1.3)	13.6	(0.6)	15.5	(0.4)	491	(2.2)	13.3	(1.2)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 2/2]

Table VI.4.4 Percentage of students, reading performance and difference in the index of economic, social and cultural status (ESCS), by students' immigrant background

Results based on students' self-reports

		Immigrant students (first- and second-generation)						Difference in reading performance between second-generation and native students (native – second-generaton)		Difference in reading performance between first-generation and native students (native – first-generation		Difference in reading performance between first- and second-generation students (second-generation – first-generation		Difference in reading performance between immigrant and native students (native – immigrant)		Difference in the index of economic, social and cultural status between native students and students with an immigrant background (first- and second-generation) (native – immigrant)	
		Percentage of students		Performance on the reading scale		% scoring below Level 2											
			S.E.	Mean score	S.E.	%	S.E.	Dif.	S.E.	Dif.	S.E.	Dif.	S.E.	Dif.	S.E.	Dif.	S.E.
Digital reading																	
OECD	Australia	23.2	(1.1)	540	(6.6)	9.8	(1.1)	**-15**	(7.2)	**14**	(6.3)	**29**	(5.1)	-1	(6.3)	0.01	(0.03)
	Austria	15.2	(1.2)	395	(10.4)	51.5	(4.0)	**61**	(9.8)	**113**	(16.2)	**53**	(13.9)	**77**	(10.5)	**0.73**	(0.05)
	Belgium	14.8	(1.1)	452	(5.8)	32.1	(2.7)	**65**	(6.7)	**73**	(7.4)	9	(7.7)	**69**	(6.0)	**0.56**	(0.06)
	Chile	0.5	(0.1)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Denmark	8.6	(0.4)	424	(4.6)	41.3	(2.5)	**71**	(4.7)	**78**	(6.6)	7	(7.6)	**73**	(4.1)	**0.75**	(0.04)
	France	13.1	(1.4)	453	(8.4)	29.9	(3.6)	**44**	(8.3)	**59**	(13.1)	15	(13.9)	**48**	(7.6)	**0.60**	(0.05)
	Hungary	2.1	(0.3)	472	(11.0)	21.9	(5.3)	2	(17.2)	-6	(15.6)	-8	(24.9)	-3	(10.8)	-0.03	(0.11)
	Iceland	2.4	(0.2)	424	(12.1)	42.2	(7.0)	c	c	**106**	(12.6)	c	c	**92**	(12.2)	**0.81**	(0.11)
	Ireland	8.3	(0.6)	484	(7.4)	19.7	(3.3)	14	(13.8)	**32**	(7.8)	18	(14.8)	**29**	(7.4)	-0.09	(0.06)
	Japan	0.3	(0.1)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Korea	0.0	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	New Zealand	24.7	(1.0)	530	(4.1)	12.3	(1.3)	13	(8.4)	**13**	(4.6)	0	(8.1)	**13**	(4.8)	-0.03	(0.03)
	Norway	6.8	(0.6)	466	(6.6)	24.0	(3.8)	**32**	(7.6)	**43**	(8.2)	11	(10.2)	**37**	(6.0)	**0.54**	(0.06)
	Poland	0.0	(0.0)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Spain	9.6	(0.7)	428	(8.2)	40.0	(3.8)	3	(15.7)	**60**	(7.2)	**58**	(15.5)	**54**	(7.4)	**0.51**	(0.07)
	Sweden	11.7	(1.2)	458	(7.9)	30.0	(4.0)	**47**	(7.6)	**89**	(11.6)	**42**	(10.4)	**61**	(7.8)	**0.55**	(0.05)
	OECD average-16	8.8	(0.2)	461	(2.3)	29.6	(1.1)	**31**	(3.2)	**56**	(3.0)	**21**	(3.9)	**46**	(2.3)	**0.41**	(0.02)
Partners	Colombia	0.4	(0.1)	293	(13.4)	95.5	(5.9)	c	c	c	c	c	c	**78**	(13.6)	**0.77**	(0.21)
	Hong Kong-China	39.4	(1.5)	506	(3.4)	12.0	(1.3)	0	(3.4)	**40**	(5.9)	**40**	(5.7)	**16**	(3.8)	**0.69**	(0.05)
	Macao-China	70.4	(0.6)	494	(0.9)	9.6	(0.5)	**-8**	(2.1)	**7**	(2.6)	**15**	(2.5)	**-5**	(2.0)	**0.38**	(0.03)
Print reading																	
OECD	Australia	23.2	(1.1)	524	(5.8)	12.9	(1.1)	**-16**	(6.4)	-3	(6.1)	**12**	(4.8)	-10	(5.8)	0.01	(0.03)
	Austria	15.2	(1.2)	414	(6.2)	49.7	(3.6)	**55**	(6.7)	**98**	(10.6)	**43**	(10.7)	**68**	(6.7)	**0.73**	(0.05)
	Belgium	14.8	(1.1)	451	(6.4)	34.2	(2.5)	**65**	(7.2)	**71**	(8.0)	6	(8.6)	**68**	(6.3)	**0.56**	(0.06)
	Chile	0.5	(0.1)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Denmark	8.6	(0.4)	438	(3.8)	35.3	(2.0)	**56**	(4.3)	**79**	(6.5)	**24**	(7.0)	**63**	(3.9)	**0.75**	(0.04)
	France	13.1	(1.4)	444	(8.5)	36.8	(3.9)	**26**	(9.2)	**77**	(16.2)	22	(16.6)	**60**	(9.2)	**0.60**	(0.05)
	Hungary	2.1	(0.3)	507	(8.3)	12.0	(4.0)	**55**	(9.6)	2	(11.7)	34	(17.5)	-12	(8.4)	-0.03	(0.11)
	Iceland	2.4	(0.2)	423	(11.7)	42.8	(6.0)	**-32**	(12.4)	**87**	(12.4)	c	c	**81**	(11.7)	**0.81**	(0.11)
	Ireland	8.3	(0.6)	473	(7.1)	27.4	(3.4)	-6	(13.4)	**36**	(7.7)	**42**	(14.6)	**29**	(7.3)	-0.09	(0.06)
	Japan	0.3	(0.1)	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	Korea	0.0	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c
	New Zealand	24.7	(1.0)	513	(4.7)	17.3	(1.7)	c	c	6	(5.0)	**-22**	(8.5)	**13**	(5.3)	-0.03	(0.03)
	Norway	6.8	(0.6)	456	(5.9)	30.5	(4.0)	**45**	(8.1)	**60**	(7.5)	15	(10.5)	**52**	(5.7)	**0.54**	(0.06)
	Poland	0.0	(0.0)	c	c	c	c	**28**	(9.0)	c	c	c	c	c	c	c	c
	Spain	9.5	(0.5)	430	(4.0)	38.6	(2.6)	**c**	c	**62**	(4.0)	**35**	(9.7)	**58**	(3.9)	**0.47**	(0.05)
	Sweden	11.7	(1.2)	442	(6.9)	35.9	(2.9)	**53**	(7.7)	**91**	(11.6)	**38**	(12.2)	**66**	(7.2)	**0.55**	(0.05)
	OECD average-16	8.8	(0.2)	460	(2.0)	31.1	(1.0)	**30**	(2.7)	**55**	(2.8)	**23**	(3.5)	**45**	(2.1)	**0.41**	(0.02)
Partners	Colombia	0.3	(0.1)	313	(24.8)	89.8	(7.7)	c	c	c	c	c	c	**102**	(24.7)	**0.77**	(0.26)
	Hong Kong-China	39.4	(1.5)	531	(3.4)	8.3	(1.0)	**-8**	(3.8)	**23**	(6.2)	**31**	(5.6)	4	(4.3)	**0.69**	(0.05)
	Macao-China	70.4	(0.6)	489	(1.0)	13.6	(0.6)	**-7**	(2.4)	**-9**	(3.0)	-2	(2.8)	**-7**	(2.3)	**0.38**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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[Part 1/1]

Table VI.4.5 Percentage of students and reading performance, by language spoken at home

Results based on students' self-reports

		The language spoken at home most of the time IS DIFFERENT from the language of assessment or from another official language						The language spoken at home most of the time IS THE SAME as the language of assessment or another official language						Difference in reading performance between students who speak the language of assessment at home or another official language versus students who speak a different language		Increased likelihood of students who do not speak the language of assessment at home or another official language scoring in the bottom quarter of the reading performance distribution		Effect size (language spoken at home is the same as the language of assessment or another official language versus a different language)	
		Percentage of students		Performance on the reading scale		% scoring below Level 2		Percentage of students		Performance on the reading scale		% scoring below Level 2							
		%	S.E.	Mean score	S.E.	%	S.E.	%	S.E.	Mean score	S.E.	%	S.E.	Dif.	S.E.	Ratio	S.E.	Effect size	S.E.
Digital reading																			
OECD	Australia	9.2	(0.7)	525	(10.0)	14.3	(1.9)	90.8	(0.7)	541	(2.5)	8.4	(0.5)	15.5	(9.2)	**1.3**	(0.1)	0.15	(0.1)
	Austria	10.6	(0.8)	403	(10.8)	47.9	(3.8)	89.4	(0.8)	471	(3.4)	23.9	(1.5)	**67.9**	(11.0)	**2.0**	(0.2)	**0.64**	(0.1)
	Belgium	21.6	(1.1)	488	(5.0)	21.4	(1.9)	78.4	(1.1)	518	(2.2)	12.8	(0.9)	**30.3**	(4.9)	**1.5**	(0.1)	**0.32**	(0.0)
	Chile	0.5	(0.1)	c	c	c	c	99.5	(0.1)	436	(3.5)	37.2	(1.6)	c	c	c	c	c	c
	Denmark	4.5	(0.3)	425	(5.7)	41.7	(3.2)	95.5	(0.3)	495	(2.6)	13.9	(1.0)	**69.9**	(5.1)	**2.3**	(0.1)	**0.82**	(0.1)
	France	7.0	(0.6)	449	(8.1)	33.4	(3.6)	93.0	(0.6)	501	(5.4)	14.4	(1.5)	**52.3**	(7.9)	**2.0**	(0.2)	**0.54**	(0.1)
	Hungary	1.0	(0.3)	c	c	c	c	99.0	(0.3)	469	(4.1)	26.5	(1.5)	c	c	c	c	c	c
	Iceland	3.1	(0.3)	441	(9.8)	35.1	(5.8)	96.9	(0.3)	516	(1.4)	11.4	(0.6)	**74.7**	(9.8)	**2.3**	(0.2)	**0.79**	(0.1)
	Ireland	5.8	(0.9)	474	(10.2)	23.4	(4.8)	94.2	(0.9)	512	(2.9)	11.2	(0.9)	**38.2**	(10.1)	**1.7**	(0.2)	**0.43**	(0.1)
	Japan	0.2	(0.1)	c	c	c	c	99.8	(0.1)	522	(2.3)	6.1	(0.6)	c	c	c	c	c	c
	Korea	0.1	(0.0)	c	c	c	c	99.9	(0.0)	568	(3.0)	1.7	(0.4)	c	c	c	c	c	c
	New Zealand	14.5	(0.7)	497	(5.1)	18.9	(1.8)	85.5	(0.7)	547	(2.4)	7.8	(0.7)	**49.3**	(5.3)	**1.9**	(0.1)	**0.50**	(0.1)
	Norway	7.3	(0.5)	464	(6.6)	25.8	(3.5)	92.7	(0.5)	504	(2.8)	12.0	(1.0)	**39.5**	(6.0)	**1.8**	(0.2)	**0.47**	(0.1)
	Poland	0.6	(0.1)	c	c	c	c	99.4	(0.1)	464	(3.1)	26.1	(1.3)	c	c	c	c	c	c
	Spain	20.3	(1.2)	472	(8.0)	24.6	(3.2)	79.7	(1.2)	478	(4.0)	22.2	(1.5)	6.2	(8.4)	1.1	(0.1)	0.07	(0.1)
	Sweden	8.1	(0.9)	454	(8.7)	31.4	(4.1)	91.9	(0.9)	519	(3.1)	10.2	(0.8)	**64.6**	(8.4)	**2.3**	(0.2)	**0.71**	(0.1)
	OECD average-16	7.1	(0.2)	463	(2.5)	28.9	(1.1)	92.9	(0.2)	504	(0.8)	15.4	(0.3)	**46.2**	(2.4)	**1.8**	(0.1)	**0.50**	(0.0)
Partners	Colombia	0.4	(0.1)	c	c	c	c	99.6	(0.1)	370	(3.4)	68.1	(1.7)	c	c	c	c	c	c
	Hong Kong-China	7.2	(1.1)	484	(12.4)	20.5	(4.7)	92.8	(1.1)	518	(2.4)	8.5	(0.7)	**34.7**	(11.8)	**1.8**	(0.3)	**0.38**	(0.1)
	Macao-China	11.0	(0.2)	464	(2.6)	18.1	(2.0)	89.0	(0.2)	497	(0.7)	9.0	(0.4)	**32.8**	(2.7)	**1.8**	(0.1)	**0.51**	(0.0)
Print reading																			
OECD	Australia	9.2	(0.7)	494	(9.0)	21.5	(2.1)	90.8	(0.7)	503	(2.1)	16.4	(0.6)	9.8	(8.3)	**1.2**	(0.1)	0.10	(0.1)
	Austria	10.6	(0.8)	447	(6.3)	37.1	(3.4)	89.4	(0.8)	512	(3.0)	14.9	(1.0)	**65.0**	(6.8)	**2.1**	(0.2)	**0.67**	(0.1)
	Belgium	21.6	(1.1)	475	(5.5)	26.6	(2.2)	78.4	(1.1)	512	(2.4)	15.3	(0.9)	**37.4**	(5.5)	**1.6**	(0.1)	**0.37**	(0.1)
	Chile	0.5	(0.1)	c	c	c	c	99.5	(0.1)	502	(3.7)	17.4	(1.4)	c	c	c	c	c	c
	Denmark	4.5	(0.3)	427	(6.3)	42.2	(3.1)	95.5	(0.3)	507	(2.5)	15.4	(0.8)	**80.3**	(6.2)	**2.3**	(0.1)	**0.80**	(0.1)
	France	7.0	(0.6)	441	(8.7)	36.6	(3.5)	93.0	(0.6)	509	(3.4)	14.6	(1.1)	**68.0**	(9.2)	**2.2**	(0.2)	**0.68**	(0.1)
	Hungary	1.0	(0.3)	c	c	c	c	99.0	(0.3)	502	(3.4)	17.8	(1.3)	c	c	c	c	c	c
	Iceland	3.1	(0.3)	432	(11.2)	39.9	(4.9)	96.9	(0.3)	504	(1.5)	16.4	(0.6)	**71.6**	(11.3)	**2.1**	(0.2)	**0.69**	(0.1)
	Ireland	5.8	(0.9)	470	(14.6)	29.0	(5.9)	94.2	(0.9)	505	(3.1)	15.5	(1.0)	**35.4**	(14.4)	**1.6**	(0.3)	**0.35**	(0.1)
	Japan	0.2	(0.1)	c	c	c	c	99.8	(0.1)	502	(3.4)	16.8	(1.2)	c	c	c	c	c	c
	Korea	0.1	(0.0)	c	c	c	c	99.9	(0.0)	501	(4.3)	17.0	(1.3)	c	c	c	c	c	c
	New Zealand	14.5	(0.7)	455	(5.3)	34.9	(2.4)	85.5	(0.7)	509	(2.3)	14.8	(0.8)	**54.7**	(5.6)	**2.0**	(0.1)	**0.54**	(0.1)
	Norway	7.3	(0.5)	443	(6.2)	39.0	(3.3)	92.7	(0.5)	506	(2.8)	15.7	(0.9)	**63.2**	(5.9)	**2.1**	(0.1)	**0.64**	(0.1)
	Poland	0.6	(0.1)	c	c	c	c	99.4	(0.1)	502	(2.9)	17.3	(1.0)	c	c	c	c	c	c
	Spain	18.1	(1.0)	489	(4.4)	21.2	(1.7)	81.9	(1.0)	504	(2.2)	16.3	(0.7)	**15.0**	(4.1)	**1.2**	(0.1)	**0.15**	(0.0)
	Sweden	8.1	(0.9)	437	(7.9)	38.4	(3.5)	91.9	(0.9)	510	(2.7)	14.0	(0.8)	**72.9**	(7.8)	**2.2**	(0.2)	**0.72**	(0.1)
	OECD average-16	7.0	(0.2)	455	(2.5)	33.3	(1.1)	93.0	(0.2)	506	(0.7)	16.0	(0.2)	**52.1**	(2.5)	**1.9**	(0.1)	**0.52**	(0.0)
Partners	Colombia	0.4	(0.1)	c	c	c	c	99.6	(0.1)	501	(4.3)	17.3	(1.4)	c	c	c	c	c	c
	Hong Kong-China	7.2	(1.1)	437	(10.4)	40.5	(5.1)	92.8	(1.1)	506	(2.5)	15.0	(0.8)	**69.5**	(10.7)	**2.2**	(0.2)	**0.67**	(0.1)
	Macao-China	11.0	(0.2)	452	(3.2)	32.4	(1.7)	89.0	(0.2)	509	(1.2)	15.2	(0.5)	**57.0**	(3.2)	**1.9**	(0.1)	**0.59**	(0.0)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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[Part 1/2]
Table VI.4.6 **Decomposition of the gradient of the index of economic, social and cultural status (ESCS) into between-school and within-school components**[1]

		Overall effect of ESCS[2]		Within-school effects of ESCS[3]			Student variability in the distribution of ESCS					
		Score point difference associated with one unit on the ESCS	S.E.	Student-level score point difference associated with one unit of the student-level ESCS	S.E.	Explained within-school variance	25th percentile of the student distribution of ESCS	S.E.	75th percentile of the student distribution of ESCS	S.E.	Interquartile range of the distribution of the student-level ESCS	S.E.
	Digital reading											
OECD	Australia	43	(1.8)	**27**	(1.6)	7.5	-0.19	(0.02)	0.90	(0.02)	1.09	(0.01)
	Austria	49	(3.1)	**13**	(2.1)	2.8	-0.49	(0.02)	0.58	(0.03)	1.07	(0.03)
	Belgium	44	(1.5)	**15**	(1.4)	5.0	-0.46	(0.02)	0.92	(0.02)	1.38	(0.03)
	Chile	37	(1.6)	**12**	(1.8)	2.0	-1.39	(0.05)	0.27	(0.05)	1.65	(0.04)
	Denmark	31	(1.6)	**22**	(1.6)	7.4	-0.31	(0.02)	0.94	(0.02)	1.25	(0.02)
	France	43	(3.4)	**18**	(2.0)	7.5	-0.69	(0.03)	0.46	(0.03)	1.14	(0.03)
	Hungary	54	(2.7)	**10**	(2.0)	2.1	-0.85	(0.03)	0.49	(0.04)	1.35	(0.04)
	Iceland	29	(1.7)	**24**	(1.8)	7.3	0.09	(0.02)	1.40	(0.02)	1.31	(0.03)
	Ireland	34	(2.7)	**25**	(2.2)	4.4	-0.55	(0.02)	0.66	(0.04)	1.21	(0.03)
	Japan	26	(1.9)	**10**	(2.5)	21.5	-0.55	(0.02)	0.53	(0.02)	1.08	(0.02)
	Korea	27	(2.3)	**15**	(2.3)	3.9	-0.72	(0.03)	0.43	(0.04)	1.16	(0.03)
	New Zealand	47	(2.0)	**31**	(2.8)	11.6	-0.44	(0.02)	0.65	(0.02)	1.09	(0.02)
	Norway	28	(2.0)	**21**	(2.4)	4.7	-0.03	(0.02)	1.00	(0.02)	1.02	(0.02)
	Poland	47	(1.7)	**37**	(2.1)	14.3	-0.90	(0.02)	0.22	(0.05)	1.12	(0.05)
	Spain	33	(2.1)	**24**	(1.8)	8.0	-1.15	(0.04)	0.47	(0.06)	1.62	(0.06)
	Sweden	36	(2.3)	**27**	(2.0)	8.3	-0.21	(0.03)	0.93	(0.02)	1.14	(0.03)
	OECD average-16	38	(0.6)	**21**	(0.5)	7.4	-0.55	(0.01)	0.68	(0.01)	1.23	(0.01)
Partners	Colombia	30	(1.7)	**12**	(1.4)	5.0	-2.15	(0.06)	-0.24	(0.06)	1.91	(0.06)
	Hong Kong-China	19	(2.0)	**3**	(1.6)	3.4	-1.51	(0.02)	-0.12	(0.05)	1.39	(0.04)
	Macao-China	11	(1.1)	**6**	(1.8)	0.3	-1.29	(0.01)	-0.15	(0.01)	1.15	(0.01)
	Print reading											
OECD	Australia	46	(1.8)	**30**	(1.9)	6.1	-0.19	(0.01)	0.90	(0.02)	1.09	(0.01)
	Austria	48	(2.3)	**10**	(2.0)	2.3	-0.49	(0.02)	0.58	(0.02)	1.08	(0.02)
	Belgium	47	(1.5)	**13**	(1.4)	3.4	-0.46	(0.02)	0.92	(0.03)	1.38	(0.03)
	Chile	31	(1.5)	**8**	(1.8)	1.1	-1.38	(0.04)	0.26	(0.05)	1.64	(0.04)
	Denmark	36	(1.4)	**28**	(1.7)	9.7	-0.31	(0.02)	0.94	(0.02)	1.25	(0.02)
	France	51	(2.9)	**14**	(2.1)	4.4	-0.69	(0.03)	0.45	(0.04)	1.15	(0.03)
	Hungary	48	(2.2)	**7**	(1.7)	0.5	-0.85	(0.02)	0.49	(0.04)	1.34	(0.04)
	Iceland	27	(1.8)	**24**	(1.8)	5.8	0.09	(0.02)	1.40	(0.02)	1.31	(0.03)
	Ireland	39	(2.0)	**27**	(2.2)	5.2	-0.55	(0.02)	0.66	(0.04)	1.21	(0.03)
	Japan	40	(2.8)	5	(2.7)	1.1	-0.55	(0.02)	0.53	(0.02)	1.08	(0.02)
	Korea	32	(2.5)	**20**	(2.9)	3.6	-0.72	(0.03)	0.44	(0.03)	1.16	(0.02)
	New Zealand	52	(1.9)	**36**	(2.9)	9.7	-0.44	(0.01)	0.65	(0.02)	1.09	(0.02)
	Norway	36	(2.1)	**28**	(2.8)	6.1	-0.03	(0.02)	1.00	(0.02)	1.02	(0.02)
	Poland	39	(1.9)	**31**	(2.2)	9.9	-0.90	(0.01)	0.22	(0.05)	1.12	(0.05)
	Spain	29	(1.5)	**21**	(1.0)	7.2	-1.14	(0.03)	0.50	(0.05)	1.64	(0.04)
	Sweden	43	(2.2)	**34**	(2.2)	11.1	-0.21	(0.03)	0.93	(0.02)	1.14	(0.03)
	OECD average-16	40	(0.5)	**21**	(0.5)	5.5	-0.55	(0.01)	0.68	(0.01)	1.24	(0.01)
Partners	Colombia	28	(1.8)	**9**	(1.5)	1.1	-2.11	(0.07)	-0.20	(0.05)	1.91	(0.06)
	Hong Kong-China	17	(2.2)	**3**	(1.5)	0.4	-1.51	(0.03)	-0.12	(0.05)	1.39	(0.03)
	Macao-China	12	(1.2)	**6**	(2.0)	0.3	-1.29	(0.01)	-0.14	(0.01)	1.15	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. In some countries, sub-units within schools were sampled instead of schools as administrative units and this may affect the estimation of school-level effects.
2. Single-level bivariate regression of reading performance on the ESCS, the slope is the regression coefficient for the ESCS.
3. Two-level regression of reading performance on student ESCS and school mean ESCS: within-school slope for ESCS and explained variance at the student level by the model.
4. Two-level regression of reading performance on student ESCS and school mean ESCS: between-school slope for ESCS and explained variance at the school level by the model.
5. Distribution of the school mean ESCS, percentiles calculated at student-level.
6. The index of social inclusion is derived from the intra-class correlation for ESCS as 1-rho.

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[Part 2/2]
Table VI.4.6 **Decomposition of the gradient of the index of economic, social and cultural status (ESCS) into between-school and within-school components**[1]

		Between-school effects of ESCS[4]			School variability in the distribution of ESCS[5]						Index of social inclusion[6]	
		School-level score point difference associated with one unit on the school mean ESCS	S.E.	Explained between-school variance	25th percentile of the school mean distribution of ESCS	S.E.	75th percentile of the school mean distribution of ESCS	S.E.	Interquartile range of the distribution of school mean distribution of ESCS	S.E.	Proportion of ESCS variance within schools	S.E.
	Digital reading											
OECD	Australia	**62**	(7.2)	52.6	0.05	(0.03)	0.59	(0.02)	0.54	(0.03)	0.76	(0.01)
	Austria	**85**	(15.4)	48.6	-0.23	(0.03)	0.38	(0.04)	0.61	(0.04)	0.69	(0.02)
	Belgium	**92**	(6.3)	55.1	-0.18	(0.02)	0.63	(0.03)	0.82	(0.04)	0.70	(0.01)
	Chile	**55**	(4.3)	72.4	-1.10	(0.04)	-0.04	(0.05)	1.06	(0.06)	0.49	(0.01)
	Denmark	**45**	(7.1)	41.3	0.02	(0.04)	0.57	(0.03)	0.55	(0.04)	0.84	(0.01)
	France	**65**	(10.2)	40.4	-0.45	(0.02)	0.15	(0.08)	0.60	(0.09)	0.71	(0.01)
	Hungary	**85**	(7.8)	67.9	-0.62	(0.04)	0.23	(0.02)	0.85	(0.05)	0.54	(0.01)
	Iceland	17	(11.0)	26.3	0.47	(0.00)	1.03	(0.00)	0.56	(0.00)	0.83	(0.03)
	Ireland	**35**	(8.4)	48.0	-0.24	(0.05)	0.26	(0.04)	0.49	(0.06)	0.77	(0.01)
	Japan	**68**	(9.0)	68.3	-0.30	(0.03)	0.29	(0.04)	0.58	(0.05)	0.78	(0.01)
	Korea	**49**	(10.7)	36.9	-0.49	(0.06)	0.09	(0.04)	0.58	(0.06)	0.74	(0.01)
	New Zealand	**59**	(9.1)	66.1	-0.18	(0.03)	0.37	(0.02)	0.55	(0.04)	0.79	(0.01)
	Norway	24	(16.3)	9.5	0.31	(0.03)	0.62	(0.03)	0.31	(0.04)	0.91	(0.01)
	Poland	**31**	(6.6)	61.6	-0.61	(0.04)	-0.07	(0.03)	0.54	(0.05)	0.73	(0.02)
	Spain	**19**	(5.6)	29.7	-0.80	(0.05)	0.02	(0.04)	0.82	(0.05)	0.72	(0.01)
	Sweden	**48**	(11.8)	50.2	0.10	(0.04)	0.52	(0.02)	0.42	(0.04)	0.86	(0.02)
	OECD average-16	**52**	(2.4)	48.4	-0.27	(0.01)	0.35	(0.01)	0.62	(0.01)	0.74	(0.00)
Partners	Colombia	**41**	(4.3)	72.5	-1.77	(0.05)	-0.66	(0.08)	1.11	(0.09)	0.60	(0.01)
	Hong Kong-China	**46**	(9.4)	31.7	-1.20	(0.02)	-0.55	(0.06)	0.65	(0.06)	0.70	(0.01)
	Macao-China	**19**	(7.7)	52.3	-0.99	(0.00)	-0.46	(0.00)	0.53	(0.00)	0.65	(0.02)
	Print reading											
OECD	Australia	**66**	(6.2)	67.6	0.04	(0.03)	0.58	(0.02)	0.55	(0.03)	0.76	(0.01)
	Austria	**80**	(13.2)	50.9	-0.22	(0.03)	0.38	(0.04)	0.61	(0.05)	0.69	(0.02)
	Belgium	**111**	(6.1)	65.5	-0.19	(0.02)	0.63	(0.04)	0.82	(0.04)	0.70	(0.01)
	Chile	**50**	(4.3)	69.0	-1.10	(0.04)	-0.04	(0.06)	1.06	(0.07)	0.49	(0.01)
	Denmark	**42**	(5.9)	69.1	0.02	(0.04)	0.57	(0.03)	0.55	(0.04)	0.84	(0.01)
	France	**81**	(12.9)	54.9	-0.46	(0.03)	0.14	(0.08)	0.59	(0.09)	0.71	(0.01)
	Hungary	**76**	(7.3)	65.0	-0.62	(0.04)	0.23	(0.02)	0.85	(0.05)	0.54	(0.01)
	Iceland	11	(11.3)	23.6	0.47	(0.00)	1.03	(0.00)	0.55	(0.00)	0.83	(0.03)
	Ireland	**53**	(7.7)	58.5	-0.25	(0.05)	0.25	(0.04)	0.50	(0.06)	0.77	(0.01)
	Japan	**137**	(15.5)	51.9	-0.30	(0.02)	0.28	(0.04)	0.58	(0.05)	0.78	(0.01)
	Korea	**62**	(8.7)	53.2	-0.49	(0.06)	0.09	(0.04)	0.58	(0.06)	0.74	(0.01)
	New Zealand	**61**	(9.3)	72.1	-0.19	(0.04)	0.37	(0.02)	0.56	(0.04)	0.79	(0.01)
	Norway	**31**	(14.7)	26.6	0.31	(0.03)	0.62	(0.03)	0.31	(0.04)	0.91	(0.01)
	Poland	**29**	(5.7)	65.4	-0.61	(0.05)	-0.07	(0.03)	0.54	(0.05)	0.73	(0.02)
	Spain	**25**	(3.9)	48.4	-0.76	(0.03)	0.02	(0.04)	0.78	(0.04)	0.72	(0.01)
	Sweden	**52**	(10.1)	67.9	0.10	(0.04)	0.52	(0.02)	0.42	(0.04)	0.86	(0.02)
	OECD average-16	**60**	(2.4)	56.8	-0.27	(0.01)	0.35	(0.01)	0.62	(0.01)	0.74	(0.00)
Partners	Colombia	**41**	(3.7)	76.7	-1.76	(0.06)	-0.63	(0.08)	1.14	(0.10)	0.60	(0.01)
	Hong Kong-China	**33**	(15.0)	19.4	-1.20	(0.02)	-0.55	(0.06)	0.65	(0.05)	0.70	(0.01)
	Macao-China	19	(10.3)	35.3	-0.99	(0.00)	-0.46	(0.00)	0.53	(0.00)	0.65	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. In some countries, sub-units within schools were sampled instead of schools as administrative units and this may affect the estimation of school-level effects.
2. Single-level bivariate regression of reading performance on the ESCS, the slope is the regression coefficient for the ESCS.
3. Two-level regression of reading performance on student ESCS and school mean ESCS: within-school slope for ESCS and explained variance at the student level by the model.
4. Two-level regression of reading performance on student ESCS and school mean ESCS: between-school slope for ESCS and explained variance at the school level by the model.
5. Distribution of the school mean ESCS, percentiles calculated at student-level.
6. The index of social inclusion is derived from the intra-class correlation for ESCS as 1-rho.

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Table VI.4.7 Students' enjoyment of reading and digital reading performance

		Index of enjoyment of reading															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.00	(0.02)	-0.33	(0.02)	0.31	(0.02)	**-0.64**	(0.03)	-1.36	(0.01)	-0.37	(0.00)	0.31	(0.00)	1.42	(0.01)
	Austria	-0.13	(0.03)	-0.55	(0.03)	0.26	(0.03)	**-0.81**	(0.04)	-1.52	(0.02)	-0.65	(0.01)	0.16	(0.01)	1.47	(0.02)
	Belgium	-0.20	(0.02)	-0.45	(0.02)	0.07	(0.02)	**-0.52**	(0.03)	-1.42	(0.01)	-0.57	(0.00)	0.11	(0.01)	1.11	(0.01)
	Chile	-0.06	(0.01)	-0.28	(0.02)	0.16	(0.02)	**-0.44**	(0.02)	-1.01	(0.01)	-0.37	(0.00)	0.10	(0.00)	1.02	(0.02)
	Denmark	-0.09	(0.02)	-0.35	(0.02)	0.17	(0.02)	**-0.52**	(0.03)	-1.17	(0.01)	-0.40	(0.01)	0.15	(0.01)	1.07	(0.02)
	France	0.01	(0.03)	-0.23	(0.03)	0.24	(0.03)	**-0.47**	(0.04)	-1.26	(0.01)	-0.33	(0.01)	0.34	(0.01)	1.30	(0.02)
	Hungary	0.14	(0.02)	-0.15	(0.03)	0.43	(0.02)	**-0.58**	(0.04)	-0.94	(0.01)	-0.19	(0.01)	0.37	(0.01)	1.30	(0.02)
	Iceland	-0.06	(0.02)	-0.38	(0.02)	0.25	(0.02)	**-0.63**	(0.03)	-1.27	(0.02)	-0.42	(0.01)	0.18	(0.01)	1.27	(0.02)
	Ireland	-0.08	(0.02)	-0.30	(0.03)	0.15	(0.03)	**-0.45**	(0.04)	-1.30	(0.02)	-0.44	(0.01)	0.19	(0.01)	1.23	(0.02)
	Japan	0.20	(0.02)	0.02	(0.03)	0.38	(0.02)	**-0.36**	(0.03)	-1.07	(0.01)	-0.18	(0.01)	0.48	(0.01)	1.58	(0.02)
	Korea	0.13	(0.02)	0.00	(0.02)	0.27	(0.02)	**-0.27**	(0.03)	-0.82	(0.01)	-0.14	(0.00)	0.31	(0.00)	1.17	(0.02)
	New Zealand	0.13	(0.02)	-0.17	(0.02)	0.44	(0.02)	**-0.61**	(0.03)	-1.07	(0.02)	-0.20	(0.01)	0.40	(0.01)	1.41	(0.02)
	Norway	-0.19	(0.02)	-0.50	(0.02)	0.13	(0.03)	**-0.63**	(0.03)	-1.41	(0.01)	-0.56	(0.01)	0.09	(0.01)	1.12	(0.02)
	Poland	0.02	(0.02)	-0.36	(0.02)	0.39	(0.03)	**-0.75**	(0.03)	-1.21	(0.01)	-0.43	(0.01)	0.21	(0.01)	1.49	(0.02)
	Spain	-0.03	(0.02)	-0.30	(0.02)	0.25	(0.03)	**-0.55**	(0.03)	-1.17	(0.02)	-0.37	(0.00)	0.21	(0.01)	1.19	(0.02)
	Sweden	-0.11	(0.02)	-0.47	(0.02)	0.26	(0.03)	**-0.72**	(0.03)	-1.29	(0.02)	-0.45	(0.01)	0.18	(0.01)	1.14	(0.02)
	OECD average-16	-0.02	(0.00)	-0.30	(0.01)	0.26	(0.01)	**-0.56**	(0.01)	-1.21	(0.00)	-0.38	(0.00)	0.24	(0.00)	1.27	(0.00)
Partners	Colombia	0.13	(0.02)	-0.02	(0.02)	0.27	(0.02)	**-0.29**	(0.03)	-0.69	(0.02)	-0.13	(0.00)	0.31	(0.01)	1.04	(0.01)
	Hong-Kong-China	0.32	(0.01)	0.16	(0.02)	0.51	(0.02)	**-0.35**	(0.02)	-0.54	(0.01)	0.08	(0.00)	0.49	(0.00)	1.27	(0.01)
	Macao-China	0.08	(0.01)	-0.13	(0.01)	0.28	(0.01)	**-0.41**	(0.02)	-0.76	(0.01)	-0.16	(0.00)	0.25	(0.00)	0.97	(0.01)

		Performance on the digital reading scale, by national quarters of this index								Change in the digital reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national digital reading performance distribution		Explained variance in student performance (r-squared x 100)	
		Bottom quarter		Second quarter		Third quarter		Top quarter							
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Effect	S.E.	Ratio	S.E.	%	S.E.
OECD	Australia	**488**	(2.83)	514	(3.20)	555	(3.18)	**597**	(3.34)	**37.0**	(1.0)	**2.27**	(0.09)	**18.7**	(0.01)
	Austria	**421**	(4.10)	438	(4.51)	467	(5.82)	**513**	(4.98)	**30.1**	(1.7)	**1.79**	(0.14)	**12.5**	(0.01)
	Belgium	**472**	(2.64)	487	(3.06)	514	(3.33)	**561**	(2.65)	**33.3**	(1.1)	**1.68**	(0.10)	**13.0**	(0.01)
	Chile	**411**	(4.21)	416	(4.72)	435	(4.41)	**479**	(3.86)	**31.9**	(1.7)	**1.51**	(0.11)	**8.6**	(0.01)
	Denmark	**450**	(3.39)	475	(3.64)	500	(3.33)	**535**	(2.98)	**36.1**	(1.4)	**2.08**	(0.13)	**14.9**	(0.01)
	France	**455**	(5.27)	479	(4.93)	505	(6.01)	**540**	(8.25)	**36.4**	(1.6)	**2.05**	(0.18)	**10.7**	(0.03)
	Hungary	**431**	(5.46)	442	(4.73)	472	(6.13)	**529**	(4.91)	**30.9**	(3.2)	**1.78**	(0.12)	**13.4**	(0.01)
	Iceland	**467**	(2.80)	501	(2.47)	526	(2.81)	**563**	(2.78)	**36.8**	(1.7)	**2.25**	(0.13)	**16.0**	(0.01)
	Ireland	**468**	(3.92)	484	(3.28)	521	(4.29)	**567**	(3.76)	**41.8**	(2.5)	**2.06**	(0.16)	**18.2**	(0.01)
	Japan	**490**	(3.45)	511	(2.52)	532	(2.78)	**554**	(2.87)	**34.7**	(1.4)	**2.15**	(0.15)	**11.8**	(0.01)
	Korea	**537**	(3.95)	557	(3.18)	579	(3.13)	**601**	(3.62)	**22.7**	(1.3)	**2.14**	(0.12)	**12.4**	(0.01)
	New Zealand	**493**	(3.77)	510	(3.24)	557	(3.37)	**599**	(3.25)	**32.9**	(1.4)	**2.14**	(0.17)	**17.8**	(0.01)
	Norway	**458**	(3.97)	483	(3.50)	514	(3.45)	**547**	(3.32)	**29.1**	(2.0)	**2.11**	(0.14)	**16.4**	(0.01)
	Poland	**433**	(4.00)	437	(4.04)	468	(4.16)	**520**	(3.14)	**40.7**	(1.8)	**1.70**	(0.11)	**13.9**	(0.01)
	Spain	**437**	(4.94)	456	(3.88)	486	(4.53)	**529**	(4.05)	**31.0**	(1.5)	**1.96**	(0.12)	**13.6**	(0.01)
	Sweden	**468**	(3.61)	493	(4.16)	523	(4.22)	**561**	(3.76)	**35.5**	(1.6)	**2.13**	(0.15)	**15.2**	(0.01)
	OECD average-16	**461**	(0.99)	480	(0.94)	510	(1.05)	**550**	(1.02)	**33.8**	(0.4)	**1.99**	(0.03)	**14.2**	(0.00)
Partners	Colombia	**363**	(4.15)	360	(3.79)	374	(4.65)	**383**	(4.90)	**12.0**	(2.3)	**1.04**	(0.10)	**1.1**	(0.00)
	Hong-Kong-China	**484**	(3.78)	507	(3.54)	526	(3.11)	**546**	(2.81)	**30.4**	(1.9)	**1.89**	(0.14)	**7.8**	(0.01)
	Macao-China	**474**	(1.48)	481	(1.71)	496	(1.67)	**517**	(1.43)	**22.4**	(1.1)	**1.56**	(0.07)	**5.7**	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.8 **Relationship between enjoyment of reading and digital reading performance, by gender**

		Gender differences						Correlation between enjoyment of reading and digital reading performance			
		Boys		Girls		Difference (B – G)		Boys		Girls	
		Change in the digital reading score per unit of this index	S.E.	Change in the digital reading score per unit of this index	S.E.	Score dif.	S.E.	Corr.	S.E.	Corr.	S.E.
OECD	Australia	**41.6**	(1.9)	**32.6**	(1.2)	**9.0**	(2.1)	**0.42**	(0.01)	**0.41**	(0.01)
	Austria	**29.3**	(2.5)	**31.4**	(2.1)	-2.1	(3.2)	**0.29**	(0.03)	**0.38**	(0.02)
	Belgium	**30.5**	(2.0)	**34.5**	(1.4)	-4.1	(2.5)	**0.30**	(0.02)	**0.39**	(0.02)
	Chile	**27.7**	(3.1)	**33.5**	(1.9)	-5.8	(3.5)	**0.22**	(0.02)	**0.34**	(0.02)
	Denmark	**39.0**	(2.1)	**37.6**	(1.7)	1.4	(2.6)	**0.38**	(0.02)	**0.40**	(0.02)
	France	**35.2**	(2.4)	**38.0**	(2.3)	-2.8	(3.5)	**0.33**	(0.02)	**0.39**	(0.02)
	Hungary	**28.0**	(3.6)	**32.3**	(3.5)	-4.3	(2.8)	**0.29**	(0.05)	**0.33**	(0.06)
	Iceland	**35.2**	(2.8)	**34.9**	(1.8)	0.3	(3.0)	**0.36**	(0.03)	**0.45**	(0.02)
	Ireland	**40.4**	(3.9)	**43.9**	(2.7)	-3.4	(4.4)	**0.31**	(0.03)	**0.40**	(0.02)
	Japan	**37.3**	(2.4)	**30.6**	(1.7)	**6.7**	(3.0)	**0.37**	(0.02)	**0.38**	(0.02)
	Korea	**21.8**	(1.5)	**21.1**	(1.5)	0.7	(1.7)	**0.31**	(0.02)	**0.34**	(0.02)
	New Zealand	**32.0**	(2.1)	**29.6**	(1.9)	2.5	(2.6)	**0.35**	(0.02)	**0.39**	(0.02)
	Norway	**28.5**	(2.7)	**27.8**	(2.5)	0.7	(3.5)	**0.33**	(0.02)	**0.35**	(0.03)
	Poland	**43.5**	(2.6)	**34.2**	(2.2)	**9.3**	(3.4)	**0.38**	(0.02)	**0.40**	(0.03)
	Spain	**29.4**	(2.7)	**30.5**	(1.7)	-1.1	(3.1)	**0.28**	(0.03)	**0.41**	(0.02)
	Sweden	**39.4**	(2.2)	**31.8**	(2.3)	**7.6**	(3.0)	**0.37**	(0.02)	**0.36**	(0.02)
	OECD average-16	**33.7**	(0.7)	**32.8**	(0.5)	0.9	(0.8)	**0.33**	(0.01)	**0.38**	(0.01)
Partners	Colombia	**11.9**	(4.0)	**11.9**	(3.1)	0.0	(5.3)	**0.09**	(0.03)	**0.11**	(0.03)
	Hong-Kong-China	**28.9**	(2.6)	**33.5**	(2.5)	-4.6	(3.4)	**0.26**	(0.02)	**0.30**	(0.02)
	Macao-China	**19.4**	(2.0)	**23.7**	(2.1)	-4.4	(3.3)	**0.19**	(0.02)	**0.26**	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.9 **Students' diversity of reading materials and digital reading performance**

		Index of diversity of reading materials															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	-0.12	(0.01)	-0.19	(0.02)	-0.06	(0.01)	**-0.13**	(0.02)	-1.25	(0.01)	-0.34	(0.00)	0.15	(0.00)	0.95	(0.01)
	Austria	0.01	(0.02)	-0.04	(0.03)	0.06	(0.02)	**-0.09**	(0.03)	-1.08	(0.03)	-0.19	(0.00)	0.29	(0.00)	1.03	(0.02)
	Belgium	-0.08	(0.02)	-0.12	(0.03)	-0.05	(0.02)	**-0.07**	(0.03)	-1.34	(0.03)	-0.30	(0.00)	0.23	(0.00)	1.08	(0.01)
	Chile	-0.02	(0.02)	-0.19	(0.02)	0.16	(0.02)	**-0.35**	(0.03)	-1.31	(0.03)	-0.24	(0.00)	0.33	(0.00)	1.15	(0.02)
	Denmark	0.07	(0.02)	-0.01	(0.03)	0.15	(0.02)	**-0.16**	(0.03)	-1.20	(0.03)	-0.13	(0.01)	0.41	(0.00)	1.21	(0.02)
	France	-0.07	(0.02)	-0.07	(0.03)	-0.07	(0.02)	0.00	(0.03)	-1.28	(0.02)	-0.28	(0.00)	0.23	(0.01)	1.05	(0.02)
	Hungary	0.28	(0.02)	0.14	(0.03)	0.42	(0.03)	**-0.29**	(0.04)	-1.12	(0.04)	0.07	(0.01)	0.63	(0.01)	1.53	(0.02)
	Iceland	0.19	(0.02)	0.02	(0.03)	0.36	(0.02)	**-0.35**	(0.04)	-1.06	(0.03)	-0.03	(0.01)	0.48	(0.00)	1.38	(0.03)
	Ireland	-0.13	(0.02)	-0.20	(0.03)	-0.06	(0.02)	**-0.14**	(0.03)	-1.18	(0.02)	-0.33	(0.00)	0.12	(0.00)	0.88	(0.02)
	Japan	0.38	(0.02)	0.39	(0.02)	0.38	(0.02)	0.02	(0.03)	-0.77	(0.02)	0.12	(0.00)	0.63	(0.00)	1.56	(0.02)
	Korea	0.01	(0.02)	-0.03	(0.03)	0.06	(0.03)	**-0.09**	(0.04)	-1.26	(0.02)	-0.25	(0.01)	0.32	(0.00)	1.23	(0.02)
	New Zealand	0.05	(0.01)	-0.03	(0.02)	0.13	(0.02)	**-0.16**	(0.03)	-1.06	(0.02)	-0.19	(0.00)	0.32	(0.00)	1.11	(0.02)
	Norway	0.32	(0.02)	0.22	(0.03)	0.43	(0.03)	**-0.20**	(0.04)	-0.90	(0.03)	0.10	(0.01)	0.62	(0.00)	1.47	(0.03)
	Poland	0.00	(0.02)	-0.19	(0.03)	0.18	(0.02)	**-0.37**	(0.03)	-1.12	(0.02)	-0.20	(0.00)	0.29	(0.00)	1.02	(0.02)
	Spain	-0.30	(0.02)	-0.30	(0.03)	-0.29	(0.02)	-0.01	(0.03)	-1.50	(0.03)	-0.50	(0.01)	0.01	(0.01)	0.80	(0.02)
	Sweden	-0.01	(0.02)	-0.17	(0.03)	0.15	(0.02)	**-0.32**	(0.03)	-1.33	(0.03)	-0.20	(0.01)	0.34	(0.00)	1.14	(0.02)
	OECD average-16	0.04	(0.00)	-0.05	(0.01)	0.12	(0.01)	**-0.17**	(0.01)	-1.17	(0.01)	-0.18	(0.00)	0.34	(0.00)	1.16	(0.00)
Partners	Colombia	0.31	(0.03)	0.16	(0.04)	0.45	(0.04)	**-0.28**	(0.04)	-1.05	(0.02)	-0.01	(0.01)	0.63	(0.01)	1.67	(0.02)
	Hong-Kong-China	0.46	(0.02)	0.45	(0.03)	0.48	(0.02)	-0.03	(0.03)	-0.69	(0.02)	0.23	(0.01)	0.73	(0.00)	1.58	(0.02)
	Macao-China	0.17	(0.01)	0.06	(0.02)	0.29	(0.02)	**-0.22**	(0.02)	-1.01	(0.02)	-0.05	(0.00)	0.47	(0.00)	1.29	(0.02)

		Performance on the digital reading scale, by national quarters of this index								Change in the digital reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national digital reading performance distribution		Explained variance in student performance (r-squared x 100)	
		Bottom quarter		Second quarter		Third quarter		Top quarter							
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Effect	S.E.	Ratio	S.E.	%	S.E.
OECD	Australia	**508**	(2.92)	533	(3.07)	550	(3.60)	**562**	(3.85)	**22.1**	(1.4)	**1.68**	(0.07)	**4.6**	(0.51)
	Austria	**433**	(4.09)	462	(4.33)	479	(4.65)	**489**	(4.42)	**23.3**	(2.4)	**1.79**	(0.13)	**5.0**	(1.22)
	Belgium	**475**	(2.91)	510	(2.93)	527	(3.09)	**541**	(3.13)	**26.4**	(1.4)	**2.03**	(0.12)	**8.7**	(0.92)
	Chile	**400**	(4.35)	431	(4.24)	450	(4.34)	**458**	(3.75)	**20.6**	(1.4)	**1.89**	(0.12)	**5.6**	(0.74)
	Denmark	**463**	(3.73)	491	(3.51)	497	(3.13)	**509**	(3.23)	**18.8**	(1.2)	**1.69**	(0.09)	**5.4**	(0.70)
	France	**463**	(4.53)	494	(5.86)	508	(6.10)	**515**	(6.87)	**28.1**	(1.9)	**1.84**	(0.14)	**4.7**	(1.58)
	Hungary	**441**	(5.86)	480	(5.36)	478	(4.96)	**475**	(5.24)	**21.2**	(2.5)	**1.64**	(0.12)	**1.9**	(0.47)
	Iceland	**476**	(3.05)	509	(3.03)	525	(2.96)	**542**	(2.93)	**16.6**	(2.0)	**1.95**	(0.12)	**7.4**	(0.94)
	Ireland	**487**	(3.66)	508	(3.70)	516	(4.45)	**527**	(4.28)	**12.4**	(1.6)	**1.53**	(0.11)	**2.8**	(0.66)
	Japan	**497**	(3.17)	517	(3.08)	528	(2.70)	**540**	(2.55)	**23.0**	(1.5)	**1.74**	(0.09)	**4.7**	(0.72)
	Korea	**548**	(4.06)	568	(3.92)	574	(3.17)	**582**	(3.41)	**15.6**	(1.3)	**1.60**	(0.12)	**3.8**	(0.90)
	New Zealand	**519**	(3.74)	542	(3.51)	550	(3.69)	**548**	(3.33)	**22.5**	(1.8)	**1.46**	(0.10)	**1.3**	(0.37)
	Norway	**467**	(3.80)	497	(3.45)	511	(2.98)	**527**	(4.05)	**12.8**	(1.7)	**1.91**	(0.11)	**7.7**	(1.11)
	Poland	**430**	(3.65)	463	(4.09)	477	(3.97)	**486**	(4.03)	**12.2**	(1.7)	**1.83**	(0.13)	**5.4**	(0.85)
	Spain	**435**	(5.47)	471	(4.60)	488	(4.08)	**510**	(4.30)	**22.9**	(1.8)	**2.01**	(0.12)	**8.5**	(1.04)
	Sweden	**470**	(4.10)	504	(3.84)	526	(3.66)	**545**	(4.26)	**27.9**	(1.4)	**2.18**	(0.14)	**11.3**	(1.13)
	OECD average-16	**469**	(1.01)	499	(1.00)	511	(0.99)	**522**	(1.02)	**20.4**	(0.4)	**1.80**	(0.03)	**5.6**	(0.23)
Partners	Colombia	362	(4.69)	371	(4.09)	380	(4.65)	368	(4.58)	2.3	(2.0)	1.19	(0.10)	0.1	(0.18)
	Hong-Kong-China	**500**	(3.60)	517	(3.08)	520	(3.31)	**523**	(3.70)	**9.5**	(1.6)	**1.38**	(0.10)	**1.3**	(0.46)
	Macao-China	**471**	(1.73)	491	(1.73)	500	(2.22)	**507**	(1.73)	**14.1**	(1.0)	**1.67**	(0.08)	**4.3**	(0.59)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.10 Relationship between diversity of reading and digital reading performance, by gender

		Gender differences						Correlation between diversity of reading and digital reading performance			
		Boys		Girls		Difference (B – G)		Boys		Girls	
		Change in the digital reading score per unit of this index	S.E.	Change in the digital reading score per unit of this index	S.E.	Score difference	S.E.	Corr.	S.E.	Corr.	S.E.
OECD	Australia	**19.7**	(1.7)	**23.5**	(2.1)	-3.8	(2.6)	**0.20**	(0.02)	**0.22**	(0.02)
	Austria	**21.3**	(3.0)	**25.1**	(3.4)	-3.9	(4.4)	**0.23**	(0.03)	**0.21**	(0.03)
	Belgium	**24.9**	(1.9)	**28.0**	(1.8)	-3.1	(2.5)	**0.30**	(0.02)	**0.29**	(0.02)
	Chile	**19.1**	(2.1)	**20.3**	(2.1)	-1.2	(3.0)	**0.22**	(0.02)	**0.23**	(0.02)
	Denmark	**19.2**	(1.5)	**17.6**	(2.1)	1.6	(2.5)	**0.27**	(0.02)	**0.18**	(0.02)
	France	**19.9**	(2.8)	**23.3**	(3.4)	-3.4	(3.7)	**0.23**	(0.04)	**0.21**	(0.04)
	Hungary	**14.8**	(2.4)	5.9	(3.2)	**9.0**	(4.4)	**0.18**	(0.03)	0.06	(0.03)
	Iceland	**20.6**	(2.1)	**22.3**	(2.1)	-1.7	(3.0)	**0.26**	(0.03)	**0.24**	(0.02)
	Ireland	**16.6**	(2.5)	**13.2**	(2.8)	3.5	(3.6)	**0.17**	(0.03)	**0.13**	(0.03)
	Japan	**16.1**	(1.6)	**15.1**	(1.7)	0.9	(2.1)	**0.23**	(0.02)	**0.22**	(0.02)
	Korea	**15.6**	(2.4)	**7.9**	(1.8)	7.7	(3.0)	**0.24**	(0.03)	**0.12**	(0.03)
	New Zealand	**10.1**	(2.2)	**11.2**	(2.8)	-1.1	(3.6)	**0.10**	(0.02)	**0.10**	(0.02)
	Norway	**21.2**	(2.1)	**20.8**	(2.2)	0.4	(2.8)	**0.28**	(0.02)	**0.24**	(0.03)
	Poland	**22.8**	(2.7)	**16.1**	(2.1)	6.7	(3.6)	**0.24**	(0.03)	**0.15**	(0.02)
	Spain	**22.9**	(2.3)	**37.2**	(3.2)	**-14.4**	(3.7)	**0.26**	(0.02)	**0.34**	(0.02)
	Sweden	**26.4**	(1.7)	**27.0**	(2.0)	-0.6	(2.4)	**0.35**	(0.02)	**0.29**	(0.02)
	OECD average-16	**19.4**	(0.6)	**19.7**	(0.6)	-0.2	(0.8)	**0.23**	(0.01)	**0.20**	(0.01)
Partners	Colombia	4.1	(2.2)	0.3	(2.6)	3.8	(2.5)	0.06	(0.03)	0.00	(0.04)
	Hong-Kong-China	**8.3**	(1.9)	**11.7**	(2.8)	-3.4	(3.3)	**0.11**	(0.02)	**0.13**	(0.03)
	Macao-China	**12.3**	(1.4)	**15.8**	(1.7)	-3.6	(2.4)	**0.20**	(0.02)	**0.21**	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.11 **Students' level of online searching-information activities and digital reading performance**

		Index of online searching-information activities															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	-0.08	(0.02)	-0.09	(0.02)	-0.07	(0.02)	-0.03	(0.03)	-1.27	(0.01)	-0.42	(0.00)	0.22	(0.00)	1.16	(0.01)
	Austria	0.07	(0.02)	0.08	(0.03)	0.05	(0.03)	0.03	(0.03)	-1.12	(0.02)	-0.26	(0.01)	0.36	(0.01)	1.29	(0.02)
	Belgium	-0.42	(0.01)	-0.39	(0.02)	-0.46	(0.02)	**0.06**	(0.03)	-1.53	(0.01)	-0.75	(0.00)	-0.21	(0.00)	0.81	(0.02)
	Chile	0.02	(0.02)	0.06	(0.03)	-0.03	(0.03)	**0.09**	(0.03)	-1.21	(0.01)	-0.42	(0.01)	0.31	(0.01)	1.39	(0.01)
	Denmark	0.08	(0.02)	0.18	(0.03)	-0.01	(0.02)	**0.20**	(0.03)	-1.03	(0.01)	-0.23	(0.01)	0.39	(0.01)	1.21	(0.01)
	France	-0.12	(0.02)	-0.09	(0.03)	-0.15	(0.02)	0.06	(0.03)	-1.29	(0.02)	-0.44	(0.01)	0.15	(0.01)	1.11	(0.02)
	Hungary	0.20	(0.02)	0.23	(0.03)	0.16	(0.03)	0.07	(0.04)	-1.07	(0.02)	-0.14	(0.01)	0.56	(0.01)	1.44	(0.01)
	Iceland	-0.01	(0.01)	0.18	(0.02)	-0.20	(0.02)	**0.38**	(0.03)	-1.27	(0.02)	-0.36	(0.01)	0.32	(0.01)	1.27	(0.02)
	Ireland	-0.44	(0.02)	-0.36	(0.03)	-0.51	(0.03)	**0.15**	(0.04)	-1.56	(0.02)	-0.81	(0.01)	-0.23	(0.01)	0.85	(0.02)
	Japan	-0.23	(0.02)	-0.26	(0.04)	-0.19	(0.02)	-0.08	(0.04)	-1.64	(0.02)	-0.66	(0.01)	0.10	(0.01)	1.30	(0.01)
	Korea	0.35	(0.02)	0.29	(0.03)	0.43	(0.03)	**-0.14**	(0.04)	-1.00	(0.02)	0.06	(0.01)	0.73	(0.01)	1.62	(0.01)
	New Zealand	-0.13	(0.02)	-0.14	(0.02)	-0.13	(0.02)	-0.01	(0.03)	-1.28	(0.01)	-0.47	(0.00)	0.15	(0.01)	1.07	(0.01)
	Norway	0.11	(0.02)	0.16	(0.02)	0.06	(0.02)	**0.10**	(0.03)	-1.01	(0.01)	-0.19	(0.01)	0.40	(0.00)	1.25	(0.01)
	Poland	0.60	(0.02)	0.61	(0.03)	0.59	(0.02)	0.02	(0.03)	-0.62	(0.01)	0.34	(0.01)	0.94	(0.01)	1.74	(0.01)
	Spain	-0.03	(0.02)	-0.02	(0.03)	-0.04	(0.02)	0.02	(0.03)	-1.26	(0.02)	-0.40	(0.01)	0.28	(0.01)	1.26	(0.02)
	Sweden	-0.01	(0.02)	0.06	(0.02)	-0.07	(0.02)	**0.12**	(0.02)	-1.14	(0.01)	-0.35	(0.00)	0.28	(0.01)	1.19	(0.01)
	OECD average-16	0.00	(0.00)	0.03	(0.01)	-0.03	(0.01)	**0.07**	(0.01)	-1.21	(0.00)	-0.34	(0.00)	0.30	(0.00)	1.25	(0.00)
Partners	Colombia	-0.07	(0.03)	0.00	(0.04)	-0.13	(0.04)	**0.13**	(0.04)	-1.43	(0.02)	-0.42	(0.01)	0.30	(0.01)	1.28	(0.02)
	Hong-Kong-China	0.22	(0.02)	0.26	(0.03)	0.17	(0.02)	**0.09**	(0.03)	-0.87	(0.02)	-0.09	(0.00)	0.49	(0.01)	1.35	(0.01)
	Macao-China	-0.20	(0.01)	-0.21	(0.02)	-0.20	(0.01)	-0.01	(0.02)	-1.35	(0.01)	-0.52	(0.00)	0.04	(0.00)	1.01	(0.02)

		Performance on the digital reading scale, by national quarters of this index								Change in the digital reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national digital reading performance distribution		Explained variance in student performance (r-squared x 100)	
		Bottom quarter		Second quarter		Third quarter		Top quarter							
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Effect	S.E.	Ratio	S.E.	%	S.E.
OECD	Australia	**493**	(3.06)	537	(2.79)	558	(3.29)	**569**	(3.69)	**30.9**	(1.5)	**2.15**	(0.08)	**9.8**	(0.77)
	Austria	**426**	(4.73)	470	(4.04)	485	(4.33)	**487**	(5.42)	**25.8**	(2.2)	**2.14**	(0.18)	**6.7**	(1.25)
	Belgium	**485**	(2.61)	522	(3.12)	527	(2.97)	**524**	(3.31)	**14.9**	(1.7)	**1.73**	(0.10)	**2.3**	(0.54)
	Chile	**393**	(4.27)	430	(4.14)	452	(3.55)	**467**	(4.71)	**28.2**	(1.8)	**2.14**	(0.12)	**10.2**	(1.24)
	Denmark	**458**	(3.28)	492	(3.15)	509	(3.48)	**504**	(3.28)	**20.4**	(1.4)	**1.89**	(0.12)	**4.7**	(0.65)
	France	**454**	(4.92)	501	(6.19)	509	(6.00)	**522**	(5.88)	**23.0**	(1.9)	**2.25**	(0.18)	**7.1**	(1.54)
	Hungary	**419**	(5.89)	472	(4.85)	489	(4.76)	**500**	(4.67)	**26.7**	(2.0)	**2.55**	(0.18)	**10.2**	(1.33)
	Iceland	**485**	(3.16)	521	(2.94)	523	(2.82)	**527**	(2.76)	**26.9**	(1.7)	**1.78**	(0.11)	**3.6**	(0.64)
	Ireland	**467**	(3.50)	512	(3.22)	524	(4.23)	**541**	(3.74)	**32.8**	(2.4)	**2.17**	(0.15)	**8.9**	(1.04)
	Japan	**482**	(2.95)	518	(2.69)	534	(2.55)	**550**	(2.88)	**16.9**	(1.5)	**2.50**	(0.16)	**13.3**	(1.11)
	Korea	**531**	(4.48)	570	(2.97)	581	(3.12)	**591**	(3.34)	**22.5**	(1.1)	**2.41**	(0.16)	**13.2**	(1.34)
	New Zealand	**503**	(3.46)	540	(3.17)	557	(3.25)	**565**	(3.73)	**14.5**	(1.7)	**1.88**	(0.12)	**6.2**	(0.86)
	Norway	**478**	(3.53)	504	(3.42)	514	(3.69)	**509**	(4.05)	**23.8**	(1.4)	**1.69**	(0.12)	**2.5**	(0.56)
	Poland	**419**	(3.86)	468	(3.41)	483	(3.94)	**490**	(3.86)	**25.4**	(1.8)	**2.33**	(0.15)	**9.5**	(1.08)
	Spain	**438**	(5.29)	480	(4.08)	492	(4.49)	**496**	(4.27)	**30.1**	(1.8)	**2.03**	(0.13)	**5.8**	(0.91)
	Sweden	**475**	(3.84)	516	(3.98)	526	(4.09)	**532**	(4.27)	**23.1**	(1.5)	**1.98**	(0.13)	**5.9**	(0.81)
	OECD average-16	**463**	(1.01)	503	(0.93)	516	(0.97)	**523**	(1.02)	**24.1**	(0.4)	**2.10**	(0.03)	**7.5**	(0.26)
Partners	Colombia	**336**	(3.47)	365	(4.23)	390	(4.27)	**397**	(4.74)	**22.1**	(1.6)	**1.88**	(0.15)	**8.3**	(1.00)
	Hong-Kong-China	**486**	(3.32)	517	(3.06)	528	(3.26)	**529**	(3.46)	**18.1**	(1.5)	**1.86**	(0.11)	**3.9**	(0.66)
	Macao-China	**468**	(1.67)	495	(1.65)	499	(1.63)	**507**	(1.61)	**15.1**	(1.1)	**1.81**	(0.09)	**4.4**	(0.63)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.12 **Students' level of online social activities and digital reading performance**

		Index of online social activities															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.03	(0.01)	-0.03	(0.02)	0.08	(0.02)	**-0.11**	(0.02)	-1.32	(0.01)	-0.16	(0.00)	0.45	(0.00)	1.14	(0.01)
	Austria	0.19	(0.02)	0.12	(0.03)	0.26	(0.03)	**-0.13**	(0.04)	-1.24	(0.02)	-0.01	(0.01)	0.66	(0.01)	1.37	(0.01)
	Belgium	0.27	(0.01)	0.28	(0.02)	0.27	(0.01)	0.01	(0.02)	-1.01	(0.02)	0.12	(0.00)	0.66	(0.00)	1.32	(0.01)
	Chile	-0.34	(0.03)	-0.38	(0.04)	-0.31	(0.03)	-0.07	(0.04)	-1.86	(0.01)	-0.67	(0.01)	0.18	(0.01)	0.99	(0.01)
	Denmark	0.32	(0.02)	0.29	(0.02)	0.34	(0.02)	-0.05	(0.03)	-0.83	(0.02)	0.18	(0.00)	0.69	(0.00)	1.24	(0.01)
	France	0.11	(0.02)	0.05	(0.03)	0.15	(0.02)	**-0.10**	(0.03)	-1.36	(0.02)	-0.08	(0.01)	0.58	(0.01)	1.28	(0.01)
	Hungary	0.33	(0.02)	0.28	(0.03)	0.38	(0.02)	**-0.10**	(0.03)	-0.99	(0.02)	0.23	(0.01)	0.80	(0.00)	1.28	(0.01)
	Iceland	0.34	(0.01)	0.26	(0.02)	0.42	(0.01)	**-0.16**	(0.03)	-0.78	(0.02)	0.21	(0.00)	0.70	(0.00)	1.23	(0.01)
	Ireland	-0.36	(0.03)	-0.50	(0.03)	-0.22	(0.03)	**-0.28**	(0.04)	-1.81	(0.01)	-0.73	(0.01)	0.11	(0.01)	0.97	(0.01)
	Japan	-0.31	(0.01)	-0.36	(0.02)	-0.25	(0.01)	**-0.11**	(0.02)	-1.41	(0.02)	-0.45	(0.00)	-0.11	(0.00)	0.74	(0.01)
	Korea	-0.66	(0.02)	-0.72	(0.04)	-0.59	(0.03)	**-0.13**	(0.05)	-1.93	(0.01)	-1.01	(0.01)	-0.30	(0.01)	0.61	(0.01)
	New Zealand	-0.30	(0.02)	-0.41	(0.03)	-0.18	(0.02)	**-0.23**	(0.03)	-1.71	(0.01)	-0.63	(0.01)	0.15	(0.01)	1.00	(0.01)
	Norway	0.24	(0.02)	0.26	(0.02)	0.23	(0.02)	0.03	(0.03)	-0.91	(0.02)	0.10	(0.00)	0.61	(0.00)	1.18	(0.01)
	Poland	0.06	(0.02)	0.09	(0.03)	0.04	(0.03)	0.04	(0.03)	-1.37	(0.02)	-0.03	(0.01)	0.56	(0.00)	1.11	(0.01)
	Spain	-0.01	(0.02)	0.01	(0.02)	-0.03	(0.02)	0.03	(0.03)	-1.35	(0.02)	-0.26	(0.01)	0.42	(0.01)	1.15	(0.01)
	Sweden	0.10	(0.01)	0.12	(0.02)	0.08	(0.02)	0.04	(0.02)	-1.04	(0.02)	-0.06	(0.00)	0.45	(0.00)	1.04	(0.01)
	OECD average-16	0.00	(0.00)	-0.04	(0.01)	0.04	(0.01)	**-0.08**	(0.01)	-1.31	(0.00)	-0.20	(0.00)	0.41	(0.00)	1.10	(0.00)
Partners	Colombia	-0.43	(0.04)	-0.48	(0.04)	-0.38	(0.05)	-0.10	(0.05)	-2.09	(0.02)	-0.75	(0.01)	0.14	(0.01)	0.98	(0.01)
	Hong-Kong-China	0.18	(0.01)	0.13	(0.02)	0.23	(0.02)	**-0.10**	(0.03)	-0.99	(0.02)	-0.02	(0.01)	0.53	(0.00)	1.18	(0.01)
	Macao-China	0.11	(0.01)	0.07	(0.02)	0.14	(0.02)	**-0.07**	(0.02)	-1.04	(0.01)	-0.10	(0.00)	0.44	(0.00)	1.13	(0.01)

		Performance on the digital reading scale, by national quarters of this index								Change in the digital reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national digital reading performance distribution		Explained variance in student performance (r-squared x 100)	
		Bottom quarter		Second quarter		Third quarter		Top quarter							
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Effect	S.E.	Ratio	S.E.	%	S.E.
OECD	Australia	530	(3.09)	547	(2.98)	547	(3.01)	534	(4.47)	**3.6**	(1.4)	**1.21**	(0.05)	0.1	(0.11)
	Austria	465	(4.50)	474	(5.06)	473	(4.22)	458	(3.97)	-1.7	(1.6)	1.12	(0.10)	0.0	(0.07)
	Belgium	504	(3.46)	527	(2.66)	521	(2.67)	505	(3.49)	**3.9**	(1.8)	**1.31**	(0.09)	0.2	(0.15)
	Chile	**394**	(4.14)	435	(4.00)	454	(4.03)	**459**	(4.06)	**23.3**	(1.5)	**2.16**	(0.13)	**8.2**	(1.01)
	Denmark	489	(3.47)	494	(3.48)	492	(3.37)	488	(3.42)	0.8	(1.7)	1.05	(0.07)	0.0	(0.04)
	France	482	(5.73)	505	(6.74)	508	(5.66)	491	(4.68)	**6.9**	(1.8)	**1.41**	(0.11)	**0.7**	(0.33)
	Hungary	**439**	(6.32)	487	(5.51)	486	(4.54)	**468**	(4.55)	**7.7**	(1.7)	**1.94**	(0.15)	**2.6**	(0.74)
	Iceland	513	(3.12)	514	(3.54)	515	(3.35)	513	(3.09)	**4.9**	(1.6)	1.07	(0.08)	0.0	(0.06)
	Ireland	**496**	(4.11)	517	(3.71)	522	(3.89)	**509**	(3.92)	**18.0**	(2.6)	**1.36**	(0.10)	0.4	(0.24)
	Japan	517	(2.48)	527	(3.12)	518	(2.85)	522	(3.10)	1.4	(2.1)	1.05	(0.07)	0.1	(0.12)
	Korea	**576**	(3.65)	576	(3.60)	566	(2.92)	**555**	(4.13)	**2.8**	(1.3)	**0.78**	(0.07)	**1.4**	(0.51)
	New Zealand	**514**	(3.48)	545	(3.46)	557	(3.39)	**548**	(3.59)	-2.8	(2.0)	**1.68**	(0.11)	**2.1**	(0.50)
	Norway	**505**	(3.68)	504	(3.24)	501	(3.69)	**495**	(3.93)	**-8.0**	(1.5)	0.92	(0.07)	0.1	(0.12)
	Poland	**426**	(4.50)	475	(3.28)	485	(3.61)	**475**	(3.91)	**13.2**	(1.6)	**2.22**	(0.13)	**6.2**	(0.81)
	Spain	463	(4.40)	480	(4.71)	489	(4.42)	474	(4.79)	**22.7**	(1.5)	**1.30**	(0.10)	0.5	(0.28)
	Sweden	513	(4.16)	515	(4.37)	512	(4.29)	508	(3.90)	-0.9	(1.8)	0.97	(0.07)	0.0	(0.04)
	OECD average-16	**489**	(1.03)	508	(1.02)	509	(0.95)	**500**	(0.99)	**6.0**	(0.4)	**1.35**	(0.02)	**1.4**	(0.11)
Partners	Colombia	**332**	(4.37)	376	(4.41)	390	(3.77)	**391**	(4.85)	**19.2**	(1.9)	**2.20**	(0.17)	**8.0**	(1.42)
	Hong-Kong-China	508	(3.50)	518	(3.22)	519	(3.27)	515	(3.76)	**6.1**	(1.8)	**1.18**	(0.07)	0.4	(0.25)
	Macao-China	**484**	(1.78)	491	(1.69)	498	(1.60)	**497**	(1.86)	**7.3**	(1.2)	**1.30**	(0.08)	**0.89**	(0.29)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.4.13 **Relationship between online searching-information activities and digital reading performance, by gender**

		Gender differences						Correlation between online searching-information activities and digital reading performance			
		Boys		Girls		Difference (B – G)		Boys		Girls	
		Change in the digital reading score per unit of this index	S.E.	Change in the digital reading score per unit of this index	S.E.	Score dif.	S.E.	Corr.	S.E.	Corr.	S.E.
OECD	Australia	**33.8**	(1.9)	**27.0**	(1.9)	**6.8**	(2.4)	**0.35**	(0.02)	**0.28**	(0.02)
	Austria	**25.1**	(2.2)	**27.2**	(3.5)	-2.0	(3.6)	**0.27**	(0.03)	**0.26**	(0.03)
	Belgium	**18.0**	(2.2)	**11.6**	(1.9)	**6.5**	(2.5)	**0.19**	(0.02)	**0.11**	(0.02)
	Chile	**28.4**	(2.2)	**28.8**	(2.2)	-0.4	(2.5)	**0.32**	(0.02)	**0.33**	(0.02)
	Denmark	**21.9**	(1.7)	**19.7**	(2.0)	2.2	(2.4)	**0.25**	(0.02)	**0.19**	(0.02)
	France	**26.5**	(2.5)	**27.7**	(2.1)	-1.1	(2.6)	**0.29**	(0.03)	**0.26**	(0.03)
	Hungary	**31.3**	(3.3)	**35.8**	(3.3)	-4.5	(4.6)	**0.32**	(0.03)	**0.34**	(0.03)
	Iceland	**18.7**	(2.2)	**23.1**	(2.4)	-4.4	(3.4)	**0.22**	(0.02)	**0.24**	(0.02)
	Ireland	**28.3**	(2.3)	**28.4**	(2.3)	-0.2	(3.2)	**0.32**	(0.02)	**0.31**	(0.02)
	Japan	**23.8**	(1.5)	**20.0**	(1.2)	**3.8**	(1.7)	**0.39**	(0.02)	**0.33**	(0.02)
	Korea	**25.1**	(1.9)	**20.7**	(1.9)	4.4	(2.6)	**0.39**	(0.03)	**0.32**	(0.03)
	New Zealand	**30.0**	(2.4)	**19.0**	(2.4)	**11.0**	(3.4)	**0.29**	(0.02)	**0.20**	(0.02)
	Norway	**15.3**	(2.1)	**16.2**	(2.2)	-1.0	(2.7)	**0.17**	(0.02)	**0.17**	(0.02)
	Poland	**33.8**	(2.4)	**25.6**	(2.2)	**8.1**	(3.0)	**0.35**	(0.02)	**0.27**	(0.02)
	Spain	**24.8**	(2.0)	**20.5**	(3.0)	4.2	(3.3)	**0.28**	(0.02)	**0.20**	(0.03)
	Sweden	**26.5**	(2.0)	**20.7**	(2.4)	5.8	(3.2)	**0.29**	(0.02)	**0.21**	(0.02)
	OECD average-16	**25.7**	(0.6)	**23.3**	(0.6)	**2.4**	(0.8)	**0.29**	(0.01)	**0.25**	(0.01)
Partners	Colombia	**22.8**	(2.3)	**22.0**	(2.1)	0.8	(3.1)	**0.29**	(0.02)	**0.29**	(0.02)
	Hong-Kong-China	**18.1**	(2.0)	**18.9**	(2.3)	-0.7	(2.9)	**0.20**	(0.02)	**0.19**	(0.02)
	Macao-China	**15.4**	(1.4)	**14.7**	(1.7)	0.7	(2.1)	**0.23**	(0.02)	**0.19**	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.14 **Relationship between online social activities and digital reading performance, by gender**

		Gender differences						Correlation between online social activities and digital reading performance			
		Boys		Girls		Difference (B – G)		Boys		Girls	
		Change in the digital reading score per unit of this index	S.E.	Change in the digital reading score per unit of this index	S.E.	Score dif.	S.E.	Corr.	S.E.	Corr.	S.E.
OECD	Australia	**6.7**	(2.0)	-1.7	(1.8)	**8.4**	(2.3)	**0.07**	(0.02)	-0.02	(0.02)
	Austria	3.4	(2.2)	**-8.9**	(2.6)	**12.2**	(3.7)	0.04	(0.02)	**-0.10**	(0.03)
	Belgium	**4.8**	(2.2)	2.9	(2.5)	1.9	(3.1)	**0.05**	(0.02)	0.03	(0.03)
	Chile	**24.0**	(2.0)	**21.9**	(2.0)	2.2	(2.7)	**0.30**	(0.02)	**0.27**	(0.02)
	Denmark	4.1	(2.2)	-3.7	(2.3)	**7.8**	(3.1)	0.04	(0.02)	-0.03	(0.02)
	France	**8.9**	(2.0)	**5.5**	(2.6)	3.3	(3.1)	**0.10**	(0.02)	**0.06**	(0.03)
	Hungary	**22.2**	(3.2)	**11.2**	(3.5)	**11.0**	(4.3)	**0.21**	(0.03)	**0.10**	(0.03)
	Iceland	4.2	(3.0)	-6.4	(3.4)	**10.5**	(4.7)	0.04	(0.03)	-0.06	(0.03)
	Ireland	**8.4**	(2.0)	-3.1	(2.1)	**11.5**	(2.7)	**0.10**	(0.02)	-0.04	(0.03)
	Japan	3.5	(2.1)	-0.2	(2.2)	3.7	(3.4)	0.04	(0.03)	0.00	(0.03)
	Korea	**-7.3**	(2.0)	**-10.3**	(2.1)	3.1	(2.7)	**-0.11**	(0.03)	**-0.16**	(0.03)
	New Zealand	**15.1**	(2.2)	**6.6**	(2.4)	**8.5**	(3.1)	**0.16**	(0.02)	**0.08**	(0.03)
	Norway	0.1	(2.5)	**-6.0**	(2.7)	6.0	(3.4)	0.00	(0.03)	**-0.06**	(0.03)
	Poland	**24.5**	(2.2)	**21.4**	(2.1)	3.1	(2.9)	**0.26**	(0.02)	**0.25**	(0.02)
	Spain	**6.3**	(2.3)	**8.1**	(2.9)	-1.8	(3.7)	**0.07**	(0.02)	**0.08**	(0.03)
	Sweden	2.9	(2.4)	-4.7	(2.5)	**7.7**	(3.4)	0.03	(0.02)	-0.04	(0.02)
	OECD average-16	**8.2**	(0.6)	**2.0**	(0.6)	**6.2**	(0.8)	**0.09**	(0.01)	**0.02**	(0.01)
Partners	Colombia	**18.7**	(2.1)	**19.6**	(2.3)	-0.9	(2.3)	**0.27**	(0.03)	**0.29**	(0.03)
	Hong-Kong-China	**4.7**	(2.3)	**7.4**	(2.4)	-2.7	(3.1)	**0.05**	(0.02)	**0.08**	(0.03)
	Macao-China	**5.9**	(1.8)	**8.3**	(1.7)	-2.4	(2.5)	**0.08**	(0.02)	**0.11**	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.15 **Relationship between the index of understanding and remembering and reading proficiency**

		Index of understanding and remembering															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
	Digital reading																
OECD	**Australia**	0.02	(0.01)	-0.13	(0.02)	0.15	(0.02)	**-0.28**	(0.02)	-1.35	(0.01)	-0.31	(0.01)	0.46	(0.00)	1.26	(0.00)
	Austria	0.18	(0.02)	0.00	(0.03)	0.36	(0.03)	**-0.36**	(0.04)	-1.24	(0.02)	-0.04	(0.01)	0.63	(0.01)	1.37	(0.00)
	Belgium	0.22	(0.02)	0.10	(0.02)	0.33	(0.02)	**-0.23**	(0.03)	-1.16	(0.01)	-0.01	(0.01)	0.67	(0.01)	1.36	(0.00)
	Chile	-0.09	(0.02)	-0.15	(0.03)	-0.03	(0.03)	**-0.11**	(0.04)	-1.43	(0.01)	-0.48	(0.01)	0.32	(0.01)	1.24	(0.01)
	Denmark	0.16	(0.02)	0.02	(0.03)	0.30	(0.02)	**-0.28**	(0.03)	-1.17	(0.02)	-0.07	(0.01)	0.56	(0.01)	1.32	(0.00)
	France	0.17	(0.02)	0.05	(0.03)	0.28	(0.03)	**-0.22**	(0.03)	-1.19	(0.02)	-0.04	(0.01)	0.59	(0.01)	1.32	(0.00)
	Hungary	0.05	(0.02)	-0.07	(0.03)	0.16	(0.03)	**-0.23**	(0.04)	-1.24	(0.02)	-0.24	(0.01)	0.43	(0.01)	1.24	(0.01)
	Iceland	-0.19	(0.02)	-0.40	(0.03)	0.02	(0.02)	**-0.41**	(0.03)	-1.56	(0.01)	-0.53	(0.01)	0.23	(0.01)	1.10	(0.01)
	Ireland	0.16	(0.02)	0.08	(0.03)	0.23	(0.02)	**-0.14**	(0.04)	-1.12	(0.02)	-0.03	(0.01)	0.51	(0.01)	1.27	(0.01)
	Japan	0.12	(0.02)	0.01	(0.03)	0.25	(0.02)	**-0.24**	(0.03)	-1.16	(0.02)	-0.03	(0.01)	0.47	(0.00)	1.23	(0.01)
	Korea	0.03	(0.03)	-0.07	(0.04)	0.15	(0.03)	**-0.23**	(0.05)	-1.33	(0.02)	-0.25	(0.01)	0.45	(0.01)	1.27	(0.01)
	New Zealand	-0.04	(0.02)	-0.18	(0.03)	0.11	(0.02)	**-0.28**	(0.04)	-1.37	(0.02)	-0.39	(0.01)	0.39	(0.01)	1.23	(0.01)
	Norway	-0.30	(0.02)	-0.45	(0.02)	-0.14	(0.03)	**-0.30**	(0.03)	-1.62	(0.01)	-0.71	(0.01)	0.12	(0.01)	1.03	(0.01)
	Poland	-0.16	(0.02)	-0.30	(0.02)	-0.02	(0.02)	**-0.27**	(0.03)	-1.45	(0.01)	-0.54	(0.01)	0.23	(0.01)	1.12	(0.01)
	Spain	0.13	(0.02)	0.01	(0.03)	0.25	(0.03)	**-0.25**	(0.03)	-1.17	(0.02)	-0.06	(0.01)	0.49	(0.01)	1.26	(0.01)
	Sweden	-0.17	(0.02)	-0.34	(0.03)	0.01	(0.03)	**-0.35**	(0.03)	-1.54	(0.01)	-0.57	(0.01)	0.29	(0.01)	1.14	(0.01)
	OECD average-16	0.02	(0.01)	-0.11	(0.01)	0.15	(0.01)	**-0.26**	(0.01)	-1.32	(0.00)	-0.27	(0.00)	0.43	(0.00)	1.23	(0.00)
Partners	**Colombia**	-0.38	(0.03)	-0.39	(0.04)	-0.38	(0.03)	-0.01	(0.05)	-1.70	(0.01)	-0.84	(0.01)	0.00	(0.01)	1.01	(0.02)
	Hong Kong-China	-0.20	(0.02)	-0.33	(0.03)	-0.06	(0.03)	**-0.27**	(0.03)	-1.52	(0.01)	-0.56	(0.01)	0.21	(0.01)	1.05	(0.01)
	Macao-China	-0.10	(0.01)	-0.25	(0.02)	0.05	(0.02)	**-0.30**	(0.02)	-1.34	(0.01)	-0.46	(0.01)	0.29	(0.01)	1.12	(0.01)
	Print reading																
OECD	**Australia**	0.02	(0.01)	-0.13	(0.02)	0.15	(0.02)	**-0.28**	(0.02)	-1.35	(0.01)	-0.31	(0.01)	0.46	(0.00)	1.26	(0.00)
	Austria	0.18	(0.02)	0.00	(0.03)	0.36	(0.03)	**-0.36**	(0.04)	-1.24	(0.02)	-0.04	(0.01)	0.63	(0.01)	1.37	(0.00)
	Belgium	0.22	(0.02)	0.10	(0.02)	0.33	(0.02)	**-0.23**	(0.03)	-1.16	(0.01)	-0.01	(0.01)	0.67	(0.01)	1.36	(0.00)
	Chile	-0.09	(0.02)	-0.15	(0.03)	-0.03	(0.03)	**-0.11**	(0.04)	-1.43	(0.01)	-0.48	(0.01)	0.32	(0.01)	1.24	(0.01)
	Denmark	0.16	(0.02)	0.02	(0.03)	0.30	(0.02)	**-0.28**	(0.03)	-1.17	(0.02)	-0.07	(0.01)	0.56	(0.01)	1.32	(0.00)
	France	0.17	(0.02)	0.05	(0.03)	0.28	(0.03)	**-0.22**	(0.03)	-1.19	(0.02)	-0.04	(0.01)	0.59	(0.01)	1.32	(0.00)
	Hungary	0.05	(0.02)	-0.07	(0.03)	0.16	(0.03)	**-0.23**	(0.04)	-1.24	(0.02)	-0.24	(0.01)	0.43	(0.01)	1.24	(0.01)
	Iceland	-0.19	(0.02)	-0.40	(0.03)	0.02	(0.02)	**-0.41**	(0.03)	-1.56	(0.01)	-0.53	(0.01)	0.23	(0.01)	1.10	(0.01)
	Ireland	0.16	(0.02)	0.08	(0.03)	0.23	(0.02)	**-0.14**	(0.04)	-1.12	(0.02)	-0.03	(0.01)	0.51	(0.01)	1.27	(0.01)
	Japan	0.12	(0.02)	0.01	(0.03)	0.25	(0.02)	**-0.24**	(0.03)	-1.16	(0.02)	-0.03	(0.01)	0.47	(0.00)	1.23	(0.01)
	Korea	0.03	(0.03)	-0.07	(0.04)	0.15	(0.03)	**-0.23**	(0.05)	-1.33	(0.02)	-0.25	(0.01)	0.45	(0.01)	1.27	(0.01)
	New Zealand	-0.04	(0.02)	-0.18	(0.03)	0.11	(0.02)	**-0.28**	(0.04)	-1.37	(0.02)	-0.39	(0.01)	0.39	(0.01)	1.23	(0.01)
	Norway	-0.30	(0.02)	-0.45	(0.02)	-0.14	(0.03)	**-0.30**	(0.03)	-1.62	(0.01)	-0.71	(0.01)	0.12	(0.01)	1.03	(0.01)
	Poland	-0.16	(0.02)	-0.30	(0.02)	-0.02	(0.02)	**-0.27**	(0.03)	-1.45	(0.01)	-0.54	(0.01)	0.23	(0.01)	1.12	(0.01)
	Spain	0.13	(0.02)	0.01	(0.03)	0.25	(0.03)	**-0.25**	(0.03)	-1.17	(0.02)	-0.06	(0.01)	0.49	(0.01)	1.26	(0.01)
	Sweden	-0.17	(0.02)	-0.34	(0.03)	0.01	(0.03)	**-0.35**	(0.03)	-1.54	(0.01)	-0.57	(0.01)	0.29	(0.01)	1.14	(0.01)
	OECD average-16	0.02	(0.01)	-0.11	(0.01)	0.15	(0.01)	**-0.26**	(0.01)	-1.32	(0.00)	-0.27	(0.00)	0.43	(0.00)	1.23	(0.00)
Partners	**Colombia**	-0.38	(0.03)	-0.39	(0.04)	-0.38	(0.03)	-0.01	(0.05)	-1.70	(0.01)	-0.84	(0.01)	0.00	(0.01)	1.01	(0.02)
	Hong Kong-China	-0.20	(0.02)	-0.33	(0.03)	-0.06	(0.03)	**-0.27**	(0.03)	-1.52	(0.01)	-0.56	(0.01)	0.21	(0.01)	1.05	(0.01)
	Macao-China	-0.10	(0.01)	-0.25	(0.02)	0.05	(0.02)	**-0.30**	(0.02)	-1.34	(0.01)	-0.46	(0.01)	0.29	(0.01)	1.12	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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[Part 2/2]
Table VI.4.15 **Relationship between the index of understanding and remembering and reading proficiency**

	Performance on the reading scale, by national quarters of this index: Bottom quarter		Second quarter		Third quarter		Top quarter		Change in the reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national reading performance distribution		Explained variance in student performance (r-squared x 100)		Difference in performance bottom-top quarter	
	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E	Change	S.E.	Ratio	S.E.	%	S.E.	Dif.	S.E.
Digital reading																
OECD																
Australia	**493**	(3.2)	531	(3.1)	557	(3.0)	**581**	(3.2)	**34.0**	(1.12)	**2.3**	(0.08)	**13.4**	(0.76)	**-87.6**	(3.19)
Austria	**416**	(4.9)	456	(4.2)	482	(4.9)	**515**	(3.9)	**38.0**	(1.80)	**2.6**	(0.16)	**16.5**	(1.51)	**-98.3**	(5.10)
Belgium	**463**	(3.2)	504	(2.5)	535	(2.8)	**565**	(2.9)	**40.6**	(1.42)	**2.8**	(0.13)	**20.4**	(1.13)	**-102.1**	(4.12)
Chile	**390**	(4.5)	421	(4.4)	452	(3.5)	**487**	(3.7)	**35.8**	(1.63)	**2.3**	(0.11)	**17.2**	(1.26)	**-96.5**	(4.59)
Denmark	**445**	(3.4)	484	(3.6)	504	(3.3)	**531**	(2.7)	**34.8**	(1.51)	**2.5**	(0.14)	**16.1**	(1.25)	**-86.3**	(3.71)
France	**459**	(4.1)	493	(6.4)	514	(6.8)	**534**	(7.0)	**30.6**	(2.44)	**2.5**	(0.22)	**10.3**	(2.90)	**-75.5**	(6.53)
Hungary	**421**	(5.3)	465	(5.1)	484	(5.1)	**515**	(4.9)	**37.4**	(2.63)	**2.3**	(0.15)	**12.7**	(1.42)	**-94.5**	(6.52)
Iceland	**476**	(2.8)	511	(4.0)	523	(3.0)	**549**	(3.0)	**27.1**	(1.42)	**2.1**	(0.12)	**9.6**	(0.93)	**-72.7**	(4.21)
Ireland	**473**	(4.2)	508	(3.6)	523	(3.8)	**548**	(3.7)	**31.4**	(1.98)	**2.3**	(0.15)	**11.6**	(1.28)	**-74.3**	(4.81)
Japan	**486**	(3.1)	522	(2.8)	532	(3.0)	**545**	(3.1)	**25.9**	(1.54)	**2.2**	(0.12)	**11.5**	(1.23)	**-58.7**	(3.93)
Korea	**533**	(4.4)	564	(3.6)	580	(3.0)	**595**	(3.1)	**24.8**	(1.75)	**2.5**	(0.15)	**13.6**	(1.59)	**-62.2**	(4.68)
New Zealand	**492**	(4.2)	533	(3.4)	560	(2.9)	**586**	(2.8)	**36.4**	(1.55)	**2.4**	(0.13)	**15.3**	(1.20)	**-93.9**	(4.52)
Norway	**469**	(4.0)	495	(3.6)	512	(3.5)	**531**	(3.7)	**23.2**	(1.41)	**1.9**	(0.10)	**8.3**	(0.95)	**-61.6**	(4.11)
Poland	**432**	(3.9)	457	(3.6)	480	(3.9)	**504**	(3.2)	**28.1**	(1.35)	**2.0**	(0.11)	**10.0**	(0.91)	**-72.1**	(3.76)
Spain	**440**	(4.6)	474	(4.6)	488	(4.4)	**509**	(4.2)	**29.1**	(1.97)	**2.0**	(0.12)	**8.6**	(1.17)	**-68.7**	(4.66)
Sweden	**474**	(4.0)	496	(4.0)	527	(4.1)	**559**	(3.7)	**32.4**	(1.43)	**2.0**	(0.11)	**14.9**	(1.09)	**-84.9**	(4.15)
OECD average-16	**460**	(1.0)	495	(1.0)	516	(1.0)	**541**	(1.0)	**31.9**	(0.43)	**2.3**	(0.03)	**13.1**	(0.34)	**-80.6**	(1.16)
Partners																
Colombia	**345**	(3.9)	358	(4.0)	383	(4.1)	**424**	(4.9)	**30.1**	(1.63)	**1.9**	(0.12)	**15.5**	(1.28)	**-79.0**	(5.33)
Hong Kong-China	**484**	(4.1)	515	(3.5)	526	(2.7)	**537**	(3.2)	**20.9**	(1.47)	**2.1**	(0.12)	**6.5**	(0.92)	**-53.8**	(4.28)
Macao-China	**476**	(2.2)	490	(2.4)	495	(1.7)	**509**	(1.8)	**12.8**	(0.95)	**1.6**	(0.08)	**3.5**	(0.50)	**-33.0**	(3.16)
Print reading																
OECD																
Australia	**466**	(2.8)	509	(2.6)	536	(2.5)	**566**	(2.8)	**38.5**	(1.16)	**2.5**	(0.08)	**16.4**	(0.76)	**-99.8**	(3.41)
Austria	**421**	(4.1)	464	(3.7)	493	(4.0)	**530**	(3.7)	**41.7**	(1.92)	**2.5**	(0.15)	**18.8**	(1.39)	**-109.4**	(5.58)
Belgium	**455**	(3.1)	502	(2.7)	536	(3.3)	**573**	(3.0)	**46.5**	(1.38)	**2.9**	(0.13)	**23.2**	(1.07)	**-117.5**	(4.33)
Chile	**411**	(3.4)	437	(3.6)	466	(3.2)	**499**	(3.3)	**32.6**	(1.54)	**2.3**	(0.11)	**17.0**	(1.21)	**-87.6**	(4.18)
Denmark	**449**	(3.1)	489	(3.1)	509	(3.0)	**541**	(2.4)	**37.0**	(1.42)	**2.6**	(0.14)	**18.4**	(1.23)	**-92.8**	(3.56)
France	**448**	(4.9)	495	(4.3)	523	(3.9)	**550**	(4.1)	**41.1**	(2.45)	**2.6**	(0.16)	**15.9**	(1.33)	**-101.9**	(6.19)
Hungary	**449**	(4.7)	488	(3.7)	511	(3.4)	**540**	(3.6)	**36.3**	(2.40)	**2.4**	(0.14)	**15.4**	(1.57)	**-90.6**	(5.83)
Iceland	**459**	(3.0)	498	(4.0)	515	(3.3)	**544**	(3.4)	**32.2**	(1.66)	**2.1**	(0.12)	**12.2**	(1.16)	**-85.1**	(5.01)
Ireland	**456**	(4.9)	500	(3.3)	512	(3.2)	**540**	(3.5)	**35.2**	(2.02)	**2.6**	(0.17)	**12.9**	(1.29)	**-83.8**	(5.10)
Japan	**469**	(5.7)	523	(4.2)	538	(3.5)	**558**	(3.0)	**40.3**	(2.50)	**2.5**	(0.13)	**14.3**	(1.39)	**-89.0**	(5.91)
Korea	**494**	(5.7)	533	(4.2)	554	(3.0)	**578**	(3.1)	**33.2**	(2.17)	**2.6**	(0.18)	**17.9**	(1.74)	**-84.2**	(5.84)
New Zealand	**473**	(3.8)	515	(3.7)	544	(3.1)	**570**	(3.1)	**37.8**	(1.52)	**2.4**	(0.14)	**14.5**	(1.07)	**-96.9**	(4.38)
Norway	**460**	(3.7)	496	(3.1)	517	(3.6)	**549**	(3.4)	**33.1**	(1.40)	**2.3**	(0.11)	**14.1**	(1.08)	**-88.7**	(4.30)
Poland	**470**	(3.3)	493	(3.2)	516	(3.9)	**542**	(3.4)	**28.0**	(1.47)	**1.8**	(0.11)	**10.4**	(0.99)	**-71.6**	(4.30)
Spain	**443**	(3.7)	478	(4.1)	494	(3.6)	**515**	(3.2)	**30.2**	(1.56)	**2.2**	(0.12)	**10.8**	(1.03)	**-72.0**	(3.65)
Sweden	**453**	(3.3)	479	(3.3)	519	(3.8)	**557**	(3.2)	**39.5**	(1.39)	**2.2**	(0.12)	**18.4**	(1.13)	**-103.5**	(3.69)
OECD average-16	**455**	(1.0)	494	(0.9)	518	(0.9)	**547**	(0.8)	**36.5**	(0.45)	**2.4**	(0.03)	**15.7**	(0.31)	**-92.1**	(1.20)
Partners																
Colombia	**388**	(4.4)	402	(4.2)	427	(4.5)	**466**	(4.6)	**29.9**	(1.75)	**1.7**	(0.12)	**14.2**	(1.29)	**-78.3**	(5.50)
Hong Kong-China	**491**	(3.5)	532	(3.3)	549	(2.8)	**564**	(2.5)	**28.8**	(1.44)	**2.3**	(0.12)	**11.8**	(1.05)	**-73.4**	(3.92)
Macao-China	**463**	(2.2)	484	(2.4)	492	(1.9)	**510**	(1.9)	**19.0**	(1.07)	**1.8**	(0.09)	**5.8**	(0.64)	**-47.2**	(3.07)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.4.16 Percentage of students with low levels of understanding in different reading proficiency levels

		Percentage of students with low levels of understanding and remembering									
		Below Level 2		Level 2		Level 3		Level 4		Level 5 or above	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
	Digital reading										
OECD	Australia	78.3	(1.6)	67.0	(1.8)	52.6	(1.2)	39.7	(1.1)	29.2	(1.2)
	Austria	65.6	(2.1)	46.0	(1.9)	30.9	(1.9)	19.5	(2.1)	15.4	(4.4)
	Belgium	70.1	(2.4)	59.2	(1.9)	39.8	(1.5)	23.3	(1.1)	14.8	(1.6)
	Chile	73.5	(1.4)	52.5	(1.6)	35.2	(2.1)	26.0	(3.1)	19.1	(6.1)
	Denmark	70.9	(2.1)	52.3	(1.7)	36.0	(1.6)	24.2	(1.9)	16.0	(4.8)
	France	65.8	(3.9)	54.7	(2.3)	37.7	(1.8)	26.1	(1.9)	18.4	(3.8)
	Hungary	67.3	(2.3)	51.9	(2.0)	42.1	(1.8)	30.5	(2.1)	23.8	(3.4)
	Iceland	76.2	(2.4)	67.3	(1.9)	56.6	(1.8)	47.4	(2.4)	37.6	(3.8)
	Ireland	68.5	(3.2)	53.5	(1.8)	40.1	(1.9)	30.6	(2.3)	22.8	(3.2)
	Japan	74.4	(3.2)	56.9	(2.0)	41.6	(1.7)	31.7	(1.6)	24.3	(2.6)
	Korea	88.6	(4.8)	77.2	(3.9)	58.9	(1.7)	41.8	(1.4)	29.2	(2.1)
	New Zealand	82.2	(2.6)	70.6	(2.3)	56.9	(1.9)	43.8	(2.2)	31.2	(2.3)
	Norway	78.9	(1.9)	70.2	(1.5)	59.9	(1.5)	50.0	(2.0)	39.8	(3.7)
	Poland	75.1	(1.7)	63.5	(1.8)	49.1	(1.6)	39.5	(2.3)	32.1	(5.7)
	Spain	59.5	(2.1)	47.5	(2.0)	38.1	(2.1)	27.6	(2.1)	26.7	(4.7)
	Sweden	80.8	(2.0)	72.3	(2.3)	58.1	(2.1)	39.2	(1.9)	27.6	(3.3)
	OECD average-16	73.5	(0.7)	60.2	(0.5)	45.8	(0.4)	33.8	(0.5)	25.5	(0.9)
Partners	Colombia	75.3	(1.1)	52.3	(2.4)	28.9	(3.3)	16.2	(4.8)	29.9	(18.7)
	Hong Kong-China	75.5	(2.5)	68.4	(1.7)	58.6	(1.3)	50.4	(1.7)	44.1	(3.7)
	Macao-China	69.2	(2.6)	61.1	(1.5)	53.3	(1.3)	47.1	(1.9)	44.5	(5.5)
	Print reading										
OECD	Australia	77.8	(1.1)	64.0	(1.2)	48.2	(1.4)	35.8	(1.6)	25.3	(1.4)
	Austria	65.8	(1.9)	48.3	(2.1)	33.5	(1.7)	19.2	(1.7)	13.8	(2.9)
	Belgium	71.8	(1.6)	57.9	(1.7)	39.7	(1.6)	23.0	(1.3)	13.9	(1.3)
	Chile	75.3	(1.5)	57.1	(1.6)	38.0	(1.7)	24.9	(2.5)	16.5	(5.5)
	Denmark	72.3	(1.9)	54.9	(1.8)	37.1	(1.5)	23.4	(1.6)	13.9	(3.3)
	France	69.7	(1.8)	51.5	(1.8)	36.9	(1.8)	28.4	(1.7)	18.2	(2.3)
	Hungary	72.5	(2.6)	58.2	(1.9)	46.5	(1.6)	29.5	(1.8)	20.6	(2.7)
	Iceland	77.3	(2.1)	65.3	(1.9)	56.3	(1.6)	44.8	(2.2)	33.4	(3.8)
	Ireland	69.1	(2.5)	49.6	(2.3)	37.1	(2.1)	31.3	(2.6)	23.4	(3.1)
	Japan	70.6	(1.9)	54.7	(1.9)	40.8	(1.7)	32.6	(1.3)	26.1	(1.7)
	Korea	84.2	(3.6)	69.9	(2.7)	53.0	(1.6)	35.4	(1.4)	25.6	(2.7)
	New Zealand	78.7	(2.0)	66.3	(1.9)	55.0	(2.2)	39.9	(1.5)	31.6	(2.3)
	Norway	82.7	(1.7)	72.7	(1.6)	61.3	(1.6)	47.5	(1.9)	34.9	(3.0)
	Poland	77.3	(1.9)	70.3	(1.9)	56.1	(1.7)	43.5	(1.8)	33.3	(3.1)
	Spain	62.7	(2.1)	49.4	(1.7)	36.8	(1.9)	26.5	(2.4)	22.3	(3.6)
	Sweden	81.2	(1.6)	72.4	(1.7)	55.6	(1.9)	34.7	(2.2)	23.3	(2.8)
	OECD average-16	74.3	(0.5)	60.2	(0.5)	45.8	(0.4)	32.5	(0.5)	23.5	(0.8)
Partners	Colombia	78.4	(1.2)	65.2	(2.1)	42.9	(2.8)	28.8	(5.4)	23.2	(10.5)
	Hong Kong-China	83.4	(2.1)	72.7	(2.1)	61.0	(1.9)	51.2	(1.8)	41.4	(2.6)
	Macao-China	70.3	(1.7)	61.4	(1.3)	52.5	(1.3)	45.8	(2.2)	36.9	(4.7)

Note: Students with low levels of understanding and remembering are the students in the bottom quarter of the index.

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Table VI.4.17 Relationship between the index of summarising and reading proficiency

		Index of summarising															
		All students		Boys		Girls		Gender difference (B – G)		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
	Digital reading																
OECD	Australia	-0.09	(0.02)	-0.30	(0.02)	0.11	(0.02)	**-0.42**	(0.03)	-1.54	(0.01)	-0.33	(0.01)	0.40	(0.00)	1.12	(0.01)
	Austria	0.07	(0.02)	-0.16	(0.02)	0.28	(0.03)	**-0.43**	(0.04)	-1.34	(0.01)	-0.15	(0.01)	0.56	(0.01)	1.21	(0.01)
	Belgium	0.17	(0.02)	0.04	(0.02)	0.30	(0.02)	**-0.26**	(0.03)	-1.24	(0.01)	0.04	(0.01)	0.63	(0.00)	1.26	(0.00)
	Chile	-0.15	(0.02)	-0.26	(0.02)	-0.03	(0.02)	**-0.24**	(0.03)	-1.44	(0.01)	-0.39	(0.01)	0.30	(0.01)	0.94	(0.01)
	Denmark	0.18	(0.02)	-0.01	(0.03)	0.37	(0.02)	**-0.38**	(0.03)	-1.17	(0.02)	0.05	(0.01)	0.62	(0.01)	1.22	(0.01)
	France	0.24	(0.02)	0.14	(0.03)	0.33	(0.02)	**-0.19**	(0.03)	-1.04	(0.02)	0.12	(0.01)	0.62	(0.01)	1.25	(0.01)
	Hungary	-0.01	(0.03)	-0.19	(0.03)	0.17	(0.04)	**-0.36**	(0.04)	-1.43	(0.02)	-0.22	(0.01)	0.45	(0.01)	1.17	(0.01)
	Iceland	-0.17	(0.02)	-0.42	(0.03)	0.08	(0.02)	**-0.51**	(0.03)	-1.66	(0.02)	-0.34	(0.01)	0.36	(0.01)	0.97	(0.01)
	Ireland	0.14	(0.02)	-0.01	(0.03)	0.29	(0.03)	**-0.30**	(0.03)	-1.20	(0.02)	-0.02	(0.01)	0.57	(0.00)	1.21	(0.01)
	Japan	-0.01	(0.02)	-0.19	(0.04)	0.18	(0.02)	**-0.37**	(0.04)	-1.52	(0.02)	-0.14	(0.01)	0.47	(0.00)	1.15	(0.01)
	Korea	0.04	(0.03)	-0.10	(0.04)	0.20	(0.03)	**-0.30**	(0.05)	-1.45	(0.02)	-0.10	(0.01)	0.52	(0.00)	1.19	(0.01)
	New Zealand	-0.14	(0.02)	-0.33	(0.03)	0.05	(0.02)	**-0.38**	(0.04)	-1.60	(0.01)	-0.39	(0.01)	0.38	(0.01)	1.06	(0.01)
	Norway	0.13	(0.02)	-0.10	(0.03)	0.35	(0.02)	**-0.45**	(0.03)	-1.23	(0.02)	-0.02	(0.01)	0.56	(0.00)	1.19	(0.01)
	Poland	-0.02	(0.02)	-0.20	(0.02)	0.15	(0.03)	**-0.35**	(0.03)	-1.47	(0.01)	-0.23	(0.01)	0.47	(0.00)	1.14	(0.01)
	Spain	0.07	(0.02)	-0.08	(0.03)	0.23	(0.03)	**-0.31**	(0.03)	-1.16	(0.02)	-0.13	(0.01)	0.45	(0.00)	1.11	(0.01)
	Sweden	-0.14	(0.03)	-0.34	(0.03)	0.06	(0.03)	**-0.40**	(0.03)	-1.62	(0.01)	-0.41	(0.01)	0.39	(0.01)	1.10	(0.01)
	OECD average-16	0.02	(0.01)	-0.16	(0.01)	0.20	(0.01)	**-0.35**	(0.01)	-1.38	(0.00)	-0.17	(0.00)	0.48	(0.00)	1.14	(0.00)
Partners	Colombia	-0.26	(0.03)	-0.29	(0.03)	-0.23	(0.04)	-0.06	(0.04)	-1.59	(0.01)	-0.52	(0.01)	0.18	(0.01)	0.90	(0.01)
	Hong Kong-China	-0.53	(0.02)	-0.63	(0.03)	-0.41	(0.03)	**-0.22**	(0.04)	-1.95	(0.00)	-0.91	(0.01)	-0.03	(0.01)	0.78	(0.01)
	Macao-China	-0.28	(0.01)	-0.39	(0.02)	-0.17	(0.02)	**-0.22**	(0.02)	-1.65	(0.01)	-0.55	(0.01)	0.21	(0.01)	0.87	(0.01)
	Print reading																
OECD	Australia	-0.09	(0.02)	-0.30	(0.02)	0.11	(0.02)	**-0.42**	(0.03)	-1.54	(0.01)	-0.33	(0.01)	0.40	(0.00)	1.12	(0.01)
	Austria	0.07	(0.02)	-0.16	(0.02)	0.28	(0.03)	**-0.43**	(0.04)	-1.34	(0.01)	-0.15	(0.01)	0.56	(0.01)	1.21	(0.01)
	Belgium	0.17	(0.02)	0.04	(0.02)	0.30	(0.02)	**-0.26**	(0.03)	-1.24	(0.01)	0.04	(0.01)	0.63	(0.00)	1.26	(0.00)
	Chile	-0.15	(0.02)	-0.26	(0.02)	-0.03	(0.02)	**-0.24**	(0.03)	-1.44	(0.01)	-0.39	(0.01)	0.30	(0.01)	0.94	(0.01)
	Denmark	0.18	(0.02)	-0.01	(0.03)	0.37	(0.02)	**-0.38**	(0.03)	-1.17	(0.02)	0.05	(0.01)	0.62	(0.01)	1.22	(0.01)
	France	0.24	(0.02)	0.14	(0.03)	0.33	(0.02)	**-0.19**	(0.03)	-1.04	(0.02)	0.12	(0.01)	0.62	(0.01)	1.25	(0.01)
	Hungary	-0.01	(0.03)	-0.19	(0.03)	0.17	(0.04)	**-0.36**	(0.04)	-1.43	(0.02)	-0.22	(0.01)	0.45	(0.01)	1.17	(0.01)
	Iceland	-0.17	(0.02)	-0.42	(0.03)	0.08	(0.02)	**-0.51**	(0.03)	-1.66	(0.02)	-0.34	(0.01)	0.36	(0.01)	0.97	(0.01)
	Ireland	0.14	(0.02)	-0.01	(0.03)	0.29	(0.03)	**-0.30**	(0.03)	-1.20	(0.02)	-0.02	(0.01)	0.57	(0.00)	1.21	(0.01)
	Japan	-0.01	(0.02)	-0.19	(0.04)	0.18	(0.02)	**-0.37**	(0.04)	-1.52	(0.02)	-0.14	(0.01)	0.47	(0.00)	1.15	(0.01)
	Korea	0.04	(0.03)	-0.10	(0.04)	0.20	(0.03)	**-0.30**	(0.05)	-1.45	(0.02)	-0.10	(0.01)	0.52	(0.00)	1.19	(0.01)
	New Zealand	-0.14	(0.02)	-0.33	(0.03)	0.05	(0.02)	**-0.38**	(0.04)	-1.60	(0.01)	-0.39	(0.01)	0.38	(0.01)	1.06	(0.01)
	Norway	0.13	(0.02)	-0.10	(0.03)	0.35	(0.02)	**-0.45**	(0.03)	-1.23	(0.02)	-0.02	(0.01)	0.56	(0.00)	1.19	(0.01)
	Poland	-0.02	(0.02)	-0.20	(0.02)	0.15	(0.03)	**-0.35**	(0.03)	-1.47	(0.01)	-0.23	(0.01)	0.47	(0.00)	1.14	(0.01)
	Spain	0.07	(0.02)	-0.08	(0.03)	0.23	(0.03)	**-0.31**	(0.03)	-1.16	(0.02)	-0.13	(0.01)	0.45	(0.00)	1.11	(0.01)
	Sweden	-0.14	(0.03)	-0.34	(0.03)	0.06	(0.03)	**-0.40**	(0.03)	-1.62	(0.01)	-0.41	(0.01)	0.39	(0.01)	1.10	(0.01)
	OECD average-16	0.02	(0.01)	-0.15	(0.01)	0.20	(0.01)	**-0.35**	(0.01)	-1.38	(0.00)	-0.17	(0.00)	0.48	(0.00)	1.14	(0.00)
Partners	Colombia	-0.26	(0.03)	-0.29	(0.03)	-0.23	(0.04)	-0.06	(0.04)	-1.59	(0.01)	-0.52	(0.01)	0.18	(0.01)	0.90	(0.01)
	Hong Kong-China	-0.53	(0.02)	-0.63	(0.03)	-0.41	(0.03)	**-0.22**	(0.04)	-1.95	(0.00)	-0.91	(0.01)	-0.03	(0.01)	0.78	(0.01)
	Macao-China	-0.28	(0.01)	-0.39	(0.02)	-0.17	(0.02)	**-0.22**	(0.02)	-1.65	(0.01)	-0.55	(0.01)	0.21	(0.01)	0.87	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 2/2]
Table VI.4.17 Relationship between the index of summarising and reading proficiency

		Performance on the reading scale, by national quarters of this index								Change in the reading score per unit of this index		Increased likelihood of students in the bottom quarter of this index scoring in the bottom quarter of the national reading performance distribution		Explained variance in student performance (r-squared x 100)		Difference in performance bottom-top quarter	
		Bottom quarter		Second quarter		Third quarter		Top quarter									
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E	Change	S.E.	Ratio	S.E.	%	S.E.	Dif.	S.E.
Digital reading																	
OECD	Australia	**480**	(3.0)	533	(3.1)	564	(2.8)	**588**	(2.9)	**40.7**	(1.02)	**2.9**	(0.11)	**20.3**	(0.81)	**-108.1**	(3.09)
	Austria	**402**	(5.2)	459	(4.9)	490	(3.9)	**520**	(3.5)	**45.0**	(2.18)	**3.1**	(0.17)	**22.5**	(1.24)	**-118.0**	(5.90)
	Belgium	**451**	(3.0)	511	(3.1)	539	(2.5)	**567**	(2.3)	**45.5**	(1.35)	**3.5**	(0.15)	**26.0**	(0.96)	**-115.9**	(3.96)
	Chile	**385**	(4.3)	430	(4.1)	454	(3.9)	**480**	(4.4)	**39.0**	(1.75)	**2.6**	(0.15)	**17.3**	(1.28)	**-95.5**	(4.88)
	Denmark	**437**	(3.2)	493	(3.1)	506	(3.5)	**532**	(2.9)	**38.5**	(1.29)	**3.0**	(0.18)	**19.5**	(1.20)	**-94.2**	(3.39)
	France	**445**	(4.7)	497	(5.1)	518	(6.4)	**536**	(7.3)	**39.6**	(2.49)	**3.0**	(0.27)	**15.0**	(3.85)	**-91.0**	(6.07)
	Hungary	**411**	(6.1)	455	(5.1)	494	(4.6)	**522**	(4.9)	**43.3**	(2.76)	**2.7**	(0.21)	**18.5**	(1.84)	**-111.3**	(7.56)
	Iceland	**456**	(3.3)	512	(3.5)	537	(4.4)	**553**	(3.1)	**36.8**	(1.48)	**2.9**	(0.18)	**18.1**	(1.33)	**-96.9**	(4.68)
	Ireland	**469**	(3.7)	509	(3.3)	529	(4.0)	**546**	(3.8)	**31.7**	(1.70)	**2.4**	(0.16)	**12.8**	(1.14)	**-77.3**	(4.51)
	Japan	**472**	(3.1)	520	(2.9)	540	(2.5)	**554**	(2.5)	**31.4**	(1.23)	**3.1**	(0.17)	**21.0**	(1.25)	**-82.2**	(3.40)
	Korea	**519**	(3.9)	569	(3.1)	586	(3.2)	**599**	(3.0)	**30.7**	(1.62)	**3.5**	(0.21)	**22.1**	(1.72)	**-80.8**	(4.41)
	New Zealand	**482**	(3.4)	530	(3.9)	566	(3.2)	**592**	(2.7)	**41.9**	(1.34)	**2.9**	(0.17)	**21.3**	(1.17)	**-110.3**	(4.08)
	Norway	**453**	(4.3)	504	(3.3)	518	(4.1)	**534**	(3.0)	**33.8**	(1.56)	**2.6**	(0.16)	**15.7**	(1.33)	**-80.5**	(4.26)
	Poland	**412**	(4.1)	453	(3.7)	488	(4.2)	**515**	(3.5)	**38.9**	(1.40)	**2.8**	(0.19)	**19.9**	(1.35)	**-103.0**	(4.25)
	Spain	**423**	(5.6)	474	(4.8)	496	(4.2)	**521**	(4.5)	**42.4**	(2.48)	**2.9**	(0.21)	**17.2**	(1.68)	**-98.2**	(6.39)
	Sweden	**463**	(4.1)	501	(4.0)	534	(3.7)	**557**	(3.6)	**34.4**	(1.33)	**2.5**	(0.14)	**17.5**	(1.06)	**-93.9**	(4.15)
	OECD average-16	**447**	(1.0)	497	(1.0)	522	(1.0)	**545**	(1.0)	**38.4**	(0.44)	**2.9**	(0.05)	**19.0**	(0.40)	**-97.3**	(1.21)
Partners	Colombia	**332**	(4.1)	362	(3.9)	391	(4.3)	**422**	(4.1)	**36.3**	(1.80)	**2.2**	(0.16)	**19.3**	(1.52)	**-90.5**	(4.96)
	Hong Kong-China	**483**	(4.0)	504	(3.6)	528	(3.0)	**545**	(3.1)	**23.1**	(1.39)	**1.9**	(0.12)	**8.9**	(1.08)	**-61.9**	(4.24)
	Macao-China	**469**	(1.7)	488	(1.6)	503	(1.7)	**509**	(1.9)	**15.8**	(0.86)	**1.8**	(0.07)	**5.5**	(0.55)	**-39.2**	(2.52)
Print reading																	
OECD	Australia	**455**	(2.2)	508	(2.6)	544	(2.3)	**571**	(2.7)	**43.8**	(0.99)	**3.0**	(0.12)	**22.4**	(0.73)	**-116.4**	(3.14)
	Austria	**411**	(3.4)	465	(4.1)	499	(3.7)	**534**	(3.5)	**46.9**	(1.79)	**3.0**	(0.21)	**22.9**	(1.23)	**-122.9**	(5.07)
	Belgium	**443**	(3.2)	508	(2.7)	541	(2.5)	**573**	(2.4)	**50.8**	(1.31)	**3.6**	(0.19)	**27.9**	(0.97)	**-129.9**	(3.99)
	Chile	**406**	(3.5)	448	(3.5)	468	(3.3)	**491**	(4.2)	**34.8**	(1.66)	**2.5**	(0.12)	**16.4**	(1.26)	**-85.8**	(4.68)
	Denmark	**443**	(3.0)	499	(2.9)	511	(2.9)	**539**	(2.5)	**38.7**	(1.22)	**3.2**	(0.17)	**19.8**	(1.16)	**-96.2**	(3.27)
	France	**434**	(4.4)	500	(4.7)	531	(4.1)	**549**	(3.9)	**51.2**	(2.17)	**3.3**	(0.23)	**21.8**	(1.61)	**-115.0**	(5.36)
	Hungary	**434**	(5.0)	481	(4.0)	520	(3.3)	**550**	(3.5)	**45.2**	(2.14)	**3.1**	(0.22)	**26.1**	(1.78)	**-116.0**	(6.10)
	Iceland	**440**	(3.4)	502	(4.1)	529	(3.7)	**545**	(3.2)	**40.0**	(1.63)	**3.0**	(0.17)	**19.5**	(1.41)	**-104.8**	(4.54)
	Ireland	**448**	(4.2)	496	(3.7)	524	(3.5)	**541**	(3.5)	**38.9**	(1.74)	**3.0**	(0.18)	**17.2**	(1.24)	**-93.3**	(4.82)
	Japan	**444**	(5.6)	521	(3.6)	551	(3.1)	**571**	(3.2)	**48.6**	(2.21)	**3.6**	(0.21)	**25.9**	(1.51)	**-126.5**	(6.14)
	Korea	**477**	(4.7)	541	(3.2)	563	(3.2)	**579**	(2.9)	**38.9**	(1.71)	**3.8**	(0.20)	**26.1**	(1.59)	**-102.0**	(4.71)
	New Zealand	**459**	(3.2)	511	(3.6)	550	(3.7)	**581**	(3.0)	**46.3**	(1.32)	**2.9**	(0.15)	**23.0**	(1.10)	**-122.4**	(3.80)
	Norway	**446**	(4.0)	509	(2.6)	525	(3.2)	**545**	(2.9)	**41.4**	(1.41)	**3.0**	(0.16)	**19.8**	(1.24)	**-98.9**	(4.30)
	Poland	**448**	(3.0)	489	(3.1)	525	(3.2)	**554**	(3.4)	**39.7**	(1.41)	**2.9**	(0.17)	**21.2**	(1.35)	**-105.7**	(4.02)
	Spain	**427**	(4.2)	481	(3.9)	500	(3.4)	**524**	(3.9)	**42.0**	(1.88)	**3.0**	(0.22)	**19.5**	(1.48)	**-96.8**	(5.58)
	Sweden	**440**	(3.3)	488	(3.8)	526	(3.5)	**554**	(3.4)	**41.5**	(1.36)	**2.9**	(0.16)	**21.2**	(1.14)	**-113.8**	(4.69)
	OECD average-16	**441**	(1.0)	497	(0.9)	526	(0.8)	**550**	(0.8)	**43.0**	(0.41)	**3.1**	(0.05)	**21.9**	(0.33)	**-109.2**	(1.18)
Partners	Colombia	**375**	(4.4)	407	(3.8)	435	(4.1)	**465**	(4.1)	**35.8**	(2.01)	**2.3**	(0.16)	**17.4**	(1.57)	**-89.8**	(5.64)
	Hong Kong-China	**492**	(3.3)	521	(2.8)	551	(3.2)	**570**	(2.8)	**29.2**	(1.27)	**2.2**	(0.14)	**13.6**	(1.05)	**-78.6**	(3.69)
	Macao-China	**455**	(2.1)	482	(1.9)	501	(2.2)	**510**	(2.1)	**22.2**	(0.95)	**1.9**	(0.07)	**8.3**	(0.66)	**-55.1**	(2.61)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 1/1]
Table VI.4.18 **Percentage of students with low levels of summarising in different reading proficiency levels**

		Percentage of students with low levels of summarising									
		Below Level 2		Level 2		Level 3		Level 4		Level 5 or above	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
	Digital reading										
OECD	Australia	77.9	(1.5)	67.0	(1.3)	50.4	(1.0)	30.1	(1.0)	17.1	(0.9)
	Austria	66.4	(1.6)	41.4	(1.8)	26.1	(1.9)	13.2	(2.1)	6.7	(2.9)
	Belgium	70.8	(1.9)	53.9	(1.8)	30.2	(1.5)	13.9	(1.0)	7.6	(1.2)
	Chile	66.4	(1.4)	45.4	(1.5)	31.0	(1.6)	21.0	(2.2)	13.8	(4.4)
	Denmark	63.7	(2.4)	41.2	(1.9)	25.2	(1.5)	13.6	(1.9)	8.3	(3.9)
	France	59.0	(3.9)	43.3	(2.4)	22.0	(1.4)	12.4	(1.3)	5.7	(2.1)
	Hungary	67.7	(1.6)	45.4	(2.0)	29.0	(1.8)	19.1	(2.1)	11.8	(3.0)
	Iceland	75.0	(2.4)	58.9	(2.1)	43.9	(1.9)	29.6	(2.2)	15.4	(2.2)
	Ireland	65.4	(2.8)	45.9	(2.8)	29.9	(1.9)	19.5	(1.7)	13.4	(2.0)
	Japan	82.2	(2.5)	59.3	(1.9)	34.4	(1.4)	19.0	(1.4)	11.4	(2.1)
	Korea	87.8	(4.6)	76.4	(2.5)	50.8	(1.9)	28.6	(1.3)	14.4	(1.4)
	New Zealand	78.2	(2.6)	68.7	(2.0)	52.4	(1.7)	31.8	(1.6)	18.1	(1.4)
	Norway	64.4	(3.1)	44.6	(2.0)	29.1	(1.5)	18.2	(1.8)	9.8	(2.8)
	Poland	66.0	(1.8)	46.5	(2.0)	26.3	(1.8)	14.3	(1.6)	8.2	(3.1)
	Spain	63.1	(2.4)	42.2	(2.5)	30.1	(2.0)	19.5	(2.1)	11.8	(3.5)
	Sweden	76.4	(2.2)	61.6	(2.2)	46.3	(1.9)	28.3	(1.7)	15.5	(2.5)
	OECD average-16	70.7	(0.6)	52.6	(0.5)	34.8	(0.4)	20.8	(0.4)	11.8	(0.7)
Partners	Colombia	63.9	(1.6)	36.8	(2.2)	17.9	(2.8)	8.6	(3.4)	25.0	(19.4)
	Hong Kong-China	79.5	(2.1)	71.9	(2.2)	61.0	(1.5)	47.1	(1.9)	36.2	(3.8)
	Macao-China	69.9	(2.4)	59.0	(1.9)	47.8	(1.7)	38.6	(2.1)	30.4	(6.8)
	Print reading										
OECD	Australia	77.8	(1.1)	62.4	(1.4)	43.8	(1.2)	25.1	(1.0)	14.7	(1.0)
	Austria	65.9	(1.8)	43.9	(2.6)	28.8	(2.3)	14.0	(1.5)	6.3	(2.3)
	Belgium	72.6	(1.7)	51.4	(1.8)	30.0	(1.4)	13.6	(0.9)	6.7	(1.0)
	Chile	68.3	(1.4)	48.9	(1.4)	33.3	(1.4)	22.9	(2.1)	15.2	(6.4)
	Denmark	65.9	(2.6)	43.3	(2.1)	25.0	(1.3)	13.8	(1.3)	11.8	(3.7)
	France	62.3	(2.3)	40.1	(2.2)	22.1	(1.7)	12.1	(1.5)	7.8	(1.8)
	Hungary	75.7	(2.3)	58.3	(2.4)	33.0	(1.7)	15.7	(1.6)	6.2	(1.6)
	Iceland	74.8	(2.2)	56.6	(2.2)	41.8	(1.8)	27.2	(2.2)	13.2	(2.4)
	Ireland	67.3	(2.7)	44.3	(2.2)	26.4	(1.5)	17.3	(1.5)	11.2	(2.3)
	Japan	79.5	(1.9)	55.4	(2.3)	34.6	(1.7)	19.4	(1.3)	10.4	(1.9)
	Korea	82.7	(3.2)	66.6	(2.0)	41.4	(1.8)	20.7	(1.2)	13.6	(1.5)
	New Zealand	76.4	(2.3)	65.5	(2.1)	48.4	(1.6)	28.0	(1.6)	15.7	(1.6)
	Norway	67.4	(2.7)	45.2	(1.8)	28.9	(1.4)	18.6	(1.5)	8.1	(1.8)
	Poland	72.0	(2.3)	57.9	(1.8)	33.7	(1.7)	19.4	(1.4)	9.1	(1.7)
	Spain	65.1	(2.5)	46.7	(2.2)	27.4	(1.4)	19.2	(1.7)	10.9	(3.1)
	Sweden	76.2	(1.8)	61.6	(2.1)	42.5	(1.8)	24.6	(1.6)	12.6	(1.8)
	OECD average-16	71.9	(0.6)	53.0	(0.5)	33.8	(0.4)	19.5	(0.4)	10.8	(0.6)
Partners	Colombia	68.5	(1.8)	49.9	(2.3)	29.1	(2.8)	18.8	(3.2)	11.7	(6.3)
	Hong Kong-China	82.1	(2.0)	75.2	(1.7)	66.1	(1.6)	49.8	(1.8)	34.0	(2.5)
	Macao-China	69.3	(1.6)	60.0	(1.5)	47.0	(1.4)	36.2	(1.8)	27.0	(4.1)

Note: Students with low levels of summarising are the students in the bottom quarter of the index.
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[Part 1/3]
Table VI.4.19 Relationship between some student-level aspects and performance in reading

		Score point difference associated with the various aspects shown below, after accounting for the other aspects in the model											
		Intercept		Highest occupational status of parents		Highest level of parents education (in years of schooling)		Index of cultural possessions		Index of home educational resources		Number of books at home	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
	Digital reading												
OECD	Australia	385	(9.01)	**0.3**	(0.06)	**7.1**	(0.62)	**4.6**	(1.20)	**8.9**	(1.25)	**13.6**	(0.88)
	Austria	341	(11.83)	**0.5**	(0.09)	**3.5**	(0.70)	**7.3**	(1.79)	3.1	(1.82)	**19.3**	(1.37)
	Belgium	431	(7.00)	**0.8**	(0.09)	**1.9**	(0.51)	**10.3**	(1.26)	**15.3**	(1.24)	**9.4**	(0.90)
	Chile	358	(7.66)	**0.4**	(0.09)	**3.7**	(0.50)	**7.1**	(1.75)	**8.2**	(1.77)	**9.8**	(1.41)
	Denmark	406	(10.13)	**0.4**	(0.08)	**3.2**	(0.59)	1.6	(1.80)	**18.2**	(1.93)	**8.4**	(1.13)
	France	405	(15.72)	0.0	(0.09)	**3.5**	(1.01)	**8.3**	(1.86)	**5.8**	(1.76)	**17.7**	(1.34)
	Hungary	313	(13.07)	**0.3**	(0.10)	**6.9**	(0.96)	**14.0**	(1.94)	**11.9**	(2.10)	**14.8**	(1.89)
	Iceland	391	(9.95)	**0.5**	(0.10)	**4.3**	(0.62)	**8.3**	(2.60)	**9.4**	(2.31)	**9.1**	(1.33)
	Ireland	426	(9.45)	**0.4**	(0.11)	**1.8**	(0.66)	**8.9**	(1.77)	**4.3**	(2.06)	**16.3**	(1.23)
	Japan	454	(10.49)	**-0.2**	(0.06)	**5.1**	(0.74)	**8.5**	(1.48)	**8.4**	(1.09)	**5.4**	(0.93)
	Korea	489	(10.05)	**0.4**	(0.09)	**1.7**	(0.60)	**4.5**	(1.63)	**10.8**	(1.76)	**9.9**	(1.22)
	New Zealand	397	(11.90)	**0.8**	(0.12)	**4.7**	(0.68)	-1.6	(1.84)	**9.2**	(1.90)	**14.7**	(1.56)
	Norway	428	(12.87)	**0.5**	(0.09)	1.0	(0.89)	**11.6**	(1.40)	3.3	(1.71)	**11.2**	(1.15)
	Poland	317	(9.59)	**0.2**	(0.11)	**7.6**	(0.72)	**11.8**	(1.64)	**11.6**	(2.06)	**13.6**	(1.30)
	Spain	362	(9.67)	**0.6**	(0.13)	**2.4**	(0.58)	**9.1**	(2.12)	**4.2**	(1.89)	**16.6**	(1.34)
	Sweden	417	(13.67)	**0.5**	(0.11)	**2.0**	(0.94)	**9.1**	(1.84)	2.2	(1.91)	**13.2**	(1.18)
	OECD average-16	395	(2.74)	**0.4**	(0.02)	**3.8**	(0.18)	**7.7**	(0.44)	**8.4**	(0.45)	**12.7**	(0.32)
Partners	Colombia	365	(7.75)	**0.1**	(0.06)	**1.8**	(0.42)	**-7.7**	(1.97)	**5.7**	(2.08)	**11.9**	(1.80)
	Hong Kong-China	464	(8.72)	**-0.3**	(0.08)	**2.6**	(0.55)	**-4.2**	(1.70)	**14.5**	(1.82)	**14.7**	(1.50)
	Macao-China	456	(5.26)	0.1	(0.08)	**2.0**	(0.32)	**7.2**	(1.30)	**9.8**	(1.28)	**3.7**	(0.89)
	Print reading												
OECD	Australia	351	(8.93)	**1.1**	(0.07)	**5.5**	(0.65)	**9.4**	(1.09)	**5.6**	(1.37)	**13.8**	(0.91)
	Austria	332	(12.04)	**0.9**	(0.12)	**2.9**	(0.76)	**10.1**	(1.78)	0.9	(1.59)	**21.9**	(1.52)
	Belgium	416	(7.66)	**1.4**	(0.09)	0.5	(0.49)	**11.6**	(1.39)	**14.3**	(1.45)	**11.3**	(0.90)
	Chile	370	(6.72)	**1.0**	(0.09)	**2.0**	(0.48)	**7.4**	(1.65)	**7.8**	(1.66)	**8.9**	(1.29)
	Denmark	414	(9.23)	**0.9**	(0.09)	**1.2**	(0.56)	**7.8**	(1.70)	**16.3**	(1.96)	**9.8**	(1.21)
	France	397	(13.70)	**0.8**	(0.11)	**2.0**	(0.93)	**16.3**	(1.99)	**5.8**	(2.17)	**19.0**	(1.42)
	Hungary	349	(8.34)	**1.1**	(0.11)	**2.4**	(0.78)	**12.5**	(1.45)	**7.3**	(1.86)	**17.5**	(1.28)
	Iceland	378	(11.15)	**0.7**	(0.11)	**2.8**	(0.71)	**9.6**	(2.37)	3.1	(2.00)	**14.4**	(1.29)
	Ireland	380	(9.71)	**0.9**	(0.09)	**2.2**	(0.76)	**7.2**	(1.70)	3.5	(2.09)	**19.2**	(1.34)
	Japan	405	(14.21)	**0.6**	(0.10)	**5.2**	(0.96)	**14.9**	(1.48)	**11.0**	(1.61)	**6.6**	(1.21)
	Korea	427	(11.73)	**0.7**	(0.11)	**2.3**	(0.64)	2.3	(2.29)	**16.2**	(1.86)	**12.2**	(1.38)
	New Zealand	349	(11.36)	**1.5**	(0.12)	**4.0**	(0.82)	2.8	(1.85)	**5.0**	(2.01)	**17.2**	(1.60)
	Norway	419	(10.99)	**1.1**	(0.10)	-1.4	(0.84)	**12.7**	(1.61)	3.3	(1.91)	**15.6**	(1.12)
	Poland	364	(8.59)	**0.7**	(0.11)	**4.4**	(0.76)	**9.1**	(1.53)	**7.2**	(2.17)	**17.0**	(1.21)
	Spain	381	(5.83)	**0.8**	(0.09)	**1.3**	(0.36)	**10.8**	(1.16)	**6.2**	(1.19)	**14.6**	(0.89)
	Sweden	366	(11.81)	**1.0**	(0.10)	**2.5**	(0.84)	**9.7**	(1.91)	0.7	(2.03)	**15.9**	(1.26)
	OECD average-16	381	(2.60)	**0.9**	(0.03)	**2.5**	(0.18)	**9.6**	(0.43)	**7.1**	(0.46)	**14.7**	(0.31)
Partners	Colombia	386	(8.08)	**0.7**	(0.11)	0.7	(0.45)	**-5.6**	(1.96)	**6.4**	(1.73)	**11.9**	(1.83)
	Hong Kong-China	459	(7.59)	**0.3**	(0.12)	**1.4**	(0.51)	1.5	(1.50)	**14.5**	(1.76)	**14.5**	(1.31)
	Macao-China	436	(6.31)	**0.4**	(0.10)	**1.8**	(0.38)	**12.7**	(1.33)	**13.9**	(1.34)	**4.2**	(0.99)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. Unique variance is the variance explained by each aspect in addition to the variance explained by the other aspects in the model.
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Table VI.4.19 Relationship between some student-level aspects and student performance in reading

	Score point difference associated with the various aspects shown below, after accounting for the other aspects in the model									
	Index of family wealth		Single-parent family		Second-generation students (those born in the country of assessment but whose parents were born in another country)		First-generation students (those born outside the country of assessment and whose parents were also born in another country)		Language spoken at home is different from the language of assessment and other national languages or dialects	
	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
Digital reading										
OECD										
Australia	-0.4	(1.34)	**-10.8**	(2.41)	**20.5**	(5.2)	-7.8	(4.1)	-7.8	(6.5)
Austria	**-7.6**	(2.66)	-8.1	(4.53)	-17.5	(9.4)	**-40.4**	(13.6)	-7.7	(10.2)
Belgium	-2.3	(1.77)	-5.9	(3.01)	**-39.6**	(6.4)	**-49.4**	(5.3)	-2.7	(3.4)
Chile	**12.9**	(1.94)	3.9	(2.90)	7.1	(42.6)	**-50.1**	(21.0)	**-78.9**	(16.9)
Denmark	**-7.2**	(1.41)	**-11.2**	(3.26)	**-46.2**	(6.6)	**-46.4**	(8.0)	**-14.9**	(6.9)
France	4.3	(2.50)	-4.4	(4.68)	-12.9	(8.0)	**-22.3**	(10.7)	**-14.6**	(6.6)
Hungary	2.1	(2.54)	1.1	(4.40)	-12.3	(14.4)	13.5	(15.0)	-39.7	(23.3)
Iceland	**-14.7**	(1.92)	**-12.7**	(4.35)	13.5	(25.6)	**-44.3**	(17.0)	**-39.7**	(13.7)
Ireland	-2.9	(2.02)	-3.2	(5.10)	-18.9	(12.4)	**-17.5**	(7.7)	**-29.3**	(8.2)
Japan	-0.8	(2.06)	**-6.7**	(3.28)	45.9	(31.5)	-39.0	(42.4)	-53.9	(28.9)
Korea	-0.9	(1.73)	0.6	(4.23)	**-85.2**	(30.9)	0.0	(0.0)	-24.6	(24.3)
New Zealand	**5.3**	(2.47)	1.8	(4.31)	11.8	(7.5)	1.9	(4.1)	**-37.4**	(5.1)
Norway	**-12.0**	(1.73)	-5.3	(3.36)	-3.5	(8.4)	-0.9	(10.6)	**-26.2**	(7.6)
Poland	0.9	(2.01)	**-26.7**	(3.88)	0.0	(0.0)	**84.0**	(22.5)	-18.1	(20.1)
Spain	-5.6	(2.87)	1.4	(4.63)	15.6	(17.9)	**-27.7**	(7.1)	-0.2	(7.8)
Sweden	**-7.1**	(2.00)	**-10.4**	(4.54)	-7.7	(7.7)	**-41.6**	(11.5)	**-23.1**	(7.6)
OECD average-16	**-2.3**	(0.53)	**-6.0**	(1.00)	-8.1	(4.7)	**-18.0**	(4.0)	**-26.2**	(3.6)
Partners										
Colombia	**23.0**	(2.30)	-4.6	(2.89)	**-60.3**	(15.8)	-36.6	(25.1)	-38.3	(21.7)
Hong Kong-China	-2.8	(2.35)	-6.4	(3.85)	**6.6**	(3.0)	**-18.6**	(4.7)	**-24.5**	(8.4)
Macao-China	-2.3	(1.54)	**6.7**	(3.03)	**6.6**	(2.3)	**-11.0**	(2.8)	**-41.9**	(2.9)
Print reading										
OECD										
Australia	**-10.7**	(1.47)	**-8.5**	(2.29)	**21.1**	(4.3)	**7.6**	(3.7)	-6.4	(5.7)
Austria	**-13.0**	(2.32)	-1.4	(4.34)	-1.9	(10.6)	**-37.7**	(11.5)	-16.9	(9.1)
Belgium	**-11.4**	(1.66)	**-11.0**	(3.09)	**-32.9**	(6.2)	**-34.9**	(5.9)	-7.2	(4.0)
Chile	**4.1**	(1.82)	1.4	(2.86)	-11.5	(52.4)	-29.6	(22.7)	**-56.1**	(18.8)
Denmark	**-6.6**	(1.43)	**-6.9**	(3.25)	**-19.8**	(5.8)	**-29.7**	(8.3)	**-20.9**	(7.0)
France	**-10.4**	(3.16)	-6.4	(4.58)	-6.3	(8.0)	**-23.8**	(11.5)	**-28.4**	(8.7)
Hungary	**-6.7**	(1.89)	-2.6	(3.49)	20.4	(11.9)	8.4	(9.7)	**-49.4**	(24.6)
Iceland	**-18.8**	(2.00)	**-16.7**	(5.00)	-20.3	(32.6)	-23.3	(17.4)	**-37.1**	(15.3)
Ireland	**-11.2**	(2.11)	-7.9	(4.40)	-5.8	(12.4)	**-23.3**	(7.5)	**-21.4**	(9.7)
Japan	**-12.8**	(2.80)	**-9.6**	(4.01)	-36.0	(50.2)	31.1	(56.1)	-48.3	(42.3)
Korea	**-5.9**	(2.09)	-2.6	(5.38)	**-106.1**	(28.3)	0.0	(0.0)	-39.1	(24.9)
New Zealand	-4.8	(2.45)	**-8.2**	(4.07)	6.9	(5.9)	**10.4**	(4.5)	**-42.9**	(6.0)
Norway	**-13.9**	(1.83)	-6.4	(3.41)	2.3	(8.1)	6.5	(10.6)	**-38.1**	(6.9)
Poland	**-8.0**	(1.90)	**-14.1**	(3.59)	0.0	(0.0)	**100.4**	(27.6)	**-44.8**	(17.3)
Spain	**-8.5**	(1.47)	-4.8	(2.88)	-8.6	(9.5)	**-27.3**	(3.5)	-1.1	(4.0)
Sweden	**-8.8**	(2.08)	**-10.3**	(4.14)	-8.6	(8.5)	**-26.7**	(11.3)	**-19.8**	(8.2)
OECD average-16	**-9.2**	(0.52)	**-7.2**	(0.97)	**-12.9**	(5.6)	-5.7	(4.6)	**-29.9**	(4.2)
Partners										
Colombia	**14.5**	(2.22)	-3.1	(3.25)	**-94.2**	(38.8)	**-80.8**	(40.7)	**-63.6**	(26.2)
Hong Kong-China	**-11.3**	(1.99)	-5.9	(3.79)	**15.7**	(3.2)	2.9	(4.7)	**-56.3**	(8.5)
Macao-China	**-10.5**	(1.44)	-1.5	(2.98)	3.4	(2.7)	0.1	(3.1)	**-52.8**	(2.8)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. Unique variance is the variance explained by each aspect in addition to the variance explained by the other aspects in the model.
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Table VI.4.19 **Relationship between some student-level aspects and student performance in reading**

		Explained variance in student performance (unique[1], common and total)												
		Unique to:												
		Highest occupational status of parents	Highest level of parents education	Cultural possessions	Home educational resources	Number of books at home	Wealth	Single-parent family	Second-generation students	First-generation students	Language spoken at home	Common explained variance (explained by more than one aspect)	Total explained variance	
		%	%	%	%	%	%	%	%	%	%	%	%	S.E.
Digital reading														
OECD	Australia	0.3	1.4	0.2	0.6	3.0	0.0	0.2	0.4	0.1	0.0	8.4	**14.7**	(0.92)
	Austria	0.7	0.6	0.4	0.1	5.6	0.4	0.1	0.1	0.4	0.0	13.9	**22.2**	(1.54)
	Belgium	2.2	0.3	0.8	1.7	1.7	0.0	0.1	1.3	1.7	0.0	14.1	**23.9**	(1.37)
	Chile	0.6	1.5	0.3	0.5	1.2	1.1	0.0	0.0	0.1	0.4	17.3	**23.1**	(1.58)
	Denmark	0.7	0.7	0.0	2.3	1.4	0.6	0.2	1.1	0.5	0.1	8.7	**16.4**	(1.03)
	France	0.0	0.5	0.5	0.3	4.7	0.1	0.0	0.1	0.1	0.1	12.3	**18.8**	(4.94)
	Hungary	0.2	2.2	1.4	1.0	2.8	0.0	0.0	0.0	0.0	0.1	22.4	**30.2**	(2.57)
	Iceland	0.8	1.2	0.3	0.6	1.3	2.0	0.3	0.0	0.3	0.3	8.6	**15.5**	(1.18)
	Ireland	0.6	0.2	0.6	0.2	5.2	0.1	0.0	0.1	0.2	0.5	10.6	**18.2**	(1.79)
	Japan	0.4	1.7	0.9	1.2	0.9	0.0	0.1	0.1	0.0	0.1	6.2	**11.6**	(1.06)
	Korea	0.5	0.3	0.3	1.7	2.5	0.0	0.0	0.0	0.0	0.0	9.1	**14.4**	(1.61)
	New Zealand	1.6	0.8	0.0	0.6	3.1	0.2	0.0	0.1	0.0	1.4	9.6	**17.4**	(1.38)
	Norway	0.8	0.0	1.4	0.1	2.5	1.4	0.1	0.0	0.0	0.3	7.4	**14.0**	(1.12)
	Poland	0.1	2.1	1.2	0.8	2.8	0.0	1.1	0.0	0.0	0.0	17.5	**25.8**	(1.08)
	Spain	1.0	0.7	0.5	0.1	3.9	0.2	0.0	0.0	0.6	0.0	13.6	**20.7**	(1.78)
	Sweden	1.0	0.2	0.9	0.0	3.3	0.4	0.2	0.0	0.4	0.2	10.6	**17.4**	(1.65)
	OECD average-16	0.7	0.9	0.6	0.7	2.9	0.4	0.1	0.2	0.3	0.2	11.9	**19.0**	(0.48)
Partners	Colombia	0.1	0.7	0.5	0.3	1.6	4.9	0.1	0.2	0.0	0.1	17.5	**26.0**	(2.41)
	Hong Kong-China	0.3	0.7	0.2	2.0	4.0	0.1	0.1	0.1	0.6	0.6	6.5	**15.1**	(1.53)
	Macao-China	0.1	0.7	0.7	1.4	0.4	0.1	0.1	0.2	0.3	3.7	2.9	**10.4**	(0.80)
Print reading														
OECD	Australia	2.6	0.7	0.7	0.2	2.9	0.7	0.1	0.5	0.0	0.0	10.9	**19.4**	(1.13)
	Austria	1.6	0.3	0.7	0.0	6.7	1.0	0.0	0.0	0.3	0.1	17.9	**28.6**	(1.82)
	Belgium	4.3	0.0	0.9	1.3	2.1	0.9	0.2	0.7	0.7	0.1	16.2	**27.5**	(1.20)
	Chile	2.1	0.5	0.4	0.6	1.2	0.1	0.0	0.0	0.1	0.2	16.1	**21.3**	(1.51)
	Denmark	2.3	0.1	0.6	1.9	1.9	0.5	0.1	0.2	0.2	0.1	13.3	**21.3**	(1.19)
	France	1.3	0.1	1.8	0.3	4.8	0.6	0.1	0.0	0.1	0.4	18.5	**28.1**	(2.03)
	Hungary	2.1	0.3	1.5	0.5	5.2	0.3	0.0	0.1	0.0	0.3	25.6	**35.8**	(2.16)
	Iceland	1.1	0.4	0.4	0.1	2.8	2.8	0.4	0.0	0.1	0.2	7.6	**15.9**	(1.21)
	Ireland	1.9	0.3	0.4	0.1	6.4	0.8	0.1	0.0	0.3	0.2	12.8	**23.3**	(1.55)
	Japan	0.9	0.9	1.6	1.1	0.7	0.8	0.1	0.0	0.0	0.0	7.4	**13.6**	(1.30)
	Korea	1.0	0.4	0.1	2.7	2.8	0.3	0.0	0.0	0.0	0.0	9.7	**17.0**	(1.55)
	New Zealand	4.2	0.5	0.1	0.2	3.8	0.1	0.1	0.0	0.1	1.6	13.0	**23.7**	(1.43)
	Norway	2.7	0.1	1.4	0.1	4.1	1.6	0.1	0.0	0.0	0.6	10.5	**21.1**	(1.29)
	Poland	0.7	0.6	0.8	0.3	4.6	0.4	0.3	0.0	0.0	0.1	14.6	**22.6**	(1.31)
	Spain	1.5	0.2	0.8	0.4	3.6	0.5	0.0	0.0	0.7	0.0	14.9	**22.6**	(1.34)
	Sweden	2.4	0.3	0.8	0.0	3.9	0.5	0.1	0.0	0.1	0.1	12.2	**20.6**	(1.61)
	OECD average-16	2.0	0.4	0.8	0.6	3.6	0.8	0.1	0.1	0.2	0.3	13.8	**22.7**	(0.38)
Partners	Colombia	1.4	0.1	0.2	0.4	1.5	1.7	0.0	0.3	0.0	0.2	14.6	**20.4**	(2.24)
	Hong Kong-China	0.2	0.2	0.0	1.9	3.7	0.9	0.1	0.6	0.0	2.9	5.2	**15.7**	(1.66)
	Macao-China	0.3	0.4	1.6	2.2	0.4	1.0	0.0	0.0	0.0	4.5	3.5	**13.9**	(0.92)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. Unique variance is the variance explained by each aspect in addition to the variance explained by the other aspects in the model.
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Table VI.4.20 **Relationships between online reading practices, enjoyment of reading and diversity of reading**

		Correlation between											
		Index of enjoyment of reading and:						Index of diversity of reading materials and:					
		Index of online reading activities		Index of online searching-information activities		Index of online social activities		Index of online reading activities		Index of online searching-information activities		Index of online social activities	
		Corr.	S.E.	Corr.	S.E.	Corr.	S.E.	Corr.	S.E.	Corr.	S.E.	Corr.	S.E.
OECD	Australia	**0.20**	(0.01)	**0.35**	(0.01)	**-0.10**	(0.01)	**0.33**	(0.01)	**0.39**	(0.01)	**0.04**	(0.01)
	Austria	**0.06**	(0.02)	**0.21**	(0.02)	**-0.15**	(0.02)	**0.27**	(0.02)	**0.32**	(0.01)	0.03	(0.02)
	Belgium	**0.13**	(0.02)	**0.30**	(0.01)	**-0.17**	(0.01)	**0.27**	(0.02)	**0.35**	(0.01)	-0.01	(0.01)
	Chile	**0.10**	(0.01)	**0.18**	(0.02)	**-0.03**	(0.01)	**0.25**	(0.01)	**0.29**	(0.01)	**0.12**	(0.01)
	Denmark	**0.14**	(0.02)	**0.25**	(0.02)	**-0.08**	(0.01)	**0.31**	(0.02)	**0.37**	(0.02)	0.02	(0.02)
	France	**0.12**	(0.02)	**0.28**	(0.02)	**-0.14**	(0.02)	**0.30**	(0.02)	**0.38**	(0.02)	0.03	(0.02)
	Hungary	**0.07**	(0.01)	**0.19**	(0.02)	**-0.06**	(0.02)	**0.23**	(0.02)	**0.27**	(0.02)	**0.08**	(0.02)
	Iceland	**0.05**	(0.02)	**0.20**	(0.02)	**-0.13**	(0.02)	**0.23**	(0.02)	**0.32**	(0.02)	-0.02	(0.02)
	Ireland	**0.23**	(0.02)	**0.35**	(0.02)	**-0.04**	(0.02)	**0.31**	(0.02)	**0.32**	(0.01)	**0.11**	(0.02)
	Japan	**0.13**	(0.01)	**0.20**	(0.01)	**-0.08**	(0.02)	**0.25**	(0.02)	**0.27**	(0.01)	**0.05**	(0.02)
	Korea	**0.17**	(0.02)	**0.29**	(0.02)	**-0.11**	(0.02)	**0.29**	(0.02)	**0.31**	(0.02)	**0.04**	(0.02)
	New Zealand	**0.21**	(0.01)	**0.33**	(0.01)	**-0.04**	(0.01)	**0.32**	(0.02)	**0.38**	(0.01)	**0.07**	(0.02)
	Norway	**0.10**	(0.02)	**0.21**	(0.02)	**-0.11**	(0.02)	**0.29**	(0.02)	**0.34**	(0.02)	**0.06**	(0.02)
	Poland	**0.08**	(0.01)	**0.13**	(0.01)	-0.01	(0.02)	**0.25**	(0.02)	**0.28**	(0.02)	**0.11**	(0.01)
	Spain	**0.11**	(0.02)	**0.23**	(0.02)	**-0.12**	(0.02)	**0.25**	(0.02)	**0.27**	(0.02)	**0.06**	(0.02)
	Sweden	**0.08**	(0.02)	**0.22**	(0.01)	**-0.14**	(0.01)	**0.28**	(0.02)	**0.34**	(0.02)	**0.04**	(0.02)
	OECD average-16	**0.12**	(0.00)	**0.24**	(0.00)	**-0.09**	(0.00)	**0.28**	(0.00)	**0.33**	(0.00)	**0.05**	(0.00)
Partners	Colombia	**0.05**	(0.02)	**0.16**	(0.02)	**-0.07**	(0.02)	**0.20**	(0.02)	**0.27**	(0.02)	**0.05**	(0.02)
	Hong-Kong-China	**0.09**	(0.01)	**0.20**	(0.01)	**-0.05**	(0.02)	**0.27**	(0.02)	**0.24**	(0.02)	**0.13**	(0.01)
	Macao-China	**0.18**	(0.01)	**0.27**	(0.01)	**-0.04**	(0.01)	**0.30**	(0.02)	**0.29**	(0.01)	**0.11**	(0.02)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.5.1 Percentage of students who reported that they have never used a computer, by gender and socio-economic background

		Percentage of students who reported that they have never used a computer													
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	0.3	(0.0)	0.5	(0.1)	0.1	(0.0)	**0.4**	(0.1)	0.7	(0.1)	0.1	(0.1)	**-0.6**	(0.1)
	Austria	0.6	(0.1)	0.9	(0.2)	0.2	(0.1)	**0.7**	(0.2)	0.4	(0.2)	0.9	(0.3)	0.5	(0.3)
	Belgium	0.6	(0.1)	0.9	(0.2)	0.3	(0.1)	**0.6**	(0.2)	1.0	(0.2)	0.3	(0.2)	**-0.7**	(0.3)
	Canada	0.7	(0.1)	1.1	(0.1)	0.3	(0.1)	**0.8**	(0.1)	0.8	(0.2)	0.4	(0.1)	**-0.4**	(0.2)
	Chile	1.1	(0.2)	1.2	(0.2)	1.0	(0.2)	0.2	(0.3)	2.9	(0.5)	0.2	(0.1)	**-2.7**	(0.5)
	Czech Republic	0.3	(0.1)	0.6	(0.2)	0.1	(0.0)	**0.5**	(0.2)	0.7	(0.3)	0.3	(0.2)	-0.4	(0.4)
	Denmark	0.2	(0.1)	0.3	(0.1)	0.1	(0.0)	**0.3**	(0.1)	0.3	(0.1)	c	c	**-0.3**	(0.1)
	Estonia	0.3	(0.1)	0.5	(0.1)	0.1	(0.1)	**0.4**	(0.2)	0.3	(0.1)	0.2	(0.1)	-0.1	(0.2)
	Finland	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c
	Germany	0.6	(0.1)	0.9	(0.2)	0.2	(0.1)	**0.7**	(0.2)	0.7	(0.3)	0.2	(0.1)	-0.4	(0.3)
	Greece	2.4	(0.3)	2.5	(0.3)	2.3	(0.4)	0.2	(0.4)	4.3	(0.9)	1.4	(0.4)	**-2.8**	(0.9)
	Hungary	0.6	(0.1)	0.5	(0.2)	0.6	(0.2)	-0.1	(0.3)	1.2	(0.4)	0.2	(0.1)	**-1.0**	(0.4)
	Iceland	0.8	(0.2)	1.4	(0.3)	0.2	(0.1)	**1.3**	(0.3)	1.3	(0.4)	0.3	(0.2)	**-0.9**	(0.5)
	Ireland	0.6	(0.1)	1.2	(0.2)	0.1	(0.1)	**1.1**	(0.2)	0.7	(0.3)	0.8	(0.3)	0.1	(0.5)
	Israel	3.0	(0.3)	3.3	(0.4)	2.6	(0.3)	0.6	(0.5)	5.7	(0.7)	0.9	(0.3)	**-4.7**	(0.7)
	Italy	1.5	(0.1)	2.0	(0.2)	0.9	(0.1)	**1.1**	(0.2)	2.8	(0.3)	0.9	(0.1)	**-2.0**	(0.3)
	Japan	2.9	(0.3)	3.7	(0.4)	2.0	(0.3)	**1.7**	(0.5)	5.7	(0.6)	1.0	(0.3)	**-4.7**	(0.7)
	Korea	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c	0.0	c
	Netherlands	0.2	(0.1)	0.4	(0.2)	0.1	(0.0)	**0.3**	(0.2)	0.1	(0.1)	0.1	(0.1)	0.0	(0.1)
	New Zealand	0.4	(0.1)	0.6	(0.2)	0.2	(0.1)	**0.3**	(0.2)	0.8	(0.3)	0.1	(0.1)	**-0.8**	(0.3)
	Norway	0.5	(0.1)	0.9	(0.2)	0.2	(0.1)	**0.7**	(0.2)	0.7	(0.2)	0.4	(0.2)	-0.2	(0.3)
	Poland	0.5	(0.1)	0.4	(0.1)	0.6	(0.2)	-0.2	(0.2)	1.4	(0.4)	0.3	(0.1)	**-1.2**	(0.4)
	Portugal	0.4	(0.1)	0.4	(0.1)	0.4	(0.1)	-0.1	(0.2)	0.1	(0.1)	0.3	(0.1)	0.1	(0.2)
	Slovak Republic	0.6	(0.1)	0.8	(0.2)	0.3	(0.1)	**0.6**	(0.2)	0.5	(0.2)	0.7	(0.3)	0.1	(0.4)
	Slovenia	0.4	(0.1)	0.4	(0.1)	0.3	(0.1)	0.1	(0.2)	0.4	(0.1)	0.2	(0.1)	-0.2	(0.2)
	Spain	0.8	(0.1)	1.2	(0.1)	0.4	(0.1)	**0.8**	(0.2)	1.2	(0.3)	0.4	(0.1)	**-0.8**	(0.3)
	Sweden	0.7	(0.2)	1.1	(0.3)	0.4	(0.1)	**0.7**	(0.2)	0.6	(0.2)	1.0	(0.3)	0.4	(0.3)
	Switzerland	0.6	(0.1)	1.2	(0.2)	0.1	(0.0)	**1.0**	(0.2)	0.7	(0.2)	0.5	(0.2)	-0.2	(0.3)
	Turkey	2.4	(0.3)	1.9	(0.3)	3.0	(0.5)	**-1.1**	(0.5)	5.5	(0.8)	0.2	(0.1)	**-5.3**	(0.8)
	OECD average-29	0.8	(0.0)	1.1	(0.0)	0.6	(0.0)	**0.5**	(0.0)	1.4	(0.1)	0.4	(0.0)	**-1.0**	(0.1)
Partners	Bulgaria	2.6	(0.4)	3.2	(0.5)	1.9	(0.5)	1.3	(0.7)	4.1	(0.8)	2.3	(0.6)	-1.7	(0.9)
	Croatia	1.1	(0.1)	1.2	(0.2)	1.1	(0.3)	0.1	(0.3)	2.2	(0.4)	0.5	(0.2)	**-1.7**	(0.5)
	Hong Kong-China	0.5	(0.1)	0.9	(0.2)	0.2	(0.1)	**0.7**	(0.2)	1.0	(0.3)	0.4	(0.2)	-0.6	(0.4)
	Jordan	7.0	(0.5)	8.9	(0.8)	5.2	(0.5)	**3.7**	(1.0)	11.9	(1.2)	3.5	(0.5)	**-8.4**	(1.3)
	Latvia	0.9	(0.2)	1.6	(0.3)	0.3	(0.1)	**1.3**	(0.3)	1.2	(0.4)	0.7	(0.2)	-0.5	(0.5)
	Liechtenstein	0.9	(0.5)	0.5	(0.5)	1.3	(0.9)	-0.7	(1.0)	2.3	(1.6)	1.3	(1.3)	-1.0	(2.1)
	Lithuania	0.5	(0.1)	0.8	(0.2)	0.1	(0.1)	**0.7**	(0.2)	0.8	(0.4)	0.1	(0.1)	**-0.8**	(0.3)
	Macao-China	1.0	(0.1)	1.5	(0.2)	0.4	(0.1)	**1.1**	(0.2)	1.0	(0.3)	1.3	(0.3)	0.3	(0.4)
	Panama	10.1	(1.6)	10.4	(1.9)	9.8	(1.9)	0.6	(2.0)	22.5	(3.4)	0.1	(0.1)	**-22.4**	(3.4)
	Qatar	2.4	(0.2)	3.7	(0.3)	1.1	(0.2)	**2.6**	(0.3)	3.7	(0.4)	1.3	(0.3)	**-2.4**	(0.5)
	Russian Federation	1.9	(0.4)	2.0	(0.4)	1.7	(0.5)	0.3	(0.5)	3.6	(0.8)	1.0	(0.3)	**-2.7**	(0.8)
	Serbia	2.7	(0.3)	2.6	(0.4)	2.9	(0.4)	-0.3	(0.5)	7.7	(0.8)	0.5	(0.2)	**-7.2**	(0.8)
	Singapore	0.5	(0.1)	0.5	(0.2)	0.4	(0.1)	0.1	(0.2)	0.9	(0.3)	0.3	(0.1)	**-0.6**	(0.3)
	Thailand	0.6	(0.1)	0.4	(0.1)	0.8	(0.2)	-0.4	(0.2)	1.3	(0.3)	0.0	(0.0)	**-1.3**	(0.3)
	Trinidad and Tobago	2.7	(0.3)	3.3	(0.4)	2.1	(0.3)	**1.2**	(0.5)	4.9	(0.7)	1.0	(0.3)	**-3.9**	(0.8)
	Uruguay	1.1	(0.2)	1.3	(0.2)	0.8	(0.2)	**0.5**	(0.2)	2.1	(0.5)	0.2	(0.1)	**-1.9**	(0.5)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
StatLink http://dx.doi.org/10.1787/888932436613

[Part 1/1]
Table VI.5.2 **Percentage of students who reported having a computer at home in 2000 and 2009, by gender**

		Percentage of students having a computer at home																	
		PISA 2000						PISA 2009						Change between 2000 and 2009 (PISA 2009 – PISA 2000)					
		All students		Boys		Girls		All students		Boys		Girls		All students		Boys		Girls	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	91.4	(0.6)	91.7	(0.7)	91.1	(0.9)	98.8	(0.1)	98.7	(0.1)	98.9	(0.1)	**7.4**	(0.6)	**6.9**	(0.7)	**7.8**	(0.9)
	Austria	85.8	(0.6)	86.9	(0.8)	84.6	(0.9)	98.8	(0.2)	98.7	(0.3)	98.9	(0.3)	**13.0**	(0.7)	**11.7**	(0.9)	**14.3**	(1.0)
	Belgium	82.9	(0.8)	83.8	(0.9)	82.0	(1.2)	98.4	(0.2)	98.4	(0.3)	98.4	(0.2)	**15.5**	(0.8)	**14.6**	(0.9)	**16.4**	(1.2)
	Canada	87.9	(0.3)	89.1	(0.4)	86.7	(0.4)	98.6	(0.1)	98.6	(0.2)	98.7	(0.2)	**10.7**	(0.3)	**9.4**	(0.4)	**11.9**	(0.4)
	Chile	31.3	(1.4)	30.9	(2.0)	31.7	(2.0)	76.0	(1.2)	77.0	(1.6)	75.0	(1.2)	**44.7**	(1.8)	**46.1**	(2.6)	**43.3**	(2.3)
	Czech Republic	55.2	(1.1)	61.6	(1.6)	49.4	(1.1)	97.1	(0.3)	97.5	(0.4)	96.7	(0.4)	**41.9**	(1.2)	**35.9**	(1.7)	**47.3**	(1.2)
	Denmark	91.2	(0.5)	93.3	(0.6)	89.1	(0.8)	99.7	(0.1)	99.7	(0.1)	99.6	(0.2)	**8.5**	(0.5)	**6.5**	(0.6)	**10.5**	(0.8)
	Finland	81.7	(0.6)	84.0	(0.7)	79.5	(0.9)	99.5	(0.1)	99.4	(0.1)	99.6	(0.1)	**17.8**	(0.6)	**15.4**	(0.7)	**20.1**	(0.9)
	France	65.8	(0.8)	67.1	(1.3)	64.6	(1.1)	96.7	(0.4)	96.9	(0.5)	96.6	(0.5)	**30.9**	(0.9)	**29.8**	(1.4)	**32.0**	(1.2)
	Germany	87.0	(0.6)	90.1	(0.9)	83.9	(0.9)	98.8	(0.2)	98.9	(0.2)	98.7	(0.3)	**11.8**	(0.6)	**8.9**	(0.9)	**14.9**	(0.9)
	Greece	44.7	(1.1)	51.1	(1.5)	38.3	(1.4)	89.9	(0.6)	91.0	(0.9)	88.8	(0.8)	**45.2**	(1.3)	**39.9**	(1.7)	**50.5**	(1.7)
	Hungary	51.1	(1.4)	56.5	(1.7)	45.9	(1.7)	93.9	(0.6)	95.0	(0.6)	92.8	(0.9)	**42.8**	(1.5)	**38.5**	(1.8)	**46.9**	(1.9)
	Iceland	95.5	(0.3)	97.4	(0.4)	93.7	(0.5)	99.5	(0.1)	99.5	(0.2)	99.5	(0.2)	**4.0**	(0.4)	**2.1**	(0.4)	**5.8**	(0.6)
	Ireland	67.4	(1.1)	69.1	(1.3)	65.7	(1.3)	97.0	(0.3)	96.1	(0.4)	98.0	(0.3)	**29.6**	(1.1)	**27.0**	(1.4)	**32.2**	(1.4)
	Israel	81.0	(1.9)	83.7	(1.7)	79.4	(2.3)	94.8	(0.6)	95.7	(0.6)	93.9	(0.9)	**13.7**	(1.9)	**12.0**	(1.8)	**14.5**	(2.5)
	Italy	69.7	(0.9)	74.9	(1.3)	64.3	(1.2)	96.7	(0.2)	96.8	(0.2)	96.6	(0.2)	**27.0**	(1.0)	**21.9**	(1.4)	**32.3**	(1.2)
	Japan	67.4	(1.2)	70.1	(1.5)	64.8	(1.5)	88.7	(0.6)	89.1	(0.7)	88.3	(0.8)	**21.3**	(1.3)	**19.0**	(1.6)	**23.5**	(1.7)
	Korea	85.7	(0.8)	86.1	(1.1)	85.2	(1.1)	98.9	(0.2)	98.9	(0.3)	99.0	(0.2)	13.2	(0.8)	12.7	(1.2)	13.8	(1.1)
	Mexico	23.2	(2.0)	24.8	(2.4)	21.6	(1.9)	49.5	(0.8)	51.3	(1.0)	47.9	(0.8)	**26.3**	(2.1)	**26.4**	(2.6)	**26.3**	(2.1)
	New Zealand	79.3	(0.8)	79.7	(1.0)	78.9	(1.1)	96.3	(0.3)	96.5	(0.4)	96.1	(0.5)	**17.0**	(0.9)	**16.8**	(1.1)	**17.1**	(1.2)
	Norway	93.0	(0.5)	94.6	(0.5)	91.4	(0.8)	99.4	(0.1)	99.2	(0.2)	99.6	(0.1)	**6.4**	(0.5)	**4.6**	(0.6)	**8.2**	(0.8)
	Poland	45.1	(1.6)	53.3	(1.6)	36.8	(2.0)	94.6	(0.3)	95.5	(0.4)	93.7	(0.6)	**49.5**	(1.6)	**42.3**	(1.7)	**56.9**	(2.1)
	Portugal	56.9	(1.6)	60.5	(1.8)	53.6	(1.8)	98.0	(0.3)	98.1	(0.3)	98.0	(0.3)	**41.1**	(1.6)	**37.7**	(1.9)	**44.3**	(1.8)
	Spain	67.3	(1.4)	71.0	(1.3)	63.6	(1.8)	91.3	(0.6)	91.2	(0.7)	91.3	(0.8)	**23.9**	(1.5)	**20.3**	(1.5)	**27.7**	(1.9)
	Sweden	94.6	(0.4)	94.8	(0.5)	94.3	(0.5)	99.2	(0.1)	99.3	(0.1)	99.0	(0.2)	**4.6**	(0.4)	**4.5**	(0.5)	**4.8**	(0.5)
	Switzerland	88.1	(0.7)	89.0	(0.8)	87.2	(0.9)	99.1	(0.2)	98.9	(0.2)	99.2	(0.2)	**10.9**	(0.7)	**9.9**	(0.8)	**12.0**	(0.9)
	United States	82.8	(2.2)	83.0	(2.9)	82.6	(1.7)	93.5	(0.5)	93.5	(0.6)	93.4	(0.7)	**10.7**	(2.2)	**10.5**	(2.9)	**10.8**	(1.9)
	OECD average-27	72.3	(0.2)	74.7	(0.3)	70.0	(0.3)	94.3	(0.1)	94.6	(0.1)	94.1	(0.1)	**21.8**	(0.2)	**19.7**	(0.3)	**23.9**	(0.3)
Partners	Albania	17.1	(0.8)	22.0	(1.3)	12.5	(0.8)	49.3	(1.5)	54.3	(1.4)	44.0	(2.1)	**32.2**	(1.7)	**32.3**	(2.0)	**31.6**	(2.2)
	Argentina	46.9	(3.7)	47.4	(2.7)	46.5	(5.2)	66.9	(1.6)	68.2	(1.9)	65.8	(1.8)	**20.0**	(4.1)	**20.8**	(3.3)	**19.3**	(5.5)
	Brazil	23.2	(1.4)	27.3	(1.7)	19.7	(1.6)	53.3	(1.1)	55.7	(1.3)	51.2	(1.2)	**30.1**	(1.8)	**28.4**	(2.1)	**31.5**	(2.0)
	Bulgaria	31.5	(1.8)	34.9	(1.7)	28.0	(2.4)	87.1	(1.2)	87.8	(1.2)	86.5	(1.5)	**55.6**	(2.2)	**52.9**	(2.0)	**58.5**	(2.8)
	Hong Kong-China	94.5	(0.5)	94.9	(0.5)	94.0	(0.7)	99.0	(0.2)	99.0	(0.2)	99.0	(0.2)	**4.5**	(0.5)	**4.1**	(0.5)	**5.0**	(0.7)
	Indonesia	6.8	(0.8)	7.3	(0.8)	6.3	(1.0)	21.1	(1.9)	22.4	(2.0)	19.7	(2.2)	**14.3**	(2.1)	**15.1**	(2.2)	**13.5**	(2.4)
	Latvia	25.9	(1.0)	32.2	(1.3)	19.9	(1.1)	91.0	(0.8)	91.4	(1.1)	90.7	(1.0)	**65.1**	(1.3)	**59.2**	(1.7)	**70.8**	(1.5)
	Liechtenstein	88.3	(1.8)	90.2	(2.3)	86.1	(3.0)	99.7	(0.3)	99.5	(0.5)	100.0	(0.0)	**11.4**	(1.8)	**9.3**	(2.3)	**13.9**	(3.0)
	Peru	13.7	(1.0)	13.7	(1.5)	13.7	(1.2)	38.2	(1.8)	37.8	(1.9)	38.6	(2.3)	**24.5**	(2.0)	**24.0**	(2.4)	**24.9**	(2.6)
	Romania	28.7	(1.3)	31.0	(1.6)	26.8	(1.6)	84.4	(1.1)	85.8	(1.2)	83.0	(1.2)	**55.6**	(1.7)	**54.8**	(2.0)	**56.2**	(2.0)
	Russian Federation	17.6	(1.1)	21.4	(1.3)	13.9	(1.1)	79.8	(1.3)	82.2	(1.3)	77.4	(1.7)	**62.2**	(1.7)	**60.8**	(1.8)	**63.5**	(2.0)
	Thailand	16.4	(1.6)	15.6	(1.7)	16.9	(1.9)	55.6	(1.3)	57.6	(1.9)	54.0	(1.6)	**39.2**	(2.0)	**42.0**	(2.5)	**37.1**	(2.5)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
StatLink http://dx.doi.org/10.1787/888932436613

[Part 1/1]

Table VI.5.3 Percentage of students who reported having a computer at home, by gender and socio-economic background

		Percentage of students having a computer at home												
	All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD														
Australia	98.8	(0.1)	98.7	(0.1)	98.9	(0.1)	-0.2	(0.2)	96.5	(0.3)	100.0	(0.0)	**3.5**	(0.3)
Austria	98.8	(0.2)	98.7	(0.3)	98.9	(0.3)	-0.2	(0.4)	96.4	(0.7)	99.7	(0.2)	**3.4**	(0.7)
Belgium	98.4	(0.2)	98.4	(0.3)	98.4	(0.2)	0.0	(0.4)	94.9	(0.6)	100.0	(0.0)	**5.1**	(0.6)
Canada	98.6	(0.1)	98.6	(0.2)	98.7	(0.2)	-0.1	(0.2)	95.9	(0.4)	99.9	(0.0)	**4.0**	(0.4)
Chile	76.0	(1.2)	77.0	(1.6)	75.0	(1.2)	2.0	(1.6)	40.3	(1.6)	98.7	(0.3)	**58.4**	(1.6)
Czech Republic	97.1	(0.3)	97.5	(0.4)	96.7	(0.4)	0.8	(0.6)	90.5	(1.0)	99.8	(0.2)	**9.2**	(1.0)
Denmark	99.7	(0.1)	99.7	(0.1)	99.6	(0.2)	0.1	(0.2)	98.8	(0.4)	100.0	(0.0)	**1.2**	(0.4)
Estonia	97.6	(0.2)	97.9	(0.3)	97.2	(0.4)	0.7	(0.5)	93.5	(0.8)	99.3	(0.3)	**5.8**	(0.9)
Finland	99.5	(0.1)	99.4	(0.1)	99.6	(0.1)	-0.2	(0.2)	98.2	(0.4)	100.0	(0.0)	**1.8**	(0.4)
France	96.7	(0.4)	96.9	(0.5)	96.6	(0.5)	0.3	(0.6)	90.1	(1.4)	99.7	(0.1)	**9.6**	(1.4)
Germany	98.8	(0.2)	98.9	(0.2)	98.7	(0.3)	0.2	(0.3)	96.3	(0.7)	99.9	(0.1)	**3.6**	(0.7)
Greece	89.9	(0.6)	91.0	(0.9)	88.8	(0.8)	2.2	(1.2)	73.7	(1.5)	98.5	(0.4)	**24.9**	(1.5)
Hungary	93.9	(0.6)	95.0	(0.6)	92.8	(0.9)	**2.2**	(1.0)	78.6	(1.9)	99.6	(0.2)	**21.0**	(1.9)
Iceland	99.5	(0.1)	99.5	(0.2)	99.5	(0.2)	-0.1	(0.2)	98.6	(0.4)	100.0	(0.0)	**1.4**	(0.4)
Ireland	97.0	(0.3)	96.1	(0.4)	98.0	(0.3)	**-1.9**	(0.6)	92.8	(0.8)	99.7	(0.2)	**6.9**	(0.8)
Israel	94.8	(0.6)	95.7	(0.6)	93.9	(0.9)	1.9	(1.0)	86.3	(1.3)	99.9	(0.1)	**13.6**	(1.2)
Italy	96.7	(0.2)	96.8	(0.2)	96.6	(0.2)	0.2	(0.3)	91.1	(0.5)	99.4	(0.1)	**8.3**	(0.5)
Japan	88.7	(0.6)	89.1	(0.7)	88.3	(0.8)	0.8	(1.1)	68.3	(1.4)	99.0	(0.3)	**30.7**	(1.4)
Korea	98.9	(0.2)	98.9	(0.3)	99.0	(0.2)	-0.2	(0.3)	96.6	(0.7)	99.8	(0.1)	**3.3**	(0.7)
Luxembourg	98.8	(0.2)	98.7	(0.3)	99.0	(0.2)	-0.3	(0.3)	97.4	(0.5)	99.8	(0.1)	**2.4**	(0.5)
Mexico	49.5	(0.8)	51.3	(1.0)	47.9	(0.8)	**3.4**	(0.8)	10.4	(0.4)	90.5	(0.6)	**80.1**	(0.7)
Netherlands	99.9	(0.1)	99.9	(0.1)	99.9	(0.1)	0.0	(0.1)	99.7	(0.2)	100.0	(0.0)	0.3	(0.2)
New Zealand	96.3	(0.3)	96.5	(0.4)	96.1	(0.5)	0.5	(0.6)	87.8	(1.1)	100.0	(0.0)	**12.2**	(1.1)
Norway	99.4	(0.1)	99.2	(0.2)	99.6	(0.1)	-0.4	(0.2)	98.0	(0.4)	100.0	(0.0)	**2.0**	(0.4)
Poland	94.6	(0.3)	95.5	(0.4)	93.7	(0.6)	**1.9**	(0.8)	82.3	(1.0)	99.5	(0.2)	**17.2**	(1.0)
Portugal	98.0	(0.3)	98.1	(0.3)	98.0	(0.3)	0.2	(0.4)	94.2	(0.8)	99.9	(0.1)	**5.7**	(0.8)
Slovak Republic	90.3	(0.6)	90.0	(0.8)	90.6	(0.7)	-0.6	(1.0)	74.8	(1.6)	98.1	(0.5)	**23.3**	(1.7)
Slovenia	99.2	(0.1)	99.3	(0.2)	99.2	(0.2)	0.1	(0.3)	97.9	(0.4)	100.0	(0.0)	**2.1**	(0.4)
Spain	91.3	(0.6)	91.2	(0.7)	91.3	(0.8)	0.0	(0.8)	81.6	(1.3)	97.8	(0.4)	**16.2**	(1.4)
Sweden	99.2	(0.1)	99.3	(0.1)	99.0	(0.2)	0.2	(0.3)	97.7	(0.5)	100.0	(0.0)	**2.3**	(0.5)
Switzerland	99.1	(0.2)	98.9	(0.2)	99.2	(0.2)	-0.3	(0.3)	97.6	(0.5)	99.9	(0.1)	**2.3**	(0.5)
Turkey	61.3	(1.3)	59.4	(1.4)	63.3	(1.6)	**-3.9**	(1.7)	19.2	(1.2)	93.6	(0.8)	**74.4**	(1.4)
United Kingdom	99.0	(0.1)	99.0	(0.2)	98.9	(0.2)	0.1	(0.2)	97.0	(0.4)	99.9	(0.1)	**2.9**	(0.5)
United States	93.5	(0.5)	93.5	(0.6)	93.4	(0.7)	0.1	(0.8)	79.4	(1.2)	99.9	(0.1)	**20.5**	(1.2)
OECD average-34	93.8	(0.1)	93.9	(0.1)	93.7	(0.1)	**0.3**	(0.1)	85.1	(0.2)	99.2	(0.0)	**14.1**	(0.2)
Partners														
Albania	49.3	(1.5)	54.3	(1.4)	44.0	(2.1)	**10.3**	(1.9)	11.6	(1.3)	86.1	(1.3)	**74.5**	(1.9)
Argentina	66.9	(1.6)	68.2	(1.9)	65.8	(1.8)	2.4	(1.7)	31.8	(2.3)	96.8	(0.6)	**65.0**	(2.3)
Azerbaijan	31.6	(1.3)	35.3	(1.6)	27.9	(1.5)	**7.4**	(1.6)	4.3	(0.8)	69.0	(1.8)	**64.7**	(2.0)
Brazil	53.3	(1.1)	55.7	(1.3)	51.2	(1.2)	**4.5**	(1.0)	15.5	(1.0)	86.9	(0.8)	**71.4**	(1.3)
Bulgaria	87.1	(1.2)	87.8	(1.2)	86.5	(1.5)	1.3	(1.3)	62.4	(2.6)	99.1	(0.4)	**36.7**	(2.6)
Colombia	47.8	(1.7)	48.7	(2.1)	46.9	(2.0)	1.8	(2.2)	12.1	(1.3)	86.4	(1.3)	**74.3**	(1.7)
Croatia	95.5	(0.4)	95.8	(0.4)	95.3	(0.6)	0.5	(0.7)	87.7	(1.1)	99.4	(0.2)	**11.8**	(1.1)
Dubai (UAE)	97.6	(0.2)	97.3	(0.3)	97.8	(0.3)	-0.5	(0.5)	93.0	(0.7)	100.0	(0.0)	**7.0**	(0.7)
Hong Kong-China	99.0	(0.2)	99.0	(0.2)	99.0	(0.2)	0.0	(0.3)	97.7	(0.4)	99.9	(0.1)	**2.2**	(0.4)
Indonesia	21.1	(1.9)	22.4	(2.0)	19.7	(2.2)	2.7	(1.6)	0.7	(0.3)	63.2	(2.5)	**62.5**	(2.5)
Jordan	74.6	(1.1)	76.4	(1.6)	72.9	(1.7)	3.4	(2.4)	39.3	(1.7)	97.1	(0.5)	**57.8**	(1.9)
Kazakhstan	53.3	(1.6)	54.8	(1.9)	51.8	(1.7)	**3.0**	(1.5)	12.1	(1.2)	89.4	(1.1)	**77.4**	(1.5)
Kyrgyzstan	21.6	(1.1)	23.7	(1.4)	19.7	(1.1)	**4.0**	(1.1)	1.1	(0.3)	53.0	(2.2)	**51.9**	(2.3)
Latvia	91.0	(0.8)	91.4	(1.1)	90.7	(1.0)	0.7	(1.3)	75.3	(2.3)	99.5	(0.2)	**24.2**	(2.3)
Liechtenstein	99.7	(0.3)	99.5	(0.5)	100.0	(0.0)	-0.5	(0.5)	98.9	(1.1)	100.0	(0.0)	1.1	(1.1)
Lithuania	93.7	(0.5)	94.5	(0.5)	92.8	(0.6)	**1.6**	(0.6)	80.9	(1.3)	99.5	(0.3)	**18.6**	(1.3)
Macao-China	98.9	(0.1)	98.8	(0.2)	99.1	(0.2)	-0.3	(0.2)	97.1	(0.4)	99.9	(0.1)	**2.8**	(0.4)
Montenegro	85.3	(0.5)	87.1	(0.7)	83.5	(0.7)	**3.6**	(0.9)	57.8	(1.5)	98.3	(0.4)	**40.5**	(1.5)
Panama	46.8	(2.4)	45.2	(2.4)	48.4	(2.9)	-3.3	(2.7)	9.3	(1.5)	91.3	(1.4)	**82.0**	(2.3)
Peru	38.2	(1.8)	37.8	(1.9)	38.6	(2.3)	-0.8	(2.1)	4.1	(0.6)	80.2	(2.0)	**76.1**	(2.0)
Qatar	97.1	(0.2)	96.6	(0.3)	97.7	(0.2)	**-1.2**	(0.3)	91.9	(0.6)	99.9	(0.1)	**8.0**	(0.6)
Romania	84.4	(1.1)	85.8	(1.2)	83.0	(1.2)	**2.8**	(1.1)	57.0	(2.0)	97.7	(0.5)	**40.7**	(2.0)
Russian Federation	79.8	(1.3)	82.2	(1.3)	77.4	(1.7)	**4.8**	(1.5)	46.4	(1.9)	98.8	(0.4)	**52.4**	(1.9)
Serbia	89.5	(0.7)	89.9	(0.8)	89.2	(0.8)	0.7	(0.8)	70.1	(1.7)	98.9	(0.3)	**28.8**	(1.7)
Shanghai-China	81.7	(1.2)	81.4	(1.3)	82.1	(1.4)	-0.7	(1.3)	50.9	(2.2)	98.5	(0.4)	**47.6**	(2.2)
Singapore	97.1	(0.2)	96.8	(0.3)	97.4	(0.3)	-0.6	(0.5)	90.8	(0.7)	100.0	(0.0)	**9.1**	(0.7)
Chinese Taipei	96.5	(0.3)	96.5	(0.5)	96.4	(0.5)	0.1	(0.7)	90.8	(1.0)	99.5	(0.2)	**8.6**	(1.0)
Thailand	55.6	(1.3)	57.6	(1.9)	54.0	(1.6)	3.6	(2.3)	15.6	(1.2)	93.5	(0.9)	**78.0**	(1.5)
Trinidad and Tobago	73.6	(0.7)	73.2	(1.1)	74.0	(1.0)	-0.8	(1.5)	44.2	(1.7)	96.2	(0.6)	**51.9**	(1.8)
Tunisia	45.3	(1.6)	47.7	(2.0)	43.1	(1.6)	**4.6**	(1.5)	7.7	(0.9)	89.1	(1.1)	**81.4**	(1.4)
Uruguay	77.3	(0.7)	79.6	(0.8)	75.3	(0.9)	**4.3**	(1.2)	45.4	(1.4)	98.5	(0.3)	**53.0**	(1.4)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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Table VI.5.4 Percentage of students who reported having a computer at home in 2000 and 2009, by socio-economic background

		Percentage of students having a computer at home																	
		PISA 2000						PISA 2009						Change between 2000 and 2009 (PISA 2009 – PISA 2000)					
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	91.4	(0.6)	78.2	(1.7)	99.2	(0.3)	98.8	(0.1)	96.4	(0.3)	100.0	(0.0)	**7.4**	(0.6)	**18.2**	(1.8)	**0.8**	(0.3)
	Austria	85.8	(0.6)	62.2	(1.7)	97.3	(0.4)	98.8	(0.2)	96.3	(0.7)	99.7	(0.2)	**13.0**	(0.7)	**34.1**	(1.8)	**2.4**	(0.5)
	Belgium	82.9	(0.8)	62.3	(1.4)	96.8	(0.5)	98.4	(0.2)	94.9	(0.6)	100.0	(0.0)	**15.5**	(0.8)	**32.6**	(1.6)	**3.2**	(0.5)
	Canada	87.9	(0.3)	67.7	(0.8)	99.2	(0.1)	98.6	(0.1)	95.9	(0.4)	99.9	(0.0)	**10.7**	(0.3)	**28.3**	(0.9)	**0.7**	(0.1)
	Chile	31.3	(1.4)	3.0	(0.4)	77.7	(1.0)	76.0	(1.2)	40.2	(1.6)	98.7	(0.3)	**44.7**	(1.8)	**37.3**	(1.6)	**21.1**	(1.1)
	Czech Republic	55.2	(1.1)	22.2	(1.5)	86.9	(1.0)	97.1	(0.3)	90.5	(1.0)	99.8	(0.2)	**41.9**	(1.2)	**68.3**	(1.8)	**12.9**	(1.0)
	Denmark	91.2	(0.5)	79.6	(1.1)	99.4	(0.2)	99.7	(0.1)	98.8	(0.4)	100.0	(0.0)	**8.5**	(0.5)	**19.2**	(1.2)	**0.6**	(0.2)
	Finland	81.7	(0.6)	58.1	(1.8)	96.6	(0.5)	99.5	(0.1)	98.2	(0.4)	100.0	(0.0)	**17.8**	(0.6)	**40.1**	(1.9)	**3.4**	(0.5)
	France	65.8	(0.8)	35.1	(1.6)	90.7	(0.8)	96.7	(0.4)	90.1	(1.4)	99.7	(0.1)	**30.9**	(0.9)	**55.1**	(2.1)	**9.1**	(0.8)
	Germany	87.0	(0.6)	69.0	(1.9)	97.8	(0.5)	98.8	(0.2)	96.3	(0.7)	99.9	(0.1)	**11.8**	(0.6)	**27.3**	(2.1)	**2.1**	(0.5)
	Greece	44.7	(1.1)	18.6	(1.4)	75.7	(1.8)	89.9	(0.6)	73.6	(1.4)	98.6	(0.4)	**45.2**	(1.3)	**55.0**	(2.0)	**22.8**	(1.8)
	Hungary	51.1	(1.4)	11.8	(1.2)	85.1	(1.3)	93.9	(0.6)	78.6	(1.9)	99.6	(0.2)	**42.8**	(1.5)	**66.8**	(2.3)	**14.6**	(1.3)
	Iceland	95.5	(0.3)	88.9	(1.0)	99.8	(0.2)	99.5	(0.1)	98.6	(0.4)	100.0	(0.0)	**4.0**	(0.4)	**9.6**	(1.1)	0.2	(0.2)
	Ireland	67.4	(1.1)	42.1	(1.9)	90.7	(1.0)	97.0	(0.3)	92.7	(0.8)	99.7	(0.2)	**29.6**	(1.1)	**50.6**	(2.1)	**9.0**	(1.0)
	Israel	81.0	(1.9)	58.3	(3.5)	96.9	(0.6)	94.8	(0.6)	86.3	(1.2)	99.9	(0.1)	**13.7**	(1.9)	**27.9**	(3.7)	**2.9**	(0.6)
	Italy	69.7	(0.9)	42.6	(1.6)	91.5	(0.8)	96.7	(0.2)	91.1	(0.5)	99.4	(0.1)	**27.0**	(1.0)	**48.5**	(1.7)	**7.9**	(0.9)
	Japan	67.4	(1.2)	m	m	m	m	88.7	(0.6)	68.3	(1.4)	99.0	(0.3)	**21.3**	(1.3)	m	(1.4)	m	(0.3)
	Korea	85.7	(0.8)	67.5	(1.8)	96.8	(0.4)	98.9	(0.2)	96.5	(0.7)	99.8	(0.1)	**13.2**	(0.8)	**29.1**	(1.9)	**3.0**	(0.5)
	Mexico	23.2	(2.0)	1.4	(0.4)	65.7	(3.0)	49.5	(0.8)	10.3	(0.4)	90.3	(0.6)	**26.3**	(2.1)	**8.9**	(0.6)	**24.6**	(3.0)
	New Zealand	79.3	(0.8)	53.5	(1.7)	97.1	(0.7)	96.3	(0.3)	87.7	(1.1)	100.0	(0.0)	**17.0**	(0.9)	**34.3**	(2.1)	**2.9**	(0.7)
	Norway	93.0	(0.5)	82.3	(1.5)	99.7	(0.2)	99.4	(0.1)	98.0	(0.4)	100.0	(0.0)	**6.4**	(0.5)	**15.6**	(1.5)	0.3	(0.2)
	Poland	45.1	(1.6)	13.9	(1.5)	80.6	(1.7)	94.6	(0.3)	82.2	(1.0)	99.5	(0.2)	**49.5**	(1.6)	**68.3**	(1.8)	**18.8**	(1.7)
	Portugal	56.9	(1.6)	20.6	(1.4)	93.4	(0.8)	98.0	(0.3)	94.2	(0.8)	99.9	(0.1)	**41.1**	(1.6)	**73.7**	(1.6)	**6.5**	(0.8)
	Spain	67.3	(1.4)	34.1	(1.6)	93.6	(0.8)	91.3	(0.6)	81.5	(1.3)	97.7	(0.4)	**23.9**	(1.5)	**47.5**	(2.1)	**4.1**	(0.9)
	Sweden	94.6	(0.4)	84.4	(0.9)	99.8	(0.1)	99.2	(0.1)	97.7	(0.5)	100.0	(0.0)	**4.6**	(0.4)	**13.3**	(1.0)	0.2	(0.1)
	Switzerland	88.1	(0.7)	71.1	(1.4)	97.6	(0.3)	99.1	(0.2)	97.6	(0.5)	99.9	(0.1)	**10.9**	(0.7)	**26.5**	(1.5)	**2.2**	(0.3)
	United States	82.8	(2.2)	53.7	(3.4)	99.5	(0.3)	93.5	(0.5)	79.4	(1.2)	99.9	(0.1)	**10.7**	(2.2)	**25.7**	(3.6)	0.4	(0.3)
	OECD average-27	72.3	(0.2)	49.3	(0.3)	92.5	(0.2)	94.3	(0.1)	85.9	(0.2)	99.3	(0.0)	**21.8**	(0.2)	**37.0**	(0.4)	**6.8**	(0.2)
Partners	Albania	17.1	(0.8)	5.2	(0.8)	35.0	(1.6)	49.3	(1.5)	11.6	(1.3)	86.0	(1.3)	**32.2**	(1.7)	**6.4**	(1.6)	**51.1**	(2.1)
	Argentina	46.9	(3.7)	9.1	(2.2)	89.2	(1.9)	66.9	(1.6)	31.2	(2.2)	96.8	(0.6)	**20.0**	(4.1)	**22.2**	(3.1)	**7.6**	(2.0)
	Brazil	23.2	(1.4)	1.2	(0.4)	60.3	(2.4)	53.3	(1.1)	15.5	(1.0)	86.7	(0.8)	**30.1**	(1.8)	**14.3**	(1.1)	**26.4**	(2.5)
	Bulgaria	31.5	(1.8)	5.5	(0.9)	69.4	(2.3)	87.1	(1.2)	62.2	(2.6)	99.1	(0.4)	**55.6**	(2.2)	**56.7**	(2.7)	**29.6**	(2.3)
	Hong Kong-China	94.5	(0.5)	84.1	(1.5)	99.4	(0.2)	99.0	(0.2)	97.7	(0.4)	99.9	(0.1)	**4.5**	(0.5)	**13.5**	(1.6)	0.5	(0.3)
	Indonesia	6.8	(0.8)	0.6	(0.4)	21.6	(1.9)	21.1	(1.9)	0.6	(0.2)	62.5	(2.5)	**14.3**	(2.1)	0.0	(0.4)	**40.9**	(3.1)
	Latvia	25.9	(1.0)	9.1	(1.5)	48.1	(2.0)	91.0	(0.8)	75.1	(2.3)	99.5	(0.2)	**65.1**	(1.3)	**66.0**	(2.8)	**51.4**	(2.0)
	Liechtenstein	88.3	(1.8)	80.0	(4.3)	96.1	(2.3)	99.7	(0.3)	98.9	(1.1)	100.0	(0.0)	**11.4**	(1.8)	**18.9**	(4.4)	3.9	(2.3)
	Peru	13.7	(1.0)	1.2	(0.4)	40.4	(2.3)	38.2	(1.8)	4.1	(0.6)	79.9	(2.0)	**24.5**	(2.0)	**2.9**	(0.7)	**39.5**	(3.0)
	Romania	28.7	(1.3)	2.5	(0.5)	75.0	(1.7)	84.4	(1.1)	56.4	(2.1)	97.7	(0.5)	**55.6**	(1.7)	**53.9**	(2.1)	**22.7**	(1.8)
	Russian Federation	17.6	(1.1)	3.4	(0.6)	41.7	(1.9)	79.8	(1.3)	46.1	(2.0)	98.8	(0.3)	**62.2**	(1.7)	**42.7**	(2.0)	**57.1**	(2.0)
	Thailand	16.4	(1.6)	0.7	(0.4)	51.6	(2.4)	55.6	(1.3)	15.6	(1.3)	93.5	(0.9)	**39.2**	(2.0)	**14.9**	(1.3)	**41.9**	(2.6)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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Table VI.5.5 Percentage of students who reported having access to the Internet at home in 2000 and 2009, by gender

		Percentage of students having access to the Internet at home																	
		PISA 2000						PISA 2009						Change between 2000 and 2009 (PISA 2009 – PISA 2000)					
		All students		Boys		Girls		All students		Boys		Girls		All students		Boys		Girls	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	67.4	(1.1)	69.1	(1.5)	65.7	(1.7)	96.0	(0.2)	95.9	(0.3)	96.1	(0.3)	**28.6**	(1.1)	**26.8**	(1.5)	**30.5**	(1.7)
	Austria	37.2	(0.8)	40.0	(1.5)	34.3	(1.3)	95.4	(0.4)	95.0	(0.6)	95.8	(0.6)	**58.2**	(0.9)	**55.0**	(1.6)	**61.5**	(1.4)
	Belgium	42.6	(0.9)	44.9	(1.1)	40.3	(1.3)	96.4	(0.3)	96.3	(0.4)	96.4	(0.4)	**53.7**	(0.9)	**51.4**	(1.1)	**56.2**	(1.4)
	Canada	70.2	(0.5)	72.1	(0.6)	68.3	(0.6)	96.8	(0.2)	96.9	(0.3)	96.8	(0.3)	**26.7**	(0.5)	**24.8**	(0.6)	**28.5**	(0.6)
	Chile	19.1	(1.0)	19.4	(1.7)	18.9	(1.6)	55.5	(1.5)	55.4	(1.8)	55.6	(1.6)	**36.3**	(1.8)	**36.0**	(2.5)	**36.6**	(2.3)
	Czech Republic	14.7	(0.7)	18.1	(1.0)	11.5	(0.6)	92.3	(0.5)	92.5	(0.6)	92.1	(0.7)	**77.6**	(0.8)	**74.4**	(1.2)	**80.6**	(1.0)
	Denmark	66.1	(1.0)	71.3	(1.2)	60.8	(1.3)	98.9	(0.2)	99.1	(0.2)	98.7	(0.2)	**32.8**	(1.0)	**27.8**	(1.2)	**37.9**	(1.3)
	Finland	55.2	(0.9)	59.3	(1.2)	51.2	(1.2)	99.0	(0.1)	98.8	(0.2)	99.1	(0.2)	**43.8**	(0.9)	**39.5**	(1.3)	**47.9**	(1.2)
	France	27.1	(0.8)	30.3	(1.3)	24.0	(1.0)	92.2	(0.6)	92.4	(0.7)	91.9	(0.7)	**65.1**	(1.0)	**62.2**	(1.5)	**67.8**	(1.3)
	Germany	40.0	(1.0)	43.9	(1.4)	36.3	(1.2)	95.8	(0.3)	95.3	(0.5)	96.3	(0.5)	**55.8**	(1.0)	**51.4**	(1.4)	**60.0**	(1.3)
	Greece	25.0	(1.2)	31.2	(1.4)	18.9	(1.4)	71.4	(1.1)	73.7	(1.2)	69.3	(1.5)	**46.4**	(1.6)	**42.5**	(1.8)	**50.4**	(2.1)
	Hungary	12.9	(0.7)	13.7	(1.0)	11.9	(0.8)	85.7	(0.9)	86.1	(1.0)	85.2	(1.2)	**72.8**	(1.2)	**72.4**	(1.4)	**73.4**	(1.5)
	Iceland	80.0	(0.6)	85.8	(0.8)	74.5	(1.1)	98.7	(0.2)	98.6	(0.3)	98.8	(0.3)	**18.7**	(0.6)	**12.8**	(0.9)	**24.3**	(1.1)
	Ireland	43.0	(1.3)	47.3	(1.5)	38.8	(1.4)	92.8	(0.5)	91.9	(0.6)	93.7	(0.7)	**49.8**	(1.3)	**44.6**	(1.6)	**54.9**	(1.6)
	Israel	54.9	(2.9)	65.7	(2.1)	47.5	(3.8)	85.6	(1.0)	89.3	(1.3)	82.2	(1.4)	**30.7**	(3.1)	**23.6**	(2.5)	**34.7**	(4.1)
	Italy	32.7	(0.8)	37.0	(1.2)	28.3	(1.1)	87.5	(0.3)	88.0	(0.4)	87.0	(0.4)	**54.8**	(0.9)	**51.0**	(1.2)	**58.7**	(1.2)
	Japan	40.1	(1.3)	42.0	(1.4)	38.1	(1.7)	81.5	(0.8)	81.2	(1.0)	81.8	(1.2)	**41.4**	(1.5)	**39.2**	(1.7)	**43.7**	(2.1)
	Korea	62.0	(1.2)	64.1	(1.7)	59.4	(1.8)	96.9	(0.4)	96.2	(0.5)	97.7	(0.4)	**34.9**	(1.2)	**32.1**	(1.7)	**38.3**	(1.9)
	Mexico	12.1	(1.5)	14.3	(2.1)	9.9	(1.2)	35.4	(0.9)	37.0	(1.2)	33.9	(0.9)	**23.3**	(1.7)	**22.6**	(2.4)	**24.1**	(1.5)
	New Zealand	61.5	(1.0)	63.3	(1.4)	59.6	(1.7)	91.7	(0.5)	92.4	(0.6)	91.0	(0.7)	**30.2**	(1.1)	**29.0**	(1.5)	**31.4**	(1.8)
	Norway	71.2	(1.1)	74.5	(1.3)	67.9	(1.4)	99.0	(0.2)	98.9	(0.2)	99.0	(0.2)	**27.7**	(1.1)	**24.4**	(1.3)	**31.2**	(1.4)
	Poland	19.0	(1.0)	23.3	(1.2)	14.6	(1.2)	85.4	(0.8)	86.1	(1.0)	84.7	(1.0)	**66.4**	(1.3)	**62.8**	(1.6)	**70.0**	(1.5)
	Portugal	24.3	(1.2)	28.3	(1.4)	20.8	(1.4)	91.1	(0.7)	91.6	(0.8)	90.7	(0.7)	**66.8**	(1.4)	**63.4**	(1.6)	**69.9**	(1.6)
	Spain	24.0	(1.2)	27.6	(1.4)	20.1	(1.2)	84.8	(0.8)	85.4	(0.8)	84.3	(1.0)	**60.8**	(1.4)	**57.8**	(1.6)	**64.1**	(1.6)
	Sweden	82.8	(0.7)	85.0	(0.8)	80.6	(1.0)	98.5	(0.2)	98.6	(0.2)	98.4	(0.4)	**15.7**	(0.7)	**13.6**	(0.9)	**17.7**	(1.1)
	Switzerland	51.8	(1.2)	52.7	(1.6)	50.9	(1.3)	98.1	(0.2)	97.9	(0.3)	98.2	(0.3)	**46.3**	(1.2)	**45.2**	(1.6)	**47.3**	(1.3)
	United States	70.0	(2.4)	72.1	(2.9)	68.1	(2.2)	89.3	(0.7)	89.5	(0.8)	89.1	(0.9)	**19.3**	(2.5)	**17.4**	(3.0)	**21.0**	(2.4)
	OECD average-27	44.7	(0.2)	48.0	(0.3)	41.5	(0.3)	88.9	(0.1)	89.1	(0.1)	88.6	(0.2)	**43.9**	(0.3)	**40.9**	(0.3)	**46.8**	(0.3)
Partners	Albania	8.3	(0.7)	10.1	(1.1)	6.6	(0.6)	28.5	(1.4)	34.4	(1.4)	22.4	(1.7)	**20.2**	(1.5)	**24.3**	(1.8)	**15.8**	(1.8)
	Argentina	23.6	(2.3)	25.9	(2.5)	21.9	(2.8)	50.9	(2.0)	52.3	(2.2)	49.7	(2.2)	**27.3**	(3.1)	**26.4**	(3.3)	**27.8**	(3.6)
	Brazil	16.8	(1.2)	20.3	(1.5)	13.8	(1.3)	58.3	(1.1)	60.3	(1.1)	56.5	(1.2)	**41.5**	(1.6)	**40.0**	(1.9)	**42.8**	(1.8)
	Bulgaria	26.3	(1.5)	29.4	(1.5)	23.1	(2.0)	85.5	(1.1)	86.3	(1.2)	84.7	(1.4)	**59.2**	(1.9)	**56.8**	(1.9)	**61.6**	(2.4)
	Hong Kong-China	84.8	(0.8)	84.9	(1.0)	84.6	(1.0)	98.0	(0.3)	97.8	(0.4)	98.2	(0.3)	**13.2**	(0.8)	**12.8**	(1.1)	**13.6**	(1.1)
	Indonesia	4.4	(0.5)	4.9	(0.5)	4.0	(0.7)	8.3	(0.9)	9.3	(0.9)	7.4	(1.2)	**3.9**	(1.0)	**4.4**	(1.0)	**3.3**	(1.4)
	Latvia	9.3	(0.8)	12.2	(1.1)	6.6	(0.8)	81.4	(1.1)	81.6	(1.1)	81.2	(1.5)	**72.1**	(1.3)	**69.4**	(1.6)	**74.5**	(1.7)
	Liechtenstein	48.7	(2.5)	52.9	(3.5)	44.8	(3.7)	99.1	(0.5)	98.2	(1.0)	100.0	(0.0)	**50.4**	(2.6)	**45.4**	(3.6)	**55.2**	(3.7)
	Peru	6.7	(0.6)	7.6	(0.8)	5.9	(0.6)	25.0	(1.5)	25.3	(1.6)	24.7	(2.0)	**18.3**	(1.6)	**17.8**	(1.8)	**18.8**	(2.1)
	Romania	12.8	(0.9)	14.4	(1.3)	11.4	(1.0)	69.9	(1.5)	70.3	(1.8)	69.5	(1.7)	**57.1**	(1.8)	**55.9**	(2.3)	**58.1**	(1.9)
	Russian Federation	5.4	(0.4)	7.2	(0.7)	3.6	(0.4)	56.0	(1.5)	59.2	(1.7)	52.9	(1.8)	**50.6**	(1.5)	**52.0**	(1.8)	**49.3**	(1.9)
	Thailand	12.4	(1.2)	11.4	(1.4)	13.1	(1.6)	35.8	(1.3)	38.3	(2.0)	33.9	(1.6)	**23.4**	(1.8)	**26.9**	(2.4)	**20.8**	(2.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.5.6

[Part 1/1]
Percentage of students who reported having access to the Internet at home, by gender and socio-economic background

		Percentage of students having access to the Internet at home													
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	96.0	(0.2)	95.9	(0.3)	96.1	(0.3)	-0.3	(0.4)	89.7	(0.6)	99.4	(0.2)	**9.7**	(0.6)
	Austria	95.4	(0.4)	95.0	(0.6)	95.8	(0.6)	-0.8	(0.8)	87.6	(1.2)	99.3	(0.2)	**11.8**	(1.2)
	Belgium	96.4	(0.3)	96.3	(0.4)	96.4	(0.4)	-0.1	(0.5)	90.4	(0.8)	99.6	(0.1)	**9.1**	(0.9)
	Canada	96.8	(0.2)	96.9	(0.3)	96.8	(0.3)	0.0	(0.3)	90.9	(0.5)	99.8	(0.1)	**9.0**	(0.6)
	Chile	55.5	(1.5)	55.4	(1.8)	55.6	(1.6)	-0.1	(1.9)	15.7	(1.2)	91.4	(0.8)	**75.8**	(1.4)
	Czech Republic	92.3	(0.5)	92.5	(0.6)	92.1	(0.7)	0.3	(0.9)	78.3	(1.3)	98.5	(0.4)	**20.2**	(1.4)
	Denmark	98.9	(0.2)	99.1	(0.2)	98.7	(0.2)	0.3	(0.3)	96.8	(0.6)	99.9	(0.1)	**3.1**	(0.6)
	Estonia	96.2	(0.4)	96.2	(0.5)	96.3	(0.5)	-0.1	(0.6)	88.2	(1.3)	99.9	(0.1)	**11.7**	(1.2)
	Finland	99.0	(0.1)	98.8	(0.2)	99.1	(0.2)	-0.2	(0.3)	96.9	(0.5)	99.9	(0.1)	**3.0**	(0.5)
	France	92.2	(0.6)	92.4	(0.7)	91.9	(0.7)	0.6	(0.9)	80.7	(1.6)	98.7	(0.4)	**18.0**	(1.7)
	Germany	95.8	(0.3)	95.3	(0.5)	96.3	(0.5)	-1.0	(0.6)	89.5	(1.1)	98.8	(0.4)	**9.3**	(1.3)
	Greece	71.4	(1.1)	73.7	(1.2)	69.3	(1.5)	**4.4**	(1.6)	42.5	(1.6)	91.3	(0.8)	**48.7**	(1.8)
	Hungary	85.7	(0.9)	86.1	(1.0)	85.2	(1.2)	0.9	(1.3)	59.0	(2.3)	97.6	(0.6)	**38.6**	(2.4)
	Iceland	98.7	(0.2)	98.6	(0.3)	98.8	(0.3)	-0.2	(0.4)	96.4	(0.6)	99.6	(0.2)	**3.2**	(0.6)
	Ireland	92.8	(0.5)	91.9	(0.6)	93.7	(0.7)	**-1.8**	(0.9)	84.9	(1.4)	98.0	(0.4)	**13.1**	(1.3)
	Israel	85.6	(1.0)	89.3	(1.3)	82.2	(1.4)	**7.1**	(1.8)	70.8	(1.6)	98.1	(0.5)	**27.3**	(1.7)
	Italy	87.5	(0.3)	88.0	(0.4)	87.0	(0.4)	**1.1**	(0.5)	72.8	(0.8)	97.3	(0.2)	**24.5**	(0.8)
	Japan	81.5	(0.8)	81.2	(1.0)	81.8	(1.2)	-0.6	(1.5)	55.3	(1.7)	95.9	(0.5)	**40.6**	(1.7)
	Korea	96.9	(0.4)	96.2	(0.5)	97.7	(0.4)	**-1.5**	(0.5)	92.0	(1.3)	99.6	(0.2)	**7.5**	(1.3)
	Luxembourg	97.4	(0.2)	96.8	(0.4)	98.0	(0.3)	**-1.2**	(0.5)	93.2	(0.8)	99.8	(0.1)	**6.6**	(0.8)
	Mexico	35.4	(0.9)	37.0	(1.2)	33.9	(0.9)	**3.0**	(1.0)	3.4	(0.3)	78.4	(1.0)	**75.0**	(1.0)
	Netherlands	99.1	(0.2)	99.0	(0.3)	99.2	(0.2)	-0.2	(0.4)	97.7	(0.6)	99.9	(0.1)	**2.2**	(0.6)
	New Zealand	91.7	(0.5)	92.4	(0.6)	91.0	(0.7)	1.4	(0.9)	76.1	(1.5)	99.3	(0.3)	**23.2**	(1.5)
	Norway	99.0	(0.2)	98.9	(0.2)	99.0	(0.2)	-0.1	(0.3)	97.3	(0.6)	99.7	(0.2)	**2.5**	(0.6)
	Poland	85.4	(0.8)	86.1	(1.0)	84.7	(1.0)	1.4	(1.1)	60.5	(1.9)	98.1	(0.4)	**37.6**	(1.9)
	Portugal	91.1	(0.7)	91.6	(0.8)	90.7	(0.7)	0.9	(0.7)	79.4	(1.6)	98.8	(0.3)	**19.4**	(1.6)
	Slovak Republic	85.4	(0.8)	85.4	(1.0)	85.3	(1.0)	0.1	(1.2)	63.2	(2.0)	97.1	(0.6)	**33.9**	(2.1)
	Slovenia	96.6	(0.3)	96.4	(0.4)	96.7	(0.4)	-0.3	(0.6)	91.1	(0.9)	99.3	(0.2)	**8.2**	(0.9)
	Spain	84.8	(0.8)	85.4	(0.8)	84.3	(1.0)	1.1	(0.8)	66.4	(2.2)	97.0	(0.5)	**30.6**	(2.0)
	Sweden	98.5	(0.2)	98.6	(0.2)	98.4	(0.4)	0.3	(0.4)	95.9	(0.7)	99.9	(0.1)	**4.0**	(0.7)
	Switzerland	98.1	(0.2)	97.9	(0.3)	98.2	(0.3)	-0.3	(0.4)	95.8	(0.5)	99.5	(0.2)	**3.7**	(0.5)
	Turkey	53.0	(1.2)	51.1	(1.4)	55.0	(1.7)	**-3.9**	(1.9)	15.9	(1.2)	84.5	(1.4)	**68.7**	(1.8)
	United Kingdom	97.2	(0.2)	97.2	(0.3)	97.2	(0.3)	0.0	(0.4)	91.9	(0.8)	99.7	(0.1)	**7.8**	(0.8)
	United States	89.3	(0.7)	89.5	(0.8)	89.1	(0.9)	0.4	(0.9)	70.2	(1.3)	99.2	(0.3)	**29.0**	(1.3)
	OECD average-34	88.7	(0.1)	88.9	(0.1)	88.6	(0.1)	0.3	(0.2)	75.8	(0.2)	97.4	(0.1)	**21.7**	(0.2)
Partners	Albania	28.5	(1.4)	34.4	(1.4)	22.4	(1.7)	**12.0**	(1.6)	4.3	(0.7)	58.9	(2.5)	**54.7**	(2.6)
	Argentina	50.9	(2.0)	52.3	(2.2)	49.7	(2.2)	2.6	(1.9)	15.0	(1.4)	90.4	(1.2)	**75.5**	(1.9)
	Azerbaijan	25.9	(1.4)	30.4	(1.6)	21.1	(1.4)	**9.3**	(1.2)	2.8	(0.7)	60.4	(2.0)	**57.6**	(2.2)
	Brazil	58.3	(1.1)	60.3	(1.1)	56.5	(1.2)	**3.8**	(0.8)	27.2	(1.3)	88.0	(0.9)	**60.8**	(1.5)
	Bulgaria	85.5	(1.1)	86.3	(1.2)	84.7	(1.4)	1.6	(1.2)	60.3	(2.6)	98.1	(0.5)	**37.7**	(2.6)
	Colombia	31.4	(1.5)	31.8	(2.0)	31.1	(1.8)	0.7	(2.4)	5.1	(0.7)	68.9	(2.0)	**63.7**	(2.2)
	Croatia	86.8	(0.7)	86.8	(0.9)	86.8	(0.9)	0.1	(1.2)	66.5	(1.7)	97.9	(0.5)	**31.4**	(1.7)
	Dubai (UAE)	92.2	(0.4)	91.3	(0.6)	93.2	(0.5)	**-1.8**	(0.7)	80.7	(1.0)	99.0	(0.3)	**18.3**	(1.1)
	Hong Kong-China	98.0	(0.3)	97.8	(0.4)	98.2	(0.3)	-0.4	(0.4)	94.9	(0.6)	99.6	(0.2)	**4.7**	(0.6)
	Indonesia	8.3	(0.9)	9.3	(0.9)	7.4	(1.2)	1.9	(1.1)	1.0	(0.3)	23.9	(2.4)	**22.8**	(2.4)
	Jordan	30.2	(1.1)	31.8	(1.4)	28.6	(1.8)	3.2	(2.5)	4.6	(0.7)	62.8	(1.9)	**58.1**	(2.1)
	Kazakhstan	35.2	(1.5)	35.6	(1.7)	34.8	(1.7)	0.8	(1.4)	7.9	(1.0)	67.0	(2.1)	**59.1**	(2.3)
	Kyrgyzstan	14.0	(0.7)	16.2	(1.0)	11.9	(0.7)	**4.3**	(1.0)	2.8	(0.5)	31.9	(2.0)	**29.1**	(2.0)
	Latvia	81.4	(1.1)	81.6	(1.1)	81.2	(1.5)	0.4	(1.6)	56.2	(2.4)	95.4	(0.9)	**39.2**	(2.7)
	Liechtenstein	99.1	(0.5)	98.2	(1.0)	100.0	(0.0)	-1.8	(1.0)	97.5	(1.8)	100.0	(0.0)	2.5	(1.8)
	Lithuania	85.8	(0.7)	86.7	(0.9)	84.8	(0.9)	1.9	(1.0)	63.9	(1.7)	97.5	(0.6)	**33.6**	(1.8)
	Macao-China	97.1	(0.2)	96.5	(0.3)	97.7	(0.3)	**-1.2**	(0.4)	94.6	(0.6)	99.2	(0.2)	**4.6**	(0.6)
	Montenegro	69.9	(0.7)	72.4	(0.9)	67.2	(0.9)	**5.1**	(1.3)	34.6	(2.3)	92.8	(0.7)	**58.1**	(2.3)
	Panama	37.6	(3.0)	36.2	(2.9)	38.9	(3.8)	-2.7	(3.1)	3.4	(1.0)	85.6	(2.6)	**82.1**	(2.7)
	Peru	25.0	(1.5)	25.3	(1.6)	24.7	(2.0)	0.6	(1.9)	4.4	(0.6)	56.9	(3.1)	**52.5**	(3.2)
	Qatar	89.4	(0.3)	88.4	(0.5)	90.4	(0.4)	**-2.0**	(0.6)	75.7	(0.9)	98.6	(0.2)	**22.9**	(0.9)
	Romania	69.9	(1.5)	70.3	(1.8)	69.5	(1.7)	0.8	(1.8)	32.1	(1.9)	95.4	(0.7)	**63.3**	(2.0)
	Russian Federation	56.0	(1.5)	59.2	(1.7)	52.9	(1.8)	**6.3**	(1.9)	21.2	(1.5)	86.2	(1.2)	**64.9**	(1.7)
	Serbia	64.1	(1.0)	66.0	(1.1)	62.3	(1.3)	**3.7**	(1.4)	30.7	(1.4)	90.7	(0.9)	**60.1**	(1.7)
	Shanghai-China	73.7	(1.3)	72.9	(1.4)	74.6	(1.6)	-1.7	(1.6)	39.5	(1.8)	95.4	(0.6)	**55.9**	(1.9)
	Singapore	95.4	(0.3)	94.6	(0.4)	96.2	(0.4)	**-1.5**	(0.5)	87.0	(0.9)	99.7	(0.1)	**12.7**	(0.9)
	Chinese Taipei	93.0	(0.4)	93.0	(0.6)	93.0	(0.6)	0.1	(0.8)	83.9	(1.1)	98.2	(0.3)	**14.3**	(1.1)
	Thailand	35.8	(1.3)	38.3	(2.0)	33.9	(1.6)	4.4	(2.5)	3.9	(0.6)	80.7	(1.6)	**76.9**	(1.7)
	Trinidad and Tobago	56.6	(0.9)	57.7	(1.2)	55.5	(1.1)	2.2	(1.6)	25.8	(1.5)	88.9	(1.0)	**63.1**	(1.8)
	Tunisia	26.4	(1.4)	29.5	(1.9)	23.4	(1.3)	**6.1**	(1.5)	2.4	(0.5)	61.3	(1.9)	**58.9**	(1.9)
	Uruguay	60.5	(0.8)	63.2	(1.1)	58.1	(1.0)	**5.1**	(1.2)	23.0	(1.1)	92.9	(0.8)	**69.8**	(1.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
StatLink http://dx.doi.org/10.1787/888932436613

[Part 1/1]
Table VI.5.7 **Percentage of students who reported having access to the Internet at home in 2000 and 2009, by socio-economic background**

		Percentage of students having access to the Internet at home																	
		PISA 2000						PISA 2009						Change between 2000 and 2009 (PISA 2009 – PISA 2000)					
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	67.4	(1.1)	39.8	(2.3)	90.4	(1.0)	96.0	(0.2)	89.6	(0.6)	99.4	(0.2)	**28.6**	(1.1)	**49.8**	(2.3)	**8.9**	(1.1)
	Austria	37.2	(0.8)	10.8	(1.1)	66.2	(1.5)	95.4	(0.4)	87.6	(1.2)	99.3	(0.2)	**58.2**	(0.9)	**76.8**	(1.6)	**33.1**	(1.5)
	Belgium	42.6	(0.9)	16.2	(1.0)	73.1	(1.3)	96.4	(0.3)	90.4	(0.8)	99.6	(0.1)	**53.7**	(0.9)	**74.2**	(1.3)	**26.4**	(1.3)
	Canada	70.2	(0.5)	42.3	(0.8)	93.4	(0.5)	96.8	(0.2)	90.8	(0.5)	99.8	(0.1)	**26.7**	(0.5)	**48.6**	(1.0)	**6.5**	(0.5)
	Chile	19.1	(1.0)	1.0	(0.3)	55.8	(1.5)	55.5	(1.5)	15.8	(1.2)	91.4	(0.8)	**36.3**	(1.8)	**14.7**	(1.3)	**35.6**	(1.7)
	Czech Republic	14.7	(0.7)	2.8	(0.6)	36.1	(1.5)	92.3	(0.5)	78.2	(1.3)	98.5	(0.4)	**77.6**	(0.8)	**75.4**	(1.4)	**62.4**	(1.5)
	Denmark	66.1	(1.0)	40.0	(1.6)	88.9	(1.2)	98.9	(0.2)	96.8	(0.6)	99.9	(0.1)	**32.8**	(1.0)	**56.8**	(1.7)	**11.0**	(1.2)
	Finland	55.2	(0.9)	26.4	(1.5)	83.0	(1.2)	99.0	(0.1)	96.9	(0.5)	99.9	(0.1)	**43.8**	(0.9)	**70.5**	(1.6)	**16.9**	(1.2)
	France	27.1	(0.8)	7.3	(0.9)	58.1	(1.5)	92.2	(0.6)	80.7	(1.6)	98.7	(0.4)	**65.1**	(1.0)	**73.4**	(1.8)	**40.6**	(1.5)
	Germany	40.0	(1.0)	15.2	(1.6)	68.0	(1.5)	95.8	(0.3)	89.4	(1.1)	98.8	(0.4)	**55.8**	(1.0)	**74.2**	(2.0)	**30.7**	(1.5)
	Greece	25.0	(1.2)	7.5	(0.7)	51.2	(2.7)	71.4	(1.1)	42.3	(1.6)	91.2	(0.8)	**46.4**	(1.6)	**34.8**	(1.8)	**40.0**	(2.8)
	Hungary	12.9	(0.7)	3.1	(0.7)	31.6	(1.6)	85.7	(0.9)	58.8	(2.2)	97.6	(0.6)	**72.8**	(1.2)	**55.7**	(2.3)	**65.9**	(1.7)
	Iceland	80.0	(0.6)	64.9	(1.4)	92.0	(1.0)	98.7	(0.2)	96.4	(0.6)	99.6	(0.2)	**18.7**	(0.6)	**31.5**	(1.5)	**7.7**	(1.0)
	Ireland	43.0	(1.3)	16.9	(1.3)	73.8	(1.8)	92.8	(0.5)	84.8	(1.4)	98.0	(0.4)	**49.8**	(1.3)	**67.9**	(1.9)	**24.2**	(1.8)
	Israel	54.9	(2.9)	22.2	(1.9)	89.8	(1.6)	85.6	(1.0)	70.6	(1.7)	98.2	(0.4)	**30.7**	(3.1)	**48.5**	(2.5)	**8.4**	(1.7)
	Italy	32.7	(0.8)	9.6	(0.9)	62.0	(1.4)	87.5	(0.3)	72.8	(0.8)	97.4	(0.2)	**54.8**	(0.9)	**63.1**	(1.2)	**35.4**	(1.4)
	Japan	40.1	(1.3)	m	m	m	m	81.5	(0.8)	55.3	(1.7)	95.9	(0.5)	**41.4**	(1.5)	**m**	(1.7)	**m**	(0.5)
	Korea	62.0	(1.2)	34.7	(1.6)	84.9	(1.5)	96.9	(0.4)	92.1	(1.2)	99.6	(0.2)	**34.9**	(1.2)	**57.4**	(2.0)	**14.7**	(1.5)
	Mexico	12.1	(1.5)	1.6	(0.4)	37.1	(3.2)	35.4	(0.9)	3.4	(0.3)	78.2	(1.0)	**23.3**	(1.7)	**1.8**	(0.5)	**41.1**	(3.4)
	New Zealand	61.5	(1.0)	30.9	(1.5)	89.0	(1.3)	91.7	(0.5)	75.8	(1.5)	99.3	(0.3)	**30.2**	(1.1)	**44.9**	(2.1)	**10.2**	(1.3)
	Norway	71.2	(1.1)	48.6	(2.2)	90.1	(1.1)	99.0	(0.2)	97.3	(0.6)	99.7	(0.2)	**27.7**	(1.1)	**48.7**	(2.3)	**9.6**	(1.1)
	Poland	19.0	(1.0)	6.6	(0.9)	43.0	(2.6)	85.4	(0.8)	60.4	(1.8)	98.0	(0.4)	**66.4**	(1.3)	**53.8**	(2.0)	**55.0**	(2.6)
	Portugal	24.3	(1.2)	4.2	(0.7)	58.5	(1.7)	91.1	(0.7)	79.4	(1.6)	98.8	(0.3)	**66.8**	(1.4)	**75.2**	(1.8)	**40.3**	(1.7)
	Spain	24.0	(1.2)	5.4	(0.7)	52.4	(1.7)	84.8	(0.8)	66.3	(2.2)	96.9	(0.5)	**60.8**	(1.4)	**60.9**	(2.3)	**44.5**	(1.7)
	Sweden	82.8	(0.7)	62.6	(1.7)	97.0	(0.5)	98.5	(0.2)	95.8	(0.7)	99.9	(0.1)	**15.7**	(0.7)	**33.2**	(1.8)	**2.9**	(0.5)
	Switzerland	51.8	(1.2)	20.3	(1.2)	79.0	(1.3)	98.1	(0.2)	95.8	(0.5)	99.5	(0.2)	**46.3**	(1.2)	**75.5**	(1.3)	**20.5**	(1.3)
	United States	70.0	(2.4)	37.3	(3.1)	95.1	(0.9)	89.3	(0.7)	70.2	(1.3)	99.2	(0.3)	**19.3**	(2.5)	**32.9**	(3.3)	**4.1**	(0.9)
	OECD average-27	44.7	(0.2)	22.2	(0.3)	70.8	(0.3)	88.9	(0.1)	75.8	(0.2)	97.6	(0.1)	**43.9**	(0.3)	**53.9**	(0.4)	**26.8**	(0.3)
Partners	Albania	8.3	(0.7)	4.8	(1.1)	14.0	(1.3)	28.5	(1.4)	4.2	(0.7)	58.7	(2.6)	**20.2**	(1.5)	-0.7	(1.3)	**44.7**	(2.9)
	Argentina	23.6	(2.3)	2.2	(0.8)	62.1	(3.5)	50.9	(2.0)	14.5	(1.5)	90.2	(1.2)	**27.3**	(3.1)	**12.3**	(1.7)	**28.1**	(3.7)
	Brazil	16.8	(1.2)	1.8	(0.4)	47.4	(2.6)	58.3	(1.1)	27.0	(1.3)	87.9	(0.9)	**41.5**	(1.6)	**25.2**	(1.3)	**40.5**	(2.7)
	Bulgaria	26.3	(1.5)	6.8	(0.7)	58.2	(2.3)	85.5	(1.1)	60.0	(2.6)	98.1	(0.5)	**59.2**	(1.9)	**53.2**	(2.7)	**39.9**	(2.4)
	Hong Kong-China	84.8	(0.8)	65.8	(2.0)	97.3	(0.5)	98.0	(0.3)	94.9	(0.6)	99.6	(0.2)	**13.2**	(0.8)	**29.2**	(2.1)	**2.3**	(0.5)
	Indonesia	4.4	(0.5)	1.8	(0.4)	7.9	(1.3)	8.3	(0.9)	1.0	(0.3)	23.8	(2.4)	**3.9**	(1.0)	-0.8	(0.5)	**15.9**	(2.7)
	Latvia	9.3	(0.8)	3.3	(0.9)	20.4	(1.9)	81.4	(1.1)	56.1	(2.4)	95.5	(0.9)	**72.1**	(1.3)	**52.8**	(2.6)	**75.0**	(2.1)
	Liechtenstein	48.7	(2.5)	13.0	(3.7)	82.5	(4.4)	99.1	(0.5)	97.5	(1.8)	100.0	(0.0)	**50.4**	(2.6)	**84.5**	(4.1)	**17.5**	(4.4)
	Peru	6.7	(0.6)	2.8	(0.6)	15.3	(1.4)	25.0	(1.5)	4.3	(0.6)	56.7	(3.0)	**18.3**	(1.6)	1.5	(0.9)	**41.4**	(3.4)
	Romania	12.8	(0.9)	1.1	(0.4)	38.9	(2.1)	69.9	(1.5)	31.8	(1.9)	95.4	(0.6)	**57.1**	(1.8)	**30.7**	(2.0)	**56.5**	(2.2)
	Russian Federation	5.4	(0.4)	1.3	(0.3)	14.1	(1.3)	56.0	(1.5)	21.2	(1.6)	85.9	(1.2)	**50.6**	(1.5)	**19.9**	(1.6)	**71.8**	(1.8)
	Thailand	12.4	(1.2)	0.8	(0.4)	37.3	(2.6)	35.8	(1.3)	3.9	(0.6)	80.6	(1.6)	**23.4**	(1.8)	**3.1**	(0.7)	**43.3**	(3.1)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 1/1]
Table VI.5.8a Ratio of computers to the number of students in the modal grade of 15-year-olds

		Ratio of computers to the number of students in the modal grade of 15-year-olds	
		PISA 2009	
		Ratio	S.E.
OECD	Australia	0.97	(0.02)
	Austria	0.87	(0.04)
	Belgium	0.63	(0.03)
	Canada	0.73	(0.02)
	Chile	0.32	(0.02)
	Czech Republic	0.60	(0.02)
	Denmark	0.83	(0.04)
	Estonia	0.54	(0.02)
	Finland	0.44	(0.02)
	Germany	0.50	(0.02)
	Greece	0.22	(0.01)
	Hungary	0.58	(0.03)
	Iceland	0.70	(0.00)
	Ireland	0.56	(0.03)
	Israel	0.37	(0.02)
	Italy	0.43	(0.01)
	Japan	0.46	(0.03)
	Korea	0.43	(0.02)
	Luxembourg	0.68	(0.00)
	Mexico	0.29	(0.01)
	Netherlands	0.59	(0.04)
	New Zealand	0.91	(0.03)
	Norway	0.72	(0.02)
	Poland	0.29	(0.01)
	Portugal	0.55	(0.02)
	Slovak Republic	0.44	(0.02)
	Slovenia	0.35	(0.00)
	Spain	0.58	(0.02)
	Sweden	0.43	(0.03)
	Switzerland	0.56	(0.02)
	Turkey	0.22	(0.01)
	United Kingdom	0.89	(0.03)
	United States	0.73	(0.04)
	OECD average-33	0.56	(0.00)

		Ratio of computers to the number of students in the modal grade of 15-year-olds	
		PISA 2009	
		Ratio	S.E.
Partners	Albania	0.28	(0.03)
	Argentina	0.23	(0.02)
	Azerbaijan	0.31	(0.02)
	Brazil	0.16	(0.02)
	Bulgaria	0.43	(0.02)
	Colombia	0.35	(0.02)
	Croatia	0.33	(0.02)
	Dubai (UAE)	0.68	(0.00)
	Hong Kong-China	0.67	(0.03)
	Indonesia	0.15	(0.01)
	Jordan	0.40	(0.02)
	Kazakhstan	0.62	(0.03)
	Kyrgyzstan	0.20	(0.02)
	Latvia	0.64	(0.03)
	Liechtenstein	0.62	(0.00)
	Lithuania	0.49	(0.02)
	Macao-China	0.82	(0.00)
	Montenegro	0.16	(0.00)
	Panama	0.28	(0.02)
	Peru	0.22	(0.01)
	Qatar	0.48	(0.00)
	Romania	0.41	(0.02)
	Russian Federation	0.45	(0.02)
	Serbia	0.22	(0.01)
	Shanghai-China	0.57	(0.03)
	Singapore	0.62	(0.00)
	Chinese Taipei	0.32	(0.01)
	Thailand	0.41	(0.02)
	Trinidad and Tobago	0.33	(0.00)
	Tunisia	0.07	(0.01)
	Uruguay	0.24	(0.01)

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Table VI.5.8b Ratio of computers to the number of students in school in 2000 and 2009

		Ratio of computers to the number of students in school					
		PISA 2000		PISA 2009		Change between 2000 and 2009 (PISA 2009 – PISA 2000)	
		Ratio	S.E.	Ratio	S.E.	Dif.	S.E.
OECD	Australia	0.14	(0.01)	0.18	(0.01)	**0.04**	(0.01)
	Austria	0.12	(0.01)	0.23	(0.01)	**0.11**	(0.02)
	Belgium	0.07	(0.00)	0.13	(0.01)	**0.06**	(0.01)
	Chile	0.02	(0.00)	0.05	(0.00)	**0.03**	(0.00)
	Czech Republic	0.06	(0.00)	0.11	(0.01)	**0.06**	(0.01)
	Denmark	0.10	(0.00)	0.13	(0.01)	**0.03**	(0.01)
	Finland	0.10	(0.00)	0.12	(0.01)	**0.02**	(0.01)
	Germany	0.04	(0.00)	0.09	(0.01)	**0.05**	(0.01)
	Greece	0.04	(0.00)	0.08	(0.01)	**0.04**	(0.01)
	Hungary	0.11	(0.01)	0.14	(0.01)	**0.03**	(0.01)
	Iceland	0.06	(0.00)	0.11	(0.00)	**0.05**	(0.00)
	Ireland	0.06	(0.00)	0.11	(0.01)	**0.05**	(0.01)
	Israel	0.09	(0.01)	0.09	(0.01)	0.00	(0.01)
	Italy	0.06	(0.00)	0.10	(0.00)	**0.04**	(0.01)
	Japan	0.08	(0.01)	0.18	(0.01)	**0.10**	(0.01)
	Korea	0.11	(0.01)	0.14	(0.01)	**0.03**	(0.01)
	Mexico	0.04	(0.00)	0.09	(0.01)	**0.05**	(0.01)
	New Zealand	0.12	(0.00)	0.18	(0.01)	**0.06**	(0.01)
	Norway	0.10	(0.01)	0.21	(0.01)	**0.11**	(0.01)
	Poland	0.07	(0.01)	0.09	(0.00)	**0.02**	(0.01)
	Portugal	0.07	(0.02)	0.10	(0.00)	0.04	(0.02)
	Spain	0.03	(0.00)	0.08	(0.00)	**0.04**	(0.00)
	Sweden	0.07	(0.00)	0.16	(0.06)	0.09	(0.06)
	Switzerland	0.10	(0.01)	0.13	(0.01)	**0.04**	(0.01)
	United States	0.17	(0.01)	0.19	(0.01)	0.03	(0.02)
	OECD average-25	0.08	(0.00)	0.13	(0.00)	**0.05**	(0.00)
Partners	Albania	0.00	(0.00)	0.04	(0.00)	**0.04**	(0.00)
	Argentina	0.02	(0.00)	0.04	(0.00)	**0.02**	(0.00)
	Brazil	0.05	(0.04)	0.03	(0.00)	-0.02	(0.04)
	Bulgaria	0.02	(0.00)	0.07	(0.00)	**0.05**	(0.00)
	Hong Kong-China	0.15	(0.00)	0.12	(0.00)	**-0.03**	(0.01)
	Indonesia	0.01	(0.00)	0.05	(0.00)	**0.03**	(0.00)
	Latvia	0.13	(0.03)	0.08	(0.00)	-0.05	(0.03)
	Liechtenstein	0.14	(0.00)	0.11	(0.00)	**-0.03**	(0.00)
	Peru	0.02	(0.00)	0.06	(0.01)	**0.04**	(0.01)
	Romania	0.02	(0.00)	0.08	(0.00)	**0.06**	(0.00)
	Russian Federation	0.02	(0.00)	0.05	(0.00)	**0.03**	(0.00)
	Thailand	0.04	(0.01)	0.08	(0.00)	**0.05**	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.5.9 Percentage of students with access to computers and the Internet at school

		Access to computers at school		Access to the Internet at school	
		%	S.E.	%	S.E.
OECD	Australia	99.2	(0.1)	98.9	(0.3)
	Austria	97.4	(0.4)	96.5	(0.4)
	Belgium	89.8	(0.9)	88.2	(0.9)
	Canada	98.1	(0.1)	98.4	(0.2)
	Chile	89.8	(0.6)	85.1	(1.1)
	Czech Republic	94.6	(0.4)	95.5	(0.6)
	Denmark	99.4	(0.1)	99.1	(0.2)
	Estonia	91.5	(0.6)	92.7	(0.6)
	Finland	96.7	(0.4)	97.0	(0.4)
	Germany	94.9	(0.6)	94.4	(0.6)
	Greece	87.5	(0.8)	88.1	(0.8)
	Hungary	95.2	(0.5)	95.6	(0.4)
	Iceland	96.7	(0.3)	95.0	(0.4)
	Ireland	95.6	(0.5)	95.1	(0.5)
	Israel	86.4	(0.9)	83.9	(1.0)
	Italy	84.0	(0.6)	72.5	(0.7)
	Japan	88.6	(0.8)	83.8	(0.9)
	Korea	89.9	(0.6)	91.4	(0.6)
	Netherlands	99.7	(0.1)	99.7	(0.1)
	New Zealand	98.3	(0.2)	98.5	(0.3)
	Norway	98.9	(0.2)	98.0	(0.3)
	Poland	93.2	(0.5)	94.9	(0.5)
	Portugal	91.7	(0.5)	96.5	(0.3)
	Slovak Republic	95.0	(0.5)	95.1	(0.8)
	Slovenia	85.2	(0.6)	91.3	(0.5)
	Spain	89.7	(0.6)	90.2	(0.6)
	Sweden	98.0	(0.3)	98.4	(0.2)
	Switzerland	93.8	(0.6)	94.2	(0.7)
	Turkey	80.4	(1.2)	76.8	(1.2)
	OECD average-29	93.1	(0.1)	92.6	(0.1)
Partners	Bulgaria	95.7	(0.5)	88.4	(1.8)
	Croatia	95.2	(0.4)	90.4	(1.0)
	Hong Kong-China	98.2	(0.2)	98.9	(0.2)
	Jordan	88.1	(0.6)	73.5	(1.2)
	Latvia	90.8	(0.6)	94.8	(0.5)
	Liechtenstein	96.4	(1.0)	95.5	(1.1)
	Lithuania	92.1	(0.5)	96.3	(0.3)
	Macao-China	96.7	(0.2)	91.4	(0.4)
	Panama	60.5	(1.8)	47.1	(3.2)
	Qatar	91.5	(0.3)	72.6	(0.4)
	Russian Federation	95.2	(0.6)	89.0	(0.9)
	Serbia	83.9	(0.7)	65.5	(1.9)
	Singapore	97.3	(0.2)	96.5	(0.3)
	Thailand	99.9	(0.0)	99.4	(0.5)
	Trinidad and Tobago	91.9	(0.4)	82.6	(0.5)
	Uruguay	83.8	(0.9)	79.4	(1.1)

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Table VI.5.10a **Percentage of students who reported using a computer at home and at school, by socio-economic background**

		Percentage of students who use the computer:															
		At home								At school							
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	96.7	(0.2)	91.7	(0.6)	99.4	(0.1)	**7.8**	(0.6)	91.6	(0.4)	89.3	(0.8)	94.9	(0.4)	**5.6**	(0.9)
	Austria	98.2	(0.2)	95.7	(0.7)	99.4	(0.2)	**3.7**	(0.7)	84.1	(1.0)	84.7	(1.3)	81.5	(1.9)	-3.2	(2.1)
	Belgium	96.9	(0.2)	92.8	(0.6)	99.7	(0.1)	**6.9**	(0.6)	62.8	(0.9)	62.3	(1.6)	61.2	(1.7)	-1.1	(2.5)
	Canada	96.6	(0.2)	91.6	(0.6)	99.3	(0.2)	**7.7**	(0.7)	81.8	(0.6)	79.3	(0.9)	85.1	(0.9)	**5.8**	(1.2)
	Chile	73.2	(1.2)	37.9	(1.4)	98.2	(0.4)	**60.3**	(1.4)	56.8	(1.5)	57.0	(2.3)	55.0	(2.6)	-2.0	(3.2)
	Czech Republic	95.6	(0.3)	87.0	(1.1)	99.4	(0.2)	**12.4**	(1.2)	79.2	(0.9)	77.5	(1.6)	77.8	(1.2)	0.3	(2.0)
	Denmark	98.8	(0.2)	97.0	(0.6)	99.8	(0.2)	**2.8**	(0.6)	93.0	(0.5)	91.8	(0.8)	93.6	(0.8)	1.8	(1.0)
	Estonia	97.2	(0.3)	91.9	(1.0)	99.8	(0.1)	**7.9**	(1.0)	55.7	(1.4)	55.2	(2.7)	57.7	(2.1)	2.5	(3.1)
	Finland	98.9	(0.1)	97.1	(0.5)	99.8	(0.1)	**2.7**	(0.5)	87.4	(0.8)	85.2	(1.5)	89.3	(1.1)	**4.0**	(1.6)
	Germany	98.4	(0.2)	96.0	(0.6)	99.5	(0.2)	**3.5**	(0.7)	64.6	(1.5)	66.1	(1.8)	62.8	(2.3)	-3.2	(2.7)
	Greece	83.5	(0.7)	65.5	(1.9)	94.2	(0.9)	**28.7**	(2.1)	57.9	(1.6)	60.9	(2.0)	52.7	(2.9)	**-8.2**	(3.3)
	Hungary	91.8	(0.7)	74.7	(2.0)	98.3	(0.4)	**23.6**	(2.0)	69.3	(1.1)	72.5	(1.9)	63.6	(1.9)	**-8.9**	(2.5)
	Iceland	99.1	(0.2)	98.3	(0.4)	99.5	(0.2)	**1.2**	(0.5)	79.5	(0.6)	76.5	(1.4)	81.6	(1.2)	**5.1**	(1.9)
	Ireland	93.2	(0.4)	86.7	(1.0)	97.6	(0.6)	**10.9**	(1.1)	62.9	(1.7)	62.7	(2.0)	63.2	(2.8)	0.4	(3.1)
	Israel	93.8	(0.5)	85.4	(1.3)	98.3	(0.4)	**12.9**	(1.4)	51.2	(1.6)	52.4	(2.0)	55.3	(2.3)	2.9	(2.6)
	Italy	94.3	(0.2)	87.4	(0.7)	98.0	(0.2)	**10.6**	(0.7)	63.8	(0.8)	68.4	(1.3)	56.2	(1.1)	**-12.2**	(1.5)
	Japan	75.9	(0.8)	51.0	(1.8)	89.7	(0.8)	**38.6**	(1.9)	59.3	(2.3)	56.7	(2.9)	59.4	(3.2)	2.6	(3.4)
	Korea	87.5	(0.7)	75.8	(1.9)	95.2	(0.7)	**19.5**	(1.9)	62.7	(1.6)	60.6	(2.5)	64.1	(2.3)	3.5	(3.0)
	Netherlands	99.5	(0.1)	99.1	(0.4)	100.0	(0.0)	**0.9**	(0.4)	96.7	(0.5)	96.8	(0.6)	96.7	(0.6)	-0.1	(0.8)
	New Zealand	92.5	(0.4)	79.2	(1.4)	99.4	(0.2)	**20.2**	(1.4)	83.4	(0.7)	80.5	(1.3)	86.9	(1.0)	**6.4**	(1.6)
	Norway	98.7	(0.2)	97.1	(0.5)	99.8	(0.2)	**2.7**	(0.5)	93.0	(0.6)	91.3	(1.0)	93.9	(0.9)	2.5	(1.3)
	Poland	92.1	(0.4)	76.4	(1.1)	99.3	(0.3)	**22.9**	(1.1)	60.6	(1.4)	66.4	(1.8)	57.3	(2.0)	**-9.1**	(2.3)
	Portugal	96.6	(0.3)	91.9	(0.9)	99.0	(0.3)	**7.2**	(0.9)	55.2	(1.3)	63.9	(1.8)	46.9	(2.8)	**-17.0**	(3.2)
	Slovak Republic	91.8	(0.7)	77.1	(1.8)	99.3	(0.3)	**22.2**	(1.8)	79.4	(1.4)	76.5	(1.8)	78.3	(2.2)	1.8	(2.3)
	Slovenia	95.9	(0.3)	93.7	(0.6)	97.7	(0.5)	**4.0**	(0.9)	58.3	(0.8)	57.6	(1.6)	57.3	(1.9)	-0.4	(2.7)
	Spain	92.6	(0.4)	83.5	(0.9)	97.9	(0.4)	**14.4**	(1.0)	65.5	(1.0)	67.1	(1.5)	63.1	(1.8)	-4.0	(2.1)
	Sweden	97.7	(0.3)	94.5	(0.8)	99.2	(0.3)	**4.7**	(0.8)	89.1	(0.9)	86.0	(1.4)	90.7	(1.2)	**4.7**	(1.7)
	Switzerland	98.2	(0.2)	96.4	(0.5)	99.4	(0.2)	**3.0**	(0.5)	75.7	(1.2)	78.4	(1.5)	71.9	(2.1)	**-6.5**	(2.1)
	Turkey	60.4	(1.2)	22.2	(1.3)	91.8	(0.9)	**69.5**	(1.5)	50.7	(1.5)	45.9	(2.1)	51.6	(2.6)	5.7	(3.2)
	OECD average-29	92.6	(0.1)	83.3	(0.2)	98.2	(0.1)	**14.9**	(0.2)	71.4	(0.2)	71.4	(0.3)	70.7	(0.4)	-0.7	(0.4)
Partners	Bulgaria	88.5	(1.1)	68.6	(2.3)	97.7	(0.5)	**29.1**	(2.2)	85.5	(1.0)	81.8	(1.8)	86.4	(1.6)	**4.6**	(2.2)
	Croatia	94.6	(0.4)	85.2	(1.1)	99.3	(0.3)	**14.2**	(1.1)	68.0	(1.3)	70.6	(2.0)	63.7	(2.1)	**-7.0**	(2.6)
	Hong Kong-China	96.4	(0.3)	93.1	(0.6)	98.3	(0.4)	**5.2**	(0.8)	82.6	(0.8)	82.7	(1.3)	82.9	(1.6)	0.2	(2.0)
	Jordan	71.8	(0.9)	43.1	(1.5)	92.7	(0.9)	**49.6**	(1.8)	74.0	(0.9)	64.6	(1.5)	78.9	(1.4)	**14.3**	(2.0)
	Latvia	88.6	(0.8)	70.8	(2.2)	98.6	(0.4)	**27.7**	(2.2)	47.3	(1.7)	55.6	(2.8)	43.8	(2.8)	**-11.8**	(3.5)
	Liechtenstein	100.0	(0.0)	100.0	(0.0)	100.0	(0.0)	**0.0**	(0.0)	90.9	(1.5)	92.0	(3.8)	87.3	(4.4)	-4.7	(6.0)
	Lithuania	87.7	(0.6)	69.7	(1.5)	97.8	(0.5)	**28.1**	(1.6)	58.0	(1.0)	55.3	(1.8)	58.2	(2.0)	3.0	(2.7)
	Macao-China	96.4	(0.2)	93.3	(0.6)	98.5	(0.3)	**5.2**	(0.7)	80.1	(0.4)	80.1	(0.9)	79.1	(1.1)	-1.0	(1.4)
	Panama	47.3	(2.6)	12.9	(1.9)	92.0	(1.6)	**79.0**	(2.8)	46.0	(2.2)	22.4	(2.7)	75.0	(3.7)	**52.6**	(4.7)
	Qatar	94.0	(0.3)	86.4	(0.7)	98.3	(0.3)	**11.8**	(0.7)	77.5	(0.4)	76.0	(0.9)	81.3	(0.9)	**5.4**	(1.4)
	Russian Federation	77.4	(1.4)	44.7	(2.2)	97.3	(0.3)	**52.6**	(2.2)	72.2	(1.2)	66.6	(2.4)	74.0	(1.4)	**7.4**	(2.7)
	Serbia	80.7	(0.9)	57.8	(1.5)	94.1	(0.7)	**36.4**	(1.5)	71.3	(0.9)	63.3	(1.5)	75.7	(1.4)	**12.4**	(2.2)
	Singapore	94.4	(0.3)	85.8	(0.9)	99.1	(0.3)	**13.3**	(0.9)	62.7	(0.6)	66.3	(1.1)	61.8	(1.5)	**-4.5**	(2.1)
	Thailand	54.4	(1.3)	14.6	(1.2)	92.4	(0.9)	**77.8**	(1.5)	80.2	(1.0)	70.3	(1.7)	88.9	(1.3)	**18.6**	(2.1)
	Trinidad and Tobago	74.1	(0.7)	48.0	(1.9)	95.3	(0.7)	**47.3**	(2.2)	61.7	(0.9)	59.7	(1.7)	60.7	(1.5)	0.9	(2.2)
	Uruguay	73.1	(0.8)	40.8	(1.4)	95.8	(0.6)	**55.0**	(1.5)	47.7	(1.3)	48.6	(1.8)	49.5	(2.6)	0.9	(3.0)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 1/1]
Table VI.5.10b **Percentage of students who reported using a computer at home and at school**

		Among students who use the computer at home				Among students who do not use the computer at home			
		Percentage of students who do not use the computer at school		Percentage of students who use the computer at school		Percentage of students who do not use the computer at school		Percentage of students who use the computer at school	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	7.7	(0.4)	92.3	(0.4)	26.4	(2.2)	73.6	(2.2)
	Austria	15.6	(1.0)	84.4	(1.0)	33.4	(4.7)	66.6	(4.7)
	Belgium	36.3	(0.9)	63.7	(0.9)	64.0	(3.8)	36.0	(3.8)
	Canada	17.3	(0.6)	82.7	(0.6)	43.9	(3.0)	56.1	(3.0)
	Chile	40.6	(1.7)	59.4	(1.7)	50.6	(2.0)	49.4	(2.0)
	Czech Republic	19.8	(0.9)	80.2	(0.9)	42.7	(3.8)	57.3	(3.8)
	Denmark	6.8	(0.5)	93.2	(0.5)	21.8	(5.7)	78.2	(5.7)
	Estonia	44.3	(1.4)	55.7	(1.4)	44.6	(5.1)	55.4	(5.1)
	Finland	12.4	(0.8)	87.6	(0.8)	28.7	(6.7)	71.3	(6.7)
	Germany	35.2	(1.5)	64.8	(1.5)	49.5	(6.4)	50.5	(6.4)
	Greece	38.5	(1.7)	61.5	(1.7)	61.1	(2.2)	38.9	(2.2)
	Hungary	29.9	(1.2)	70.1	(1.2)	39.6	(3.4)	60.4	(3.4)
	Iceland	20.2	(0.6)	79.8	(0.6)	55.7	(7.6)	44.3	(7.6)
	Ireland	35.6	(1.7)	64.4	(1.7)	56.9	(3.4)	43.1	(3.4)
	Israel	48.2	(1.7)	51.8	(1.7)	58.1	(3.9)	41.9	(3.9)
	Italy	35.4	(0.8)	64.6	(0.8)	49.7	(2.4)	50.3	(2.4)
	Japan	36.5	(2.4)	63.5	(2.4)	52.9	(2.9)	47.1	(2.9)
	Korea	33.9	(1.6)	66.1	(1.6)	61.0	(2.4)	39.0	(2.4)
	Netherlands	3.2	(0.5)	96.8	(0.5)	c	c	c	c
	New Zealand	15.0	(0.7)	85.0	(0.7)	35.8	(2.6)	64.2	(2.6)
	Norway	6.7	(0.6)	93.3	(0.6)	28.4	(5.5)	71.6	(5.5)
	Poland	38.9	(1.4)	61.1	(1.4)	45.3	(2.7)	54.7	(2.7)
	Portugal	44.7	(1.4)	55.3	(1.4)	46.6	(3.9)	53.4	(3.9)
	Slovak Republic	19.1	(1.4)	80.9	(1.4)	37.6	(3.5)	62.4	(3.5)
	Slovenia	40.5	(0.8)	59.5	(0.8)	66.1	(3.9)	33.9	(3.9)
	Spain	33.6	(1.0)	66.4	(1.0)	45.6	(3.0)	54.4	(3.0)
	Sweden	9.9	(0.8)	90.1	(0.8)	51.0	(5.6)	49.0	(5.6)
	Switzerland	23.8	(1.2)	76.2	(1.2)	46.2	(4.4)	53.8	(4.4)
	Turkey	43.7	(1.9)	56.3	(1.9)	57.7	(1.9)	42.3	(1.9)
	OECD average-29	27.4	(0.2)	72.6	(0.2)	46.4	(0.8)	53.6	(0.8)
Partners	Bulgaria	12.0	(1.0)	88.0	(1.0)	33.8	(3.4)	66.2	(3.4)
	Croatia	31.3	(1.3)	68.7	(1.3)	44.7	(3.7)	55.3	(3.7)
	Hong Kong-China	16.5	(0.8)	83.5	(0.8)	40.0	(3.6)	60.0	(3.6)
	Jordan	17.4	(0.9)	82.6	(0.9)	47.6	(1.4)	52.4	(1.4)
	Latvia	53.4	(1.7)	46.6	(1.7)	46.9	(4.4)	53.1	(4.4)
	Liechtenstein	9.1	(1.5)	90.9	(1.5)	c	c	c	c
	Lithuania	39.6	(1.1)	60.4	(1.1)	59.4	(2.1)	40.6	(2.1)
	Macao-China	18.9	(0.4)	81.1	(0.4)	46.7	(3.4)	53.3	(3.4)
	Panama	26.4	(2.4)	73.6	(2.4)	79.5	(2.2)	20.5	(2.2)
	Qatar	20.8	(0.4)	79.2	(0.4)	49.1	(2.4)	50.9	(2.4)
	Russian Federation	23.9	(1.2)	76.1	(1.2)	41.1	(2.1)	58.9	(2.1)
	Serbia	21.2	(0.8)	78.8	(0.8)	60.4	(1.7)	39.6	(1.7)
	Singapore	36.8	(0.7)	63.2	(0.7)	44.5	(2.7)	55.5	(2.7)
	Thailand	8.9	(0.8)	91.1	(0.8)	32.7	(1.5)	67.3	(1.5)
	Trinidad and Tobago	34.1	(1.0)	65.9	(1.0)	50.7	(1.5)	49.3	(1.5)
	Uruguay	49.2	(1.5)	50.8	(1.5)	60.6	(1.6)	39.4	(1.6)

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Table VI.5.11 **Percentage of students who reported using the Internet at home and at school**

		Percentage of students who use the Internet			
		At home		At school	
		%	S.E.	%	S.E.
OECD	Australia	94.9	(0.2)	92.5	(0.5)
	Austria	95.6	(0.3)	82.3	(1.1)
	Belgium	96.2	(0.2)	60.3	(1.1)
	Canada	95.6	(0.2)	84.2	(0.5)
	Chile	55.2	(1.5)	54.3	(1.4)
	Czech Republic	92.2	(0.5)	81.0	(1.2)
	Denmark	98.2	(0.2)	96.0	(0.3)
	Estonia	95.5	(0.4)	58.8	(1.4)
	Finland	98.6	(0.2)	88.2	(0.8)
	Germany	95.8	(0.4)	63.4	(1.4)
	Greece	69.6	(1.1)	57.0	(1.5)
	Hungary	84.9	(1.0)	69.5	(1.4)
	Iceland	98.6	(0.2)	78.9	(0.7)
	Ireland	91.1	(0.5)	62.8	(1.8)
	Israel	88.1	(0.7)	46.2	(1.7)
	Italy	86.0	(0.4)	45.6	(0.9)
	Japan	76.3	(0.8)	47.2	(1.9)
	Korea	96.0	(0.4)	65.4	(1.5)
	Netherlands	99.2	(0.2)	96.5	(0.4)
	New Zealand	90.1	(0.5)	84.8	(0.7)
	Norway	98.4	(0.2)	93.4	(0.6)
	Poland	84.6	(0.8)	63.4	(1.4)
	Portugal	90.6	(0.7)	64.3	(1.2)
	Slovak Republic	84.2	(0.8)	79.9	(1.4)
	Slovenia	94.8	(0.3)	62.2	(0.8)
	Spain	84.1	(0.7)	65.1	(1.0)
	Sweden	97.5	(0.3)	89.7	(0.9)
	Switzerland	97.1	(0.2)	75.8	(1.3)
	Turkey	52.6	(1.2)	45.1	(1.5)
	OECD average-29	89.0	(0.1)	70.8	(0.2)
Partners	Bulgaria	84.0	(1.3)	75.7	(2.0)
	Croatia	85.6	(0.7)	62.0	(1.7)
	Hong Kong-China	96.5	(0.3)	82.9	(0.8)
	Jordan	34.5	(1.2)	44.5	(1.6)
	Latvia	81.5	(1.1)	52.0	(1.9)
	Liechtenstein	99.3	(0.5)	91.6	(1.4)
	Lithuania	85.4	(0.6)	65.2	(1.0)
	Macao-China	96.1	(0.3)	66.3	(0.5)
	Panama	37.4	(3.0)	33.2	(3.0)
	Qatar	87.5	(0.3)	48.1	(0.4)
	Russian Federation	54.4	(1.4)	53.9	(1.9)
	Serbia	61.1	(1.1)	47.7	(2.2)
	Singapore	94.3	(0.3)	61.8	(0.6)
	Thailand	32.8	(1.2)	79.6	(1.0)
	Trinidad and Tobago	54.1	(0.8)	51.8	(0.7)
	Uruguay	59.0	(0.8)	43.0	(1.3)

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Table VI.5.12 **Percentage of students in schools whose principals reported shortage or inadequacy of computers for instruction**

		Percentage of students in schools where the principal reported shortage or inadequacy of computers for instruction													
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	% dif.	S.E.
OECD	Australia	28.7	(2.8)	29.6	(3.1)	27.9	(2.9)	1.8	(2.3)	33.2	(3.3)	21.5	(2.8)	**-11.7**	(2.7)
	Austria	22.1	(3.0)	23.0	(3.2)	21.1	(3.6)	1.9	(3.5)	24.8	(3.4)	24.5	(4.9)	-0.2	(5.1)
	Belgium	35.3	(3.5)	35.3	(3.5)	35.4	(3.9)	-0.1	(2.4)	34.6	(3.7)	38.6	(5.1)	4.0	(4.8)
	Canada	30.8	(2.0)	30.9	(2.0)	30.8	(2.0)	0.2	(0.8)	30.8	(2.3)	28.9	(2.6)	-1.9	(2.6)
	Chile	47.1	(3.6)	45.5	(3.5)	48.7	(4.5)	-3.2	(3.6)	59.6	(4.6)	32.6	(4.0)	**-27.0**	(5.4)
	Czech Republic	28.3	(3.2)	26.5	(3.2)	30.5	(3.7)	-4.1	(2.8)	30.7	(3.6)	29.0	(4.1)	-1.7	(4.0)
	Denmark	26.5	(3.0)	27.5	(3.1)	25.5	(3.0)	2.0	(1.2)	23.3	(3.5)	28.8	(3.8)	5.4	(3.8)
	Estonia	24.5	(2.9)	24.7	(3.1)	24.4	(2.9)	0.3	(1.2)	24.3	(3.5)	25.0	(3.2)	0.7	(3.0)
	Finland	41.6	(3.7)	41.8	(3.7)	41.3	(3.8)	0.5	(1.0)	40.6	(4.3)	42.8	(4.3)	2.2	(4.1)
	France	w	w	w	w	w	w	w	w	w	w	w	w	w	w
	Germany	28.6	(2.9)	27.7	(3.1)	29.6	(2.9)	-1.9	(1.8)	27.8	(3.7)	34.1	(4.4)	6.4	(5.0)
	Greece	42.9	(3.9)	41.5	(3.9)	44.3	(4.2)	-2.8	(2.1)	43.2	(4.6)	36.7	(4.8)	-6.5	(4.7)
	Hungary	16.7	(3.1)	15.9	(3.0)	17.6	(3.7)	-1.7	(2.4)	17.4	(3.6)	17.4	(4.6)	0.0	(5.2)
	Iceland	23.5	(0.2)	22.0	(0.3)	25.1	(0.3)	**-3.1**	(0.5)	24.8	(1.3)	23.2	(1.3)	-1.5	(2.0)
	Ireland	50.8	(4.1)	52.1	(4.8)	49.3	(5.3)	2.8	(5.8)	49.5	(5.1)	49.9	(5.5)	0.4	(5.9)
	Israel	35.6	(3.5)	34.3	(3.7)	37.0	(4.1)	-2.7	(3.3)	38.2	(4.6)	34.3	(4.3)	-3.9	(4.8)
	Italy	29.5	(1.7)	30.0	(1.9)	28.8	(1.8)	1.2	(1.6)	30.0	(2.2)	28.2	(2.1)	-1.8	(2.4)
	Japan	13.8	(2.4)	15.2	(2.6)	12.2	(2.5)	3.0	(1.9)	15.6	(3.5)	12.3	(2.2)	-3.3	(2.9)
	Korea	8.0	(2.3)	9.6	(3.3)	6.2	(2.6)	3.5	(3.6)	7.5	(2.8)	7.1	(2.5)	-0.4	(2.8)
	Luxembourg	29.0	(0.1)	31.6	(0.2)	26.3	(0.2)	**5.2**	(0.3)	29.3	(1.0)	25.8	(1.2)	-3.5	(1.9)
	Mexico	60.2	(1.8)	60.7	(2.0)	59.6	(1.8)	1.1	(1.1)	75.4	(1.6)	41.8	(2.6)	**-33.6**	(2.6)
	Netherlands	36.3	(4.0)	35.5	(4.1)	37.0	(4.1)	-1.5	(1.4)	37.7	(5.1)	34.7	(4.8)	-3.0	(5.4)
	New Zealand	43.4	(3.2)	43.9	(3.5)	42.9	(4.0)	0.9	(4.1)	42.1	(4.1)	41.5	(3.8)	-0.6	(4.3)
	Norway	36.6	(3.6)	36.9	(3.7)	36.3	(3.6)	0.7	(0.8)	36.4	(4.0)	35.4	(4.3)	-1.0	(3.6)
	Poland	20.1	(2.7)	19.5	(2.7)	20.6	(2.9)	-1.1	(1.1)	19.3	(3.2)	19.8	(3.4)	0.4	(3.3)
	Portugal	50.2	(4.1)	49.5	(4.3)	50.9	(4.1)	-1.4	(1.6)	52.8	(5.0)	43.6	(4.4)	**-9.2**	(4.7)
	Slovak Republic	39.0	(4.2)	37.8	(4.2)	40.2	(4.8)	-2.3	(3.4)	38.6	(4.5)	41.0	(5.4)	2.3	(5.6)
	Slovenia	9.3	(0.3)	9.2	(0.5)	9.5	(0.3)	-0.3	(0.6)	10.0	(0.6)	5.9	(0.6)	**-4.1**	(0.9)
	Spain	38.9	(2.9)	38.0	(2.8)	39.8	(3.1)	-1.9	(1.3)	41.7	(4.3)	33.2	(3.9)	**-8.5**	(4.6)
	Sweden	51.5	(4.0)	52.0	(4.1)	51.0	(3.9)	1.0	(1.2)	53.7	(4.7)	48.6	(4.8)	-5.1	(4.8)
	Switzerland	17.3	(2.6)	16.0	(2.6)	18.7	(3.1)	-2.7	(2.4)	17.8	(3.8)	17.1	(2.6)	-0.7	(3.9)
	Turkey	88.8	(2.6)	89.8	(2.5)	87.7	(2.8)	2.0	(1.6)	90.2	(2.7)	89.3	(3.1)	-1.0	(3.3)
	United Kingdom	32.2	(2.9)	31.9	(3.4)	32.5	(3.3)	-0.5	(3.5)	25.6	(2.9)	37.1	(4.2)	**11.5**	(4.3)
	United States	25.9	(4.2)	25.7	(4.4)	26.1	(4.2)	-0.3	(1.5)	29.3	(4.7)	22.6	(6.7)	-6.7	(6.9)
	OECD average-33	33.7	(0.5)	33.7	(0.6)	33.8	(0.6)	**-0.1**	(0.4)	35.0	(0.6)	31.9	(0.7)	**-3.1**	(0.7)
Partners	Albania	45.1	(3.7)	45.8	(3.9)	44.3	(3.8)	1.6	(2.2)	56.4	(4.6)	38.4	(4.7)	**-18.0**	(5.3)
	Argentina	63.4	(3.7)	62.8	(3.8)	63.9	(3.9)	-1.1	(2.0)	74.9	(4.3)	46.2	(5.8)	**-28.7**	(6.8)
	Azerbaijan	51.0	(4.1)	52.0	(4.0)	50.0	(4.3)	2.0	(1.4)	54.6	(5.1)	47.0	(5.5)	-7.6	(6.5)
	Brazil	62.5	(2.1)	62.2	(2.3)	62.9	(2.1)	-0.7	(0.9)	72.2	(2.3)	45.2	(2.9)	**-27.0**	(3.1)
	Bulgaria	33.5	(4.8)	34.6	(5.6)	32.2	(4.8)	2.4	(4.0)	30.6	(5.0)	34.8	(6.3)	4.2	(6.1)
	Colombia	66.9	(3.9)	67.3	(3.9)	66.5	(4.1)	0.8	(2.1)	78.2	(4.2)	52.1	(4.9)	**-26.1**	(5.5)
	Croatia	34.2	(3.9)	32.1	(3.9)	36.5	(4.6)	-4.4	(3.5)	32.9	(4.5)	34.7	(5.0)	1.9	(5.2)
	Dubai (UAE)	14.1	(0.1)	12.6	(0.1)	15.7	(0.1)	**-3.1**	(0.2)	24.5	(0.8)	9.3	(0.7)	**-15.2**	(1.2)
	Hong Kong-China	11.7	(2.7)	12.4	(3.0)	11.0	(2.6)	1.4	(1.6)	13.7	(3.6)	8.1	(2.5)	-5.5	(3.3)
	Indonesia	64.8	(4.6)	64.9	(4.8)	64.6	(5.1)	0.3	(3.9)	77.4	(4.6)	46.2	(6.4)	**-31.2**	(6.7)
	Jordan	52.0	(3.8)	54.4	(4.9)	49.5	(5.7)	4.9	(7.5)	57.9	(5.0)	43.4	(4.4)	**-14.5**	(5.1)
	Kazakhstan	63.0	(3.4)	64.3	(3.5)	61.8	(3.5)	2.5	(1.5)	72.0	(4.0)	58.6	(4.9)	**-13.4**	(5.6)
	Kyrgyzstan	73.5	(3.5)	74.7	(3.6)	72.3	(3.7)	2.4	(1.3)	73.7	(4.3)	73.1	(5.0)	-0.6	(5.6)
	Latvia	32.1	(4.0)	31.6	(3.9)	32.6	(4.3)	-1.0	(1.7)	31.8	(4.2)	32.3	(4.9)	0.5	(4.6)
	Liechtenstein	0.0	c	c	c	c	c	c	c	c	c	c	c	c	c
	Lithuania	42.9	(3.2)	42.3	(3.2)	43.4	(3.3)	-1.1	(1.4)	42.7	(3.4)	40.2	(3.7)	-2.5	(3.6)
	Macao-China	24.2	(0.0)	27.7	(0.1)	20.5	(0.1)	**7.2**	(0.1)	24.7	(1.0)	21.6	(1.0)	**-3.1**	(1.5)
	Montenegro	56.3	(1.0)	55.1	(1.1)	57.5	(0.9)	**-2.4**	(0.5)	50.0	(2.2)	62.9	(1.1)	**12.9**	(2.5)
	Panama	63.8	(4.7)	65.7	(5.3)	61.9	(5.1)	3.8	(4.5)	84.0	(4.5)	27.2	(5.3)	**-56.8**	(5.9)
	Peru	73.0	(3.1)	73.7	(3.3)	72.3	(3.4)	1.4	(2.4)	83.1	(4.3)	54.2	(5.8)	**-28.9**	(7.0)
	Qatar	22.8	(0.1)	18.9	(0.2)	26.8	(0.1)	**-7.8**	(0.2)	26.6	(0.8)	17.6	(0.7)	**-9.0**	(1.3)
	Romania	24.5	(3.2)	24.8	(3.4)	24.2	(3.5)	0.6	(2.6)	24.5	(4.6)	25.8	(4.1)	1.3	(5.4)
	Russian Federation	63.0	(2.9)	63.5	(3.0)	62.4	(3.1)	1.1	(1.6)	68.3	(3.6)	58.4	(4.2)	**-10.0**	(4.7)
	Serbia	40.7	(3.9)	39.4	(4.0)	42.0	(4.6)	-2.6	(3.8)	39.2	(4.6)	43.5	(4.5)	4.3	(4.7)
	Shanghai-China	25.1	(3.4)	25.5	(3.6)	24.7	(3.4)	0.8	(1.5)	25.4	(4.3)	22.8	(4.3)	-2.6	(5.2)
	Singapore	9.8	(0.1)	8.8	(0.2)	11.0	(0.2)	**-2.2**	(0.3)	10.7	(0.7)	7.2	(0.7)	**-3.5**	(1.1)
	Chinese Taipei	23.2	(3.1)	23.3	(3.5)	23.1	(3.5)	0.2	(3.1)	28.3	(4.2)	22.2	(3.5)	-6.1	(4.1)
	Thailand	54.4	(3.9)	52.3	(4.3)	56.0	(4.2)	-3.7	(3.0)	65.5	(4.6)	39.1	(5.7)	**-26.4**	(6.5)
	Trinidad and Tobago	58.6	(0.3)	58.3	(0.6)	58.9	(0.4)	-0.5	(0.7)	58.9	(1.5)	56.1	(1.3)	-2.7	(2.2)
	Tunisia	64.9	(4.3)	64.6	(4.3)	65.1	(4.4)	-0.5	(1.4)	69.8	(5.1)	63.5	(5.6)	-6.4	(6.2)
	Uruguay	36.9	(2.6)	35.3	(2.6)	38.3	(2.8)	-3.0	(1.6)	45.2	(3.7)	25.2	(2.7)	**-20.0**	(3.9)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
StatLink http://dx.doi.org/10.1787/888932436613

[Part 1/1]
Percentage of students who reported that they did the following activity at home for leisure at least once a week
Table VI.5.13 *Results based on students' self-reports*

		Percentage of students who reported that they did the following activity at home at least once a week ("Once or twice a week" or "Everyday or almost every day")															
		Play one-player games		Play collaborative online games		Use e-mail		Chat on line		Browse the Internet for fun		Download music, films, games or software from the Internet		Publish and maintain a personal website, weblog or blog		Participate in online forums, virtual communities or spaces	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	39.3	(0.6)	27.1	(0.6)	75.8	(0.6)	78.4	(0.5)	80.5	(0.5)	66.1	(0.5)	33.6	(0.6)	62.0	(0.6)
	Austria	43.5	(1.2)	33.1	(1.1)	75.3	(0.9)	79.2	(0.8)	88.1	(0.5)	56.9	(1.0)	29.6	(0.7)	39.3	(1.4)
	Belgium	38.6	(0.7)	32.0	(0.7)	77.3	(0.7)	84.6	(0.5)	87.5	(0.4)	68.4	(0.7)	52.1	(0.7)	28.8	(0.6)
	Canada	40.0	(0.5)	31.2	(0.5)	83.3	(0.4)	82.0	(0.4)	87.6	(0.4)	73.3	(0.5)	21.0	(0.4)	71.3	(0.4)
	Chile	41.8	(0.8)	26.1	(0.8)	62.5	(1.1)	67.8	(1.2)	66.8	(1.0)	65.1	(1.1)	35.9	(0.8)	21.8	(0.7)
	Czech Republic	50.5	(1.1)	46.8	(1.2)	82.8	(0.7)	86.6	(0.6)	88.1	(0.5)	77.0	(0.7)	21.7	(0.8)	33.3	(0.7)
	Denmark	45.9	(0.8)	46.3	(1.0)	78.1	(0.7)	89.0	(0.5)	92.8	(0.4)	61.8	(0.9)	24.5	(0.7)	26.4	(0.8)
	Estonia	45.1	(1.0)	44.0	(0.9)	80.1	(0.7)	92.0	(0.5)	93.2	(0.4)	77.4	(0.9)	27.3	(0.7)	78.3	(0.7)
	Finland	45.3	(0.9)	37.7	(0.8)	76.2	(0.6)	85.9	(0.5)	93.7	(0.4)	56.7	(0.8)	16.4	(0.5)	58.2	(0.9)
	Germany	41.0	(0.8)	33.8	(0.9)	72.2	(0.8)	85.6	(0.6)	87.1	(0.6)	51.1	(0.9)	21.0	(0.8)	26.8	(0.8)
	Greece	56.5	(0.8)	38.7	(1.0)	59.4	(0.9)	63.0	(1.0)	73.3	(0.9)	66.7	(0.9)	27.5	(0.8)	31.5	(0.8)
	Hungary	58.9	(1.1)	44.8	(1.1)	69.4	(0.9)	78.3	(1.0)	84.7	(0.9)	72.3	(1.0)	25.3	(0.7)	66.3	(1.0)
	Iceland	50.0	(0.8)	34.8	(0.6)	65.8	(0.9)	90.9	(0.5)	93.3	(0.4)	62.7	(0.7)	16.1	(0.5)	76.8	(0.8)
	Ireland	35.9	(0.9)	22.1	(0.9)	53.4	(1.1)	61.9	(1.2)	79.9	(0.8)	58.0	(1.0)	29.5	(0.8)	67.3	(0.8)
	Israel	55.7	(0.8)	38.2	(0.9)	67.2	(1.0)	58.8	(0.9)	78.8	(0.9)	75.7	(1.0)	28.3	(0.8)	52.2	(0.9)
	Italy	53.7	(0.5)	34.9	(0.5)	65.6	(0.5)	77.0	(0.4)	80.8	(0.4)	70.3	(0.5)	38.7	(0.4)	27.5	(0.4)
	Japan	19.4	(0.6)	9.5	(0.4)	19.9	(0.6)	8.2	(0.4)	59.6	(0.8)	35.8	(0.7)	18.1	(0.6)	10.1	(0.5)
	Korea	40.2	(1.3)	45.2	(1.3)	32.6	(0.9)	58.8	(1.2)	73.9	(0.7)	72.5	(0.8)	42.9	(0.9)	52.5	(1.1)
	Netherlands	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	New Zealand	44.4	(0.9)	31.8	(0.8)	70.5	(0.8)	62.6	(0.9)	79.1	(0.7)	59.9	(0.8)	30.1	(0.8)	43.1	(0.9)
	Norway	47.7	(1.0)	42.4	(0.8)	73.6	(0.8)	90.3	(0.5)	94.5	(0.4)	75.2	(0.8)	26.4	(0.8)	80.3	(0.7)
	Poland	52.3	(0.8)	39.6	(0.8)	51.8	(0.7)	79.3	(0.8)	78.9	(0.8)	70.2	(0.9)	21.8	(0.9)	67.8	(0.9)
	Portugal	53.8	(0.8)	35.9	(0.9)	78.4	(0.7)	67.4	(0.7)	83.6	(0.7)	64.2	(0.8)	38.4	(0.9)	30.1	(0.7)
	Slovak Republic	52.7	(0.8)	38.1	(1.2)	67.0	(0.8)	76.1	(0.8)	82.0	(0.8)	70.4	(0.8)	25.9	(0.7)	29.5	(0.8)
	Slovenia	51.6	(0.8)	40.5	(0.8)	82.5	(0.6)	87.1	(0.6)	90.2	(0.5)	84.2	(0.6)	45.0	(0.8)	47.6	(0.8)
	Spain	36.1	(0.6)	26.1	(0.7)	68.1	(0.5)	81.5	(0.5)	83.0	(0.5)	75.0	(0.5)	42.1	(0.6)	33.1	(0.6)
	Sweden	42.4	(0.8)	45.3	(0.8)	72.0	(0.7)	89.4	(0.5)	93.9	(0.4)	61.3	(0.8)	33.5	(0.8)	20.6	(0.7)
	Switzerland	36.8	(0.7)	29.2	(0.7)	78.3	(0.6)	82.6	(0.7)	88.1	(0.4)	62.4	(0.8)	34.0	(0.8)	28.9	(0.8)
	Turkey	42.5	(1.0)	31.3	(0.8)	55.8	(1.0)	64.0	(1.0)	54.7	(0.9)	53.2	(1.0)	27.2	(1.0)	50.6	(1.0)
	OECD average-28	45.1	(0.2)	35.2	(0.2)	67.7	(0.1)	75.3	(0.1)	82.8	(0.1)	65.9	(0.2)	29.8	(0.1)	45.1	(0.2)
Partners	Bulgaria	58.1	(1.2)	59.2	(1.2)	60.4	(1.0)	80.1	(1.4)	81.1	(1.2)	84.5	(1.1)	49.1	(0.9)	50.6	(0.8)
	Croatia	57.9	(0.8)	36.2	(0.9)	60.9	(0.8)	72.6	(0.8)	79.2	(0.8)	67.5	(0.8)	27.1	(0.8)	34.4	(0.7)
	Hong Kong-China	46.6	(0.9)	45.7	(1.0)	61.3	(0.8)	86.2	(0.5)	85.9	(0.5)	64.6	(0.8)	41.1	(0.9)	57.7	(0.9)
	Jordan	55.3	(0.9)	28.4	(0.9)	34.5	(1.0)	35.6	(1.0)	39.5	(1.1)	47.1	(1.0)	28.0	(0.9)	29.0	(1.0)
	Latvia	45.4	(1.0)	39.1	(1.1)	73.3	(0.9)	77.6	(1.0)	79.9	(1.1)	78.5	(1.1)	26.3	(0.9)	74.0	(0.8)
	Liechtenstein	51.1	(2.7)	40.4	(2.3)	83.4	(1.8)	87.0	(1.6)	92.2	(1.4)	60.4	(2.9)	40.9	(2.3)	31.5	(2.5)
	Lithuania	53.1	(0.9)	44.4	(0.7)	72.9	(0.8)	82.6	(0.8)	83.3	(0.7)	81.7	(0.7)	27.0	(0.8)	40.1	(0.8)
	Macao-China	47.1	(0.6)	49.6	(0.5)	46.1	(0.6)	88.1	(0.4)	83.8	(0.4)	75.9	(0.6)	45.0	(0.7)	40.8	(0.6)
	Panama	31.3	(1.1)	26.3	(1.3)	48.7	(2.8)	52.8	(2.4)	53.1	(2.2)	51.5	(2.1)	26.1	(1.8)	40.5	(2.2)
	Qatar	51.0	(0.4)	45.6	(0.5)	74.4	(0.4)	72.1	(0.5)	71.1	(0.4)	70.9	(0.5)	35.4	(0.4)	44.8	(0.5)
	Russian Federation	55.8	(0.9)	30.8	(1.1)	41.2	(1.2)	51.3	(1.3)	49.8	(1.5)	51.5	(1.4)	20.1	(0.8)	38.0	(1.1)
	Serbia	68.9	(0.9)	31.5	(0.9)	44.6	(1.0)	49.7	(0.9)	60.7	(0.9)	57.3	(0.9)	25.8	(0.8)	33.8	(0.9)
	Singapore	49.3	(0.8)	49.4	(0.7)	71.0	(0.6)	81.6	(0.6)	87.7	(0.5)	62.7	(0.7)	41.7	(0.7)	62.0	(0.7)
	Thailand	34.7	(1.1)	19.5	(0.9)	27.0	(1.1)	27.3	(1.1)	26.5	(1.0)	25.1	(1.1)	15.2	(0.7)	20.7	(0.9)
	Trinidad and Tobago	49.9	(0.9)	27.0	(0.7)	45.6	(0.7)	43.7	(0.7)	54.2	(0.7)	48.0	(0.7)	20.4	(0.6)	43.7	(0.7)
	Uruguay	45.3	(0.6)	28.3	(0.7)	62.2	(0.8)	65.5	(0.7)	65.3	(0.7)	63.2	(0.7)	34.8	(0.8)	27.6	(0.7)

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[Part 1/2]
Table VI.5.14 Index of computer use at home for leisure and reading performance
Results based on students' self-reports

		Index of computer use at home for leisure (28 OECD countries)															
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Second quarter of ESCS[1]		Third quarter of ESCS[1]		Top quarter of ESCS[1]	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.06	(0.01)	0.14	(0.02)	-0.01	(0.01)	**0.15**	(0.02)	**-0.06**	(0.02)	0.06	(0.02)	0.11	(0.02)	**0.14**	(0.02)
	Austria	0.01	(0.02)	0.20	(0.02)	-0.17	(0.02)	**0.36**	(0.03)	**-0.14**	(0.04)	0.03	(0.03)	0.10	(0.02)	**0.05**	(0.03)
	Belgium	0.10	(0.01)	0.22	(0.02)	-0.02	(0.01)	**0.24**	(0.02)	0.05	(0.02)	0.16	(0.02)	0.13	(0.02)	0.06	(0.02)
	Canada	0.18	(0.01)	0.25	(0.01)	0.11	(0.01)	**0.14**	(0.02)	**0.06**	(0.02)	0.21	(0.01)	0.20	(0.02)	**0.24**	(0.01)
	Chile	-0.33	(0.03)	-0.22	(0.04)	-0.46	(0.03)	**0.24**	(0.04)	**-1.13**	(0.04)	-0.46	(0.04)	-0.02	(0.03)	**0.27**	(0.02)
	Czech Republic	0.19	(0.01)	0.39	(0.02)	-0.04	(0.02)	**0.43**	(0.02)	**-0.07**	(0.04)	0.24	(0.02)	0.30	(0.03)	**0.27**	(0.03)
	Denmark	0.11	(0.01)	0.33	(0.02)	-0.11	(0.01)	**0.44**	(0.02)	**0.06**	(0.03)	0.11	(0.02)	0.12	(0.02)	**0.15**	(0.03)
	Estonia	0.39	(0.01)	0.54	(0.02)	0.24	(0.02)	**0.31**	(0.03)	**0.23**	(0.03)	0.48	(0.03)	0.42	(0.03)	**0.45**	(0.02)
	Finland	0.12	(0.01)	0.27	(0.02)	-0.03	(0.01)	**0.29**	(0.02)	**0.07**	(0.02)	0.10	(0.02)	0.15	(0.02)	**0.15**	(0.02)
	Germany	-0.09	(0.02)	0.16	(0.02)	-0.33	(0.02)	**0.49**	(0.03)	**-0.14**	(0.04)	-0.14	(0.03)	-0.02	(0.03)	**-0.04**	(0.02)
	Greece	-0.11	(0.03)	0.19	(0.04)	-0.39	(0.04)	**0.58**	(0.05)	**-0.58**	(0.06)	-0.13	(0.04)	0.12	(0.04)	**0.17**	(0.03)
	Hungary	0.21	(0.02)	0.38	(0.03)	0.04	(0.03)	**0.34**	(0.04)	**-0.27**	(0.05)	0.35	(0.03)	0.40	(0.03)	**0.35**	(0.03)
	Iceland	0.18	(0.01)	0.33	(0.02)	0.03	(0.01)	**0.29**	(0.02)	**0.13**	(0.02)	0.18	(0.02)	0.20	(0.02)	**0.20**	(0.03)
	Ireland	-0.18	(0.02)	-0.14	(0.03)	-0.23	(0.03)	**0.09**	(0.04)	**-0.30**	(0.03)	-0.21	(0.04)	-0.16	(0.04)	**-0.08**	(0.04)
	Israel	0.08	(0.02)	0.14	(0.04)	0.01	(0.02)	**0.13**	(0.04)	**-0.13**	(0.03)	0.10	(0.03)	0.16	(0.05)	**0.22**	(0.03)
	Italy	0.01	(0.01)	0.14	(0.01)	-0.14	(0.01)	**0.28**	(0.02)	**-0.28**	(0.02)	0.01	(0.02)	0.13	(0.02)	**0.17**	(0.02)
	Japan	-1.26	(0.02)	-1.22	(0.02)	-1.30	(0.02)	**0.08**	(0.03)	**-1.57**	(0.03)	-1.22	(0.03)	-1.16	(0.03)	**-1.07**	(0.03)
	Korea	-0.12	(0.02)	-0.05	(0.03)	-0.20	(0.03)	**0.16**	(0.04)	**-0.05**	(0.04)	-0.10	(0.03)	-0.14	(0.03)	**-0.19**	(0.03)
	New Zealand	-0.13	(0.02)	-0.06	(0.03)	-0.21	(0.02)	**0.15**	(0.03)	**-0.33**	(0.04)	-0.11	(0.03)	-0.07	(0.03)	**-0.02**	(0.03)
	Norway	0.37	(0.02)	0.52	(0.02)	0.21	(0.02)	**0.31**	(0.03)	0.35	(0.03)	0.39	(0.03)	0.38	(0.03)	0.37	(0.02)
	Poland	0.07	(0.02)	0.26	(0.03)	-0.13	(0.03)	**0.39**	(0.03)	**-0.52**	(0.05)	0.15	(0.03)	0.34	(0.03)	**0.31**	(0.03)
	Portugal	0.03	(0.02)	0.29	(0.03)	-0.22	(0.02)	**0.51**	(0.03)	**-0.28**	(0.04)	0.06	(0.03)	0.17	(0.03)	**0.16**	(0.03)
	Slovak Republic	0.01	(0.02)	0.28	(0.03)	-0.26	(0.02)	**0.54**	(0.04)	**-0.50**	(0.05)	0.06	(0.04)	0.21	(0.03)	**0.27**	(0.03)
	Slovenia	0.41	(0.01)	0.62	(0.02)	0.19	(0.02)	**0.43**	(0.02)	**0.28**	(0.03)	0.47	(0.03)	0.45	(0.03)	**0.44**	(0.03)
	Spain	-0.03	(0.01)	0.10	(0.02)	-0.16	(0.02)	**0.25**	(0.02)	**-0.28**	(0.03)	-0.01	(0.03)	0.09	(0.02)	**0.08**	(0.02)
	Sweden	0.09	(0.01)	0.31	(0.02)	-0.13	(0.01)	**0.44**	(0.02)	**0.03**	(0.03)	0.07	(0.02)	0.11	(0.02)	**0.13**	(0.02)
	Switzerland	-0.02	(0.02)	0.15	(0.03)	-0.20	(0.01)	**0.35**	(0.03)	-0.04	(0.03)	-0.03	(0.03)	0.03	(0.02)	-0.05	(0.02)
	Turkey	-0.41	(0.03)	-0.16	(0.04)	-0.69	(0.04)	**0.54**	(0.06)	**-1.32**	(0.05)	-0.51	(0.04)	-0.10	(0.04)	**0.29**	(0.03)
	OECD average-28	0.00	(0.00)	0.16	(0.00)	-0.16	(0.00)	**0.32**	(0.01)	**-0.24**	(0.01)	0.01	(0.01)	0.09	(0.01)	**0.13**	(0.01)
Partners	Bulgaria	0.43	(0.03)	0.60	(0.04)	0.25	(0.04)	**0.36**	(0.05)	**-0.18**	(0.07)	0.57	(0.05)	0.64	(0.04)	**0.71**	(0.04)
	Croatia	-0.01	(0.02)	0.15	(0.02)	-0.20	(0.03)	**0.36**	(0.03)	**-0.57**	(0.04)	0.02	(0.04)	0.19	(0.02)	**0.30**	(0.03)
	Hong Kong-China	0.18	(0.01)	0.21	(0.02)	0.14	(0.02)	**0.07**	(0.02)	**0.05**	(0.02)	0.17	(0.02)	0.24	(0.02)	**0.25**	(0.03)
	Jordan	-0.68	(0.03)	-0.37	(0.04)	-0.99	(0.04)	**0.62**	(0.06)	**-1.32**	(0.04)	-0.86	(0.04)	-0.50	(0.04)	**-0.02**	(0.04)
	Latvia	0.18	(0.03)	0.40	(0.04)	-0.02	(0.03)	**0.42**	(0.04)	**-0.20**	(0.07)	0.24	(0.04)	0.37	(0.03)	**0.33**	(0.03)
	Liechtenstein	0.18	(0.04)	0.36	(0.07)	-0.02	(0.06)	**0.38**	(0.10)	0.07	(0.09)	0.08	(0.08)	0.48	(0.14)	0.11	(0.09)
	Lithuania	0.18	(0.02)	0.41	(0.02)	-0.05	(0.02)	**0.46**	(0.03)	**-0.25**	(0.05)	0.28	(0.03)	0.37	(0.03)	**0.34**	(0.03)
	Macao-China	0.16	(0.01)	0.25	(0.01)	0.08	(0.01)	**0.16**	(0.02)	**-0.01**	(0.02)	0.16	(0.02)	0.24	(0.02)	**0.27**	(0.02)
	Panama	-0.62	(0.08)	-0.52	(0.07)	-0.73	(0.11)	**0.21**	(0.08)	**-1.70**	(0.07)	-1.12	(0.10)	-0.17	(0.06)	**0.51**	(0.06)
	Qatar	0.16	(0.01)	0.26	(0.02)	0.06	(0.02)	**0.20**	(0.03)	**-0.24**	(0.03)	0.11	(0.03)	0.25	(0.02)	**0.50**	(0.03)
	Russian Federation	-0.52	(0.04)	-0.25	(0.05)	-0.78	(0.05)	**0.53**	(0.05)	**-1.37**	(0.06)	-0.64	(0.06)	-0.21	(0.05)	**0.15**	(0.04)
	Serbia	-0.31	(0.03)	-0.07	(0.04)	-0.55	(0.03)	**0.48**	(0.05)	**-1.02**	(0.04)	-0.42	(0.04)	-0.05	(0.04)	**0.26**	(0.04)
	Singapore	0.23	(0.01)	0.29	(0.02)	0.17	(0.02)	**0.12**	(0.02)	**0.11**	(0.03)	0.25	(0.03)	0.29	(0.03)	**0.26**	(0.02)
	Thailand	-1.65	(0.04)	-1.52	(0.07)	-1.75	(0.06)	**0.22**	(0.09)	**-2.88**	(0.02)	-2.21	(0.03)	-1.42	(0.06)	**-0.08**	(0.05)
	Trinidad and Tobago	-0.60	(0.02)	-0.51	(0.03)	-0.68	(0.03)	**0.17**	(0.05)	**-1.40**	(0.04)	-0.78	(0.05)	-0.32	(0.04)	**0.13**	(0.04)
	Uruguay	-0.34	(0.02)	-0.14	(0.03)	-0.52	(0.03)	**0.38**	(0.04)	**-1.21**	(0.04)	-0.45	(0.04)	-0.02	(0.04)	**0.32**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 2/2]
Table VI.5.14 Index of computer use at home for leisure and reading performance
Results based on students' self-reports

		Digital reading performance, by national quarters of this index (15 OECD countries)								Print reading performance, by national quarters of this index (28 OECD countries)							
		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	Australia	535	(3.0)	547	(3.2)	544	(3.0)	535	(3.8)	521	(2.6)	529	(2.8)	520	(2.6)	504	(3.4)
	Austria	465	(4.8)	477	(4.0)	471	(4.3)	452	(5.5)	482	(4.1)	489	(3.8)	479	(4.0)	452	(3.6)
	Belgium	511	(2.8)	527	(2.6)	520	(2.8)	504	(2.8)	521	(3.0)	528	(2.9)	517	(2.9)	492	(3.3)
	Canada	m	m	m	m	m	m	m	m	530	(2.1)	534	(2.1)	532	(2.1)	509	(2.2)
	Chile	405	(3.8)	426	(4.5)	457	(4.2)	461	(4.3)	432	(3.5)	444	(3.9)	469	(4.3)	466	(3.7)
	Czech Republic	m	m	m	m	m	m	m	m	486	(4.0)	489	(3.2)	485	(3.9)	458	(4.0)
	Denmark	488	(3.5)	491	(3.5)	492	(3.2)	492	(3.2)	506	(3.1)	502	(3.3)	493	(2.8)	485	(2.9)
	Estonia	m	m	m	m	m	m	m	m	513	(3.5)	512	(3.8)	504	(3.4)	479	(3.8)
	Finland	m	m	m	m	m	m	m	m	549	(3.7)	545	(3.1)	533	(3.3)	521	(3.4)
	Germany	m	m	m	m	m	m	m	m	517	(3.9)	521	(3.7)	508	(3.8)	478	(4.3)
	Greece	m	m	m	m	m	m	m	m	489	(5.0)	488	(6.0)	492	(5.1)	471	(4.9)
	Hungary	442	(7.0)	491	(5.0)	481	(4.9)	463	(4.7)	478	(6.2)	515	(4.0)	505	(3.7)	482	(3.7)
	Iceland	511	(2.7)	524	(3.4)	517	(3.4)	503	(3.1)	510	(3.0)	516	(3.8)	507	(4.1)	477	(3.4)
	Ireland	502	(3.6)	519	(3.6)	518	(3.6)	511	(4.6)	501	(4.0)	511	(3.9)	505	(3.5)	487	(4.6)
	Israel	m	m	m	m	m	m	m	m	467	(6.2)	479	(4.6)	501	(3.9)	476	(5.1)
	Italy	m	m	m	m	m	m	m	m	487	(2.1)	498	(2.1)	494	(1.9)	474	(2.4)
	Japan	504	(2.4)	524	(2.6)	532	(2.6)	536	(3.3)	513	(4.3)	533	(3.4)	532	(3.3)	519	(4.9)
	Korea	577	(3.8)	576	(3.6)	566	(3.4)	554	(4.2)	561	(4.0)	552	(3.6)	535	(3.7)	511	(4.9)
	New Zealand	527	(3.4)	550	(3.7)	549	(3.9)	540	(4.0)	525	(3.6)	536	(3.8)	528	(3.9)	510	(4.1)
	Norway	507	(4.1)	509	(3.4)	503	(3.2)	485	(3.8)	520	(3.8)	517	(3.6)	504	(3.3)	479	(3.4)
	Poland	436	(4.4)	478	(3.7)	477	(3.8)	469	(3.8)	488	(3.9)	518	(3.4)	511	(3.5)	491	(3.6)
	Portugal	m	m	m	m	m	m	m	m	487	(4.4)	499	(3.7)	493	(4.3)	482	(3.4)
	Slovak Republic	m	m	m	m	m	m	m	m	462	(4.7)	494	(3.5)	489	(3.4)	471	(3.7)
	Slovenia	m	m	m	m	m	m	m	m	498	(2.7)	499	(2.7)	488	(3.2)	461	(2.2)
	Spain	462	(4.6)	484	(5.1)	489	(4.6)	476	(5.0)	474	(2.7)	492	(2.9)	492	(2.7)	475	(2.6)
	Sweden	513	(4.1)	517	(3.9)	514	(3.8)	507	(4.3)	513	(4.1)	509	(3.6)	498	(4.1)	480	(3.6)
	Switzerland	m	m	m	m	m	m	m	m	519	(3.2)	515	(3.1)	501	(3.2)	471	(3.9)
	Turkey	m	m	m	m	m	m	m	m	451	(4.3)	469	(3.9)	477	(4.1)	464	(5.0)
	OECD average-28	492	(1.0)	509	(1.0)	509	(1.0)	499	(1.1)	500	(0.7)	508	(0.7)	503	(0.7)	483	(0.7)
Partners	Bulgaria	m	m	m	m	m	m	m	m	391	(7.0)	452	(8.0)	468	(6.6)	428	(8.0)
	Croatia	m	m	m	m	m	m	m	m	460	(4.0)	492	(4.1)	487	(3.6)	471	(3.6)
	Hong Kong-China	501	(3.5)	519	(3.2)	520	(3.1)	523	(3.7)	534	(3.5)	540	(2.9)	537	(3.0)	527	(3.2)
	Jordan	m	m	m	m	m	m	m	m	407	(4.0)	423	(3.5)	399	(4.7)	416	(5.0)
	Latvia	m	m	m	m	m	m	m	m	481	(4.3)	496	(4.5)	493	(3.5)	471	(3.8)
	Liechtenstein	m	m	m	m	m	m	m	m	522	(7.9)	501	(7.9)	501	(7.8)	473	(9.1)
	Lithuania	m	m	m	m	m	m	m	m	461	(4.1)	485	(3.3)	476	(3.1)	455	(3.2)
	Macao-China	484	(1.7)	495	(1.9)	497	(1.7)	493	(1.8)	492	(2.4)	494	(2.0)	489	(2.3)	475	(2.2)
	Panama	m	m	m	m	m	m	m	m	345	(6.3)	357	(6.2)	395	(10.5)	422	(8.2)
	Qatar	m	m	m	m	m	m	m	m	359	(2.4)	387	(2.6)	393	(2.3)	361	(2.2)
	Russian Federation	m	m	m	m	m	m	m	m	447	(5.0)	453	(3.3)	480	(4.6)	466	(4.5)
	Serbia	m	m	m	m	m	m	m	m	430	(3.2)	447	(3.5)	456	(3.5)	442	(3.5)
	Singapore	m	m	m	m	m	m	m	m	529	(2.6)	539	(3.5)	526	(3.1)	513	(2.7)
	Thailand	m	m	m	m	m	m	m	m	400	(3.2)	403	(3.2)	430	(3.1)	453	(4.5)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	407	(3.6)	418	(3.3)	440	(3.8)	437	(3.5)
	Uruguay	m	m	m	m	m	m	m	m	405	(3.2)	423	(4.0)	454	(4.1)	442	(3.6)

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Table VI.5.15 Percentage of students who reported that they did the following activity at home for schoolwork at least once a week

Results based on students' self-reports

		Percentage of students who reported that they did the following at least once a week ("Once or twice a week" or "Everyday or almost every day")											
		Browse the Internet for schoolwork		Do homework on the computer[1]		Use e-mail for communication with other students about schoolwork		Use e-mail for communication with teachers and submission of homework or other schoolwork		Download, upload or browse material from the school's website		Check the school's website for announcements	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	68.0	(0.8)	75.3	(0.7)	34.8	(1.0)	17.5	(0.9)	18.7	(1.0)	11.1	(0.7)
	Austria	42.7	(0.9)	52.4	(1.3)	35.4	(1.0)	12.6	(0.7)	23.6	(1.3)	26.4	(1.7)
	Belgium	43.2	(0.7)	46.4	(0.9)	35.1	(0.7)	8.7	(0.4)	15.0	(0.6)	12.7	(0.8)
	Canada	54.1	(0.7)	68.6	(0.6)	42.8	(0.7)	15.6	(0.6)	18.3	(0.6)	15.1	(0.7)
	Chile	47.5	(1.3)	70.4	(1.0)	50.1	(1.3)	15.9	(0.8)	22.6	(0.9)	12.3	(0.8)
	Czech Republic	45.9	(0.8)	49.0	(1.1)	37.7	(0.8)	14.1	(0.8)	34.3	(1.0)	32.8	(1.3)
	Denmark	61.1	(1.2)	77.8	(1.0)	28.5	(0.8)	15.5	(0.9)	22.3	(1.2)	26.7	(1.6)
	Estonia	50.5	(0.9)	56.7	(1.1)	40.6	(0.9)	14.2	(0.7)	65.1	(1.5)	57.1	(1.6)
	Finland	17.8	(0.8)	15.8	(0.9)	10.7	(0.6)	3.2	(0.3)	6.1	(0.4)	9.5	(0.6)
	Germany	40.0	(0.8)	44.0	(1.0)	36.8	(0.8)	9.7	(0.6)	12.2	(0.9)	11.4	(1.0)
	Greece	41.6	(0.9)	35.8	(0.8)	41.5	(0.9)	21.1	(0.8)	25.1	(0.8)	14.6	(0.7)
	Hungary	50.5	(1.1)	48.2	(0.9)	45.6	(0.9)	15.4	(0.8)	17.8	(1.0)	19.6	(1.1)
	Iceland	31.7	(0.8)	47.2	(0.9)	20.4	(0.7)	14.1	(0.6)	21.3	(0.8)	17.8	(0.6)
	Ireland	28.8	(0.9)	25.3	(1.0)	18.0	(0.7)	5.4	(0.5)	8.3	(0.6)	5.8	(0.5)
	Israel	43.8	(0.9)	43.4	(0.9)	33.9	(0.9)	23.8	(0.8)	33.6	(1.0)	34.6	(1.4)
	Italy	46.2	(0.5)	41.5	(0.5)	35.0	(0.4)	10.0	(0.3)	16.8	(0.4)	13.3	(0.5)
	Japan	9.1	(0.4)	4.7	(0.4)	18.2	(0.6)	2.1	(0.2)	4.1	(0.3)	2.8	(0.3)
	Korea	42.0	(1.0)	50.8	(1.3)	19.9	(0.7)	10.7	(0.7)	20.0	(1.0)	13.9	(0.9)
	Netherlands	53.2	(1.2)	m	m	42.8	(0.9)	10.8	(0.7)	48.0	(1.8)	69.8	(2.3)
	New Zealand	51.8	(0.9)	67.6	(0.8)	24.3	(0.8)	12.3	(0.7)	15.5	(0.8)	11.5	(0.6)
	Norway	63.7	(1.2)	72.7	(1.3)	15.1	(0.7)	10.3	(0.6)	32.7	(1.5)	25.6	(1.4)
	Poland	56.7	(0.9)	73.4	(0.8)	28.6	(0.8)	8.9	(0.5)	26.2	(0.8)	14.6	(0.8)
	Portugal	60.7	(1.0)	48.5	(0.9)	54.2	(1.0)	25.5	(1.0)	27.1	(0.9)	22.8	(1.0)
	Slovak Republic	39.4	(1.0)	35.5	(1.1)	50.3	(0.8)	14.9	(0.9)	28.1	(1.1)	26.4	(1.5)
	Slovenia	44.4	(0.8)	38.5	(0.8)	49.7	(0.7)	20.2	(0.6)	33.3	(0.7)	33.2	(0.7)
	Spain	48.5	(0.6)	40.9	(0.7)	44.7	(0.5)	13.3	(0.5)	17.3	(0.5)	13.1	(0.6)
	Sweden	47.5	(0.9)	55.7	(1.0)	22.1	(0.8)	14.0	(0.6)	16.6	(0.8)	9.6	(0.7)
	Switzerland	37.5	(0.9)	42.4	(1.0)	33.3	(0.8)	11.0	(0.6)	15.8	(0.8)	13.5	(1.1)
	Turkey	53.1	(1.0)	65.5	(1.0)	45.3	(1.0)	32.1	(1.0)	22.5	(0.9)	27.4	(1.0)
	OECD average-29	45.6	(0.2)	49.8	(0.2)	34.3	(0.2)	13.9	(0.1)	23.0	(0.2)	20.9	(0.2)
Partners	Bulgaria	51.6	(1.3)	55.4	(1.0)	45.9	(0.7)	28.8	(1.2)	50.7	(1.2)	31.6	(1.3)
	Croatia	40.6	(0.8)	33.1	(0.9)	49.7	(0.9)	10.8	(0.7)	38.4	(1.0)	15.0	(1.0)
	Hong Kong-China	44.3	(1.2)	64.4	(1.4)	39.8	(0.8)	14.1	(0.7)	22.2	(1.0)	14.4	(1.0)
	Jordan	29.9	(1.0)	44.0	(1.0)	27.4	(1.0)	21.1	(1.0)	25.6	(0.9)	21.4	(0.9)
	Latvia	41.2	(1.4)	43.3	(1.3)	46.6	(0.9)	17.9	(0.8)	33.8	(1.2)	26.9	(1.5)
	Liechtenstein	34.2	(2.4)	41.3	(2.7)	31.7	(2.1)	10.7	(1.6)	12.6	(1.8)	9.2	(1.4)
	Lithuania	44.3	(1.0)	47.5	(0.9)	48.2	(0.8)	13.0	(0.6)	20.8	(0.9)	17.9	(0.9)
	Macao-China	31.6	(0.5)	54.5	(0.6)	26.6	(0.5)	12.0	(0.5)	17.4	(0.5)	11.1	(0.4)
	Panama	53.5	(2.5)	64.9	(2.1)	43.9	(2.6)	19.6	(1.4)	31.0	(1.8)	22.2	(2.2)
	Qatar	52.7	(0.4)	54.7	(0.5)	54.9	(0.5)	29.6	(0.5)	37.9	(0.5)	27.2	(0.4)
	Russian Federation	34.1	(1.0)	44.0	(1.2)	21.8	(0.7)	12.0	(0.7)	17.6	(0.6)	14.1	(0.8)
	Serbia	28.0	(0.9)	21.8	(0.7)	23.9	(0.8)	8.2	(0.5)	16.0	(0.6)	11.4	(0.6)
	Singapore	43.5	(0.7)	54.2	(0.7)	41.1	(0.7)	26.5	(0.8)	29.6	(0.7)	24.3	(0.7)
	Thailand	27.0	(1.1)	36.7	(1.0)	25.5	(1.1)	17.5	(0.8)	17.9	(0.9)	14.8	(0.7)
	Trinidad and Tobago	43.2	(0.8)	60.4	(0.8)	31.0	(0.7)	14.2	(0.5)	18.1	(0.6)	11.1	(0.5)
	Uruguay	54.1	(1.0)	61.7	(1.0)	40.2	(0.8)	17.2	(0.7)	28.5	(0.8)	14.4	(0.8)

1. This item is not used in the index of computer use at home for schoolwork.

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Table VI.5.16 **Index of computer use at home for schoolwork, and reading performance**
Results based on students' self-reports

		Index of computer use at home for schoolwork (29 OECD countries)															
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Second quarter of ESCS[1]		Third quarter of ESCS[1]		Top quarter of ESCS[1]	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.11	0.02	0.05	(0.03)	0.16	(0.03)	**-0.11**	(0.03)	**-0.18**	(0.02)	0.01	(0.03)	0.20	(0.03)	**0.43**	(0.03)
	Austria	0.03	0.03	-0.01	(0.03)	0.08	(0.03)	**-0.09**	(0.04)	**-0.19**	(0.03)	-0.01	(0.04)	0.14	(0.04)	**0.19**	(0.04)
	Belgium	-0.06	0.02	-0.10	(0.02)	-0.03	(0.02)	**-0.07**	(0.02)	**-0.21**	(0.03)	-0.05	(0.03)	-0.02	(0.02)	**0.04**	(0.02)
	Canada	0.09	0.02	0.03	(0.03)	0.15	(0.02)	**-0.12**	(0.03)	**-0.19**	(0.02)	0.01	(0.02)	0.16	(0.02)	**0.39**	(0.03)
	Chile	-0.13	0.03	-0.11	(0.04)	-0.15	(0.04)	0.04	(0.05)	**-0.82**	(0.04)	-0.32	(0.04)	0.16	(0.04)	**0.48**	(0.03)
	Czech Republic	0.22	0.02	0.16	(0.03)	0.29	(0.03)	**-0.13**	(0.04)	**-0.10**	(0.03)	0.21	(0.03)	0.34	(0.03)	**0.42**	(0.03)
	Denmark	0.17	0.03	0.15	(0.03)	0.19	(0.03)	-0.04	(0.03)	**-0.02**	(0.03)	0.15	(0.03)	0.20	(0.03)	**0.36**	(0.04)
	Estonia	0.59	0.02	0.56	(0.03)	0.62	(0.02)	**-0.07**	(0.03)	**0.34**	(0.04)	0.64	(0.03)	0.67	(0.03)	**0.72**	(0.03)
	Finland	-0.55	0.02	-0.58	(0.02)	-0.52	(0.02)	**-0.05**	(0.03)	**-0.72**	(0.02)	-0.57	(0.02)	-0.49	(0.02)	**-0.41**	(0.03)
	Germany	-0.13	0.02	-0.13	(0.02)	-0.12	(0.02)	-0.01	(0.03)	**-0.24**	(0.03)	-0.17	(0.03)	-0.07	(0.03)	**-0.02**	(0.03)
	Greece	-0.05	0.02	0.11	(0.03)	-0.21	(0.04)	**0.32**	(0.05)	**-0.43**	(0.04)	-0.05	(0.04)	0.11	(0.04)	**0.17**	(0.04)
	Hungary	0.07	0.02	0.07	(0.03)	0.07	(0.03)	0.01	(0.04)	**-0.32**	(0.05)	0.16	(0.03)	0.22	(0.03)	**0.21**	(0.04)
	Iceland	-0.08	0.02	-0.13	(0.03)	-0.04	(0.02)	**-0.10**	(0.03)	**-0.24**	(0.03)	-0.10	(0.03)	-0.06	(0.03)	**0.07**	(0.04)
	Ireland	-0.62	0.02	-0.65	(0.03)	-0.60	(0.03)	-0.05	(0.04)	**-0.84**	(0.03)	-0.64	(0.04)	-0.54	(0.04)	**-0.47**	(0.03)
	Israel	0.22	0.03	0.14	(0.04)	0.30	(0.03)	**-0.16**	(0.04)	**0.03**	(0.03)	0.18	(0.05)	0.29	(0.05)	**0.41**	(0.05)
	Italy	-0.17	0.01	-0.15	(0.02)	-0.19	(0.01)	0.03	(0.02)	**-0.44**	(0.02)	-0.19	(0.02)	-0.07	(0.02)	**0.03**	(0.02)
	Japan	-1.02	0.02	-1.07	(0.02)	-0.97	(0.02)	**-0.11**	(0.03)	**-1.23**	(0.02)	-1.01	(0.02)	-0.98	(0.03)	**-0.86**	(0.03)
	Korea	-0.06	0.02	-0.15	(0.03)	0.04	(0.03)	**-0.19**	(0.04)	**-0.26**	(0.04)	-0.09	(0.03)	-0.02	(0.03)	**0.14**	(0.03)
	Netherlands	0.61	0.03	0.54	(0.04)	0.67	(0.03)	**-0.13**	(0.03)	**0.48**	(0.04)	0.56	(0.03)	0.61	(0.03)	**0.79**	(0.03)
	New Zealand	-0.16	0.02	-0.22	(0.02)	-0.10	(0.02)	**-0.12**	(0.03)	**-0.48**	(0.04)	-0.21	(0.04)	-0.07	(0.03)	**0.13**	(0.03)
	Norway	0.12	0.03	0.09	(0.03)	0.15	(0.03)	**-0.06**	(0.02)	**-0.05**	(0.03)	0.08	(0.03)	0.17	(0.04)	**0.30**	(0.03)
	Poland	-0.03	0.02	0.00	(0.03)	-0.06	(0.02)	0.05	(0.03)	**-0.43**	(0.04)	0.01	(0.03)	0.14	(0.03)	**0.19**	(0.03)
	Portugal	0.37	0.02	0.40	(0.03)	0.34	(0.02)	**0.05**	(0.03)	**0.13**	(0.04)	0.41	(0.03)	0.47	(0.03)	**0.47**	(0.03)
	Slovak Republic	0.13	0.03	0.11	(0.04)	0.15	(0.03)	-0.05	(0.04)	**-0.34**	(0.05)	0.12	(0.04)	0.33	(0.04)	**0.41**	(0.04)
	Slovenia	0.38	0.01	0.42	(0.02)	0.33	(0.02)	**0.10**	(0.03)	**0.22**	(0.03)	0.42	(0.02)	0.40	(0.03)	**0.47**	(0.02)
	Spain	-0.03	0.02	-0.03	(0.02)	-0.04	(0.02)	0.01	(0.02)	**-0.30**	(0.02)	-0.03	(0.03)	0.07	(0.02)	**0.13**	(0.02)
	Sweden	-0.11	0.02	-0.11	(0.02)	-0.10	(0.02)	-0.01	(0.03)	**-0.30**	(0.04)	-0.15	(0.03)	-0.07	(0.03)	**0.11**	(0.03)
	Switzerland	-0.13	0.02	-0.12	(0.02)	-0.14	(0.03)	0.03	(0.03)	**-0.15**	(0.03)	-0.18	(0.03)	-0.12	(0.02)	**-0.06**	(0.03)
	Turkey	0.18	0.03	0.25	(0.03)	0.10	(0.04)	**0.15**	(0.05)	**-0.34**	(0.04)	0.15	(0.04)	0.35	(0.03)	**0.54**	(0.04)
	OECD average	0.00	(0.00)	-0.02	(0.01)	0.01	(0.00)	**-0.03**	(0.01)	**-0.26**	(0.01)	-0.02	(0.01)	0.09	(0.01)	**0.20**	(0.01)
Partners	Bulgaria	0.48	0.03	0.53	(0.04)	0.42	(0.03)	**0.11**	(0.05)	**0.12**	(0.06)	0.58	(0.04)	0.59	(0.05)	**0.64**	(0.04)
	Croatia	0.10	0.02	0.13	(0.02)	0.08	(0.03)	0.05	(0.03)	**-0.33**	(0.03)	0.09	(0.03)	0.27	(0.02)	**0.39**	(0.03)
	Hong Kong-China	0.12	0.02	0.08	(0.03)	0.16	(0.03)	**-0.08**	(0.04)	**-0.13**	(0.02)	0.04	(0.03)	0.21	(0.03)	**0.38**	(0.05)
	Jordan	-0.31	0.03	-0.04	(0.05)	-0.57	(0.05)	**0.54**	(0.07)	**-0.77**	(0.04)	-0.47	(0.05)	-0.14	(0.05)	**0.15**	(0.04)
	Latvia	0.18	0.03	0.19	(0.04)	0.17	(0.03)	0.03	(0.04)	**-0.16**	(0.05)	0.21	(0.04)	0.31	(0.03)	**0.36**	(0.03)
	Liechtenstein	-0.23	0.05	-0.21	(0.08)	-0.25	(0.06)	0.04	(0.09)	-0.32	(0.11)	-0.33	(0.10)	-0.12	(0.13)	-0.17	(0.07)
	Lithuania	0.05	0.02	0.06	(0.02)	0.04	(0.02)	0.01	(0.03)	**-0.31**	(0.04)	0.14	(0.03)	0.22	(0.03)	**0.16**	(0.03)
	Macao-China	-0.15	0.01	-0.20	(0.02)	-0.10	(0.01)	**-0.11**	(0.02)	**-0.38**	(0.02)	-0.23	(0.02)	-0.10	(0.02)	**0.12**	(0.02)
	Panama	0.03	0.07	0.08	(0.07)	-0.01	(0.09)	0.09	(0.08)	**-0.71**	(0.08)	-0.35	(0.07)	0.36	(0.06)	**0.84**	(0.08)
	Qatar	0.43	0.01	0.48	(0.02)	0.39	(0.01)	**0.09**	(0.02)	**0.20**	(0.02)	0.38	(0.02)	0.46	(0.02)	**0.70**	(0.02)
	Russian Federation	-0.52	0.03	-0.41	(0.03)	-0.63	(0.03)	**0.21**	(0.03)	**-1.12**	(0.04)	-0.63	(0.04)	-0.34	(0.05)	**0.01**	(0.04)
	Serbia	-0.56	0.02	-0.50	(0.03)	-0.62	(0.03)	**0.12**	(0.04)	**-0.99**	(0.04)	-0.65	(0.04)	-0.41	(0.03)	**-0.20**	(0.03)
	Singapore	0.25	0.02	0.19	(0.02)	0.30	(0.02)	**-0.11**	(0.03)	**-0.03**	(0.04)	0.18	(0.03)	0.29	(0.03)	**0.53**	(0.03)
	Thailand	-0.89	0.04	-0.84	(0.06)	-0.94	(0.05)	0.10	(0.07)	**-1.81**	(0.02)	-1.41	(0.03)	-0.76	(0.05)	**0.41**	(0.05)
	Trinidad and Tobago	-0.40	0.02	-0.35	(0.03)	-0.44	(0.03)	**0.09**	(0.04)	**-0.98**	(0.04)	-0.57	(0.04)	-0.13	(0.03)	**0.13**	(0.03)
	Uruguay	-0.09	0.02	-0.03	(0.03)	-0.15	(0.03)	**0.12**	(0.04)	**-0.72**	(0.04)	-0.20	(0.04)	0.16	(0.03)	**0.39**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 2/2]
Table VI.5.16 Index of computer use at home for schoolwork, and reading performance
Results based on students' self-reports

		Digital reading performance, by national quarters of this index (15 OECD countries)								Print reading performance, by national quarters of this index (29 OECD countries)							
		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	Australia	514	(3.1)	549	(3.3)	554	(3.4)	547	(4.8)	491	(2.9)	530	(2.5)	531	(3.2)	526	(4.9)
	Austria	449	(5.0)	477	(4.1)	475	(4.7)	464	(5.9)	456	(4.6)	487	(4.2)	485	(3.9)	475	(4.8)
	Belgium	499	(3.2)	529	(2.6)	531	(2.3)	504	(3.3)	500	(3.5)	529	(3.3)	529	(2.9)	500	(3.5)
	Canada	m	m	m	m	m	m	m	m	515	(1.9)	540	(2.1)	537	(2.2)	515	(2.9)
	Chile	414	(3.8)	436	(4.8)	455	(4.6)	446	(4.5)	436	(3.4)	452	(3.7)	466	(4.0)	457	(4.5)
	Czech Republic	m	m	m	m	m	m	m	m	460	(3.9)	488	(3.4)	495	(4.1)	476	(5.2)
	Denmark	485	(3.6)	498	(4.0)	493	(3.6)	486	(4.1)	489	(3.2)	504	(3.6)	502	(3.2)	492	(3.6)
	Estonia	m	m	m	m	m	m	m	m	499	(3.3)	509	(3.7)	508	(3.5)	492	(4.1)
	Finland	m	m	m	m	m	m	m	m	522	(3.5)	555	(3.1)	550	(3.8)	523	(4.1)
	Germany	m	m	m	m	m	m	m	m	501	(4.1)	525	(3.6)	513	(3.7)	486	(5.1)
	Greece	m	m	m	m	m	m	m	m	491	(5.9)	510	(4.9)	484	(5.7)	454	(4.7)
	Hungary	453	(6.4)	492	(5.1)	477	(5.3)	456	(6.2)	484	(5.0)	516	(3.7)	503	(4.1)	477	(5.2)
	Iceland	492	(3.4)	528	(3.0)	523	(3.0)	515	(2.7)	484	(3.3)	521	(3.3)	511	(3.2)	496	(3.0)
	Ireland	487	(3.9)	533	(3.4)	530	(3.9)	500	(4.8)	477	(4.0)	528	(3.4)	519	(3.8)	480	(5.0)
	Israel	m	m	m	m	m	m	m	m	482	(6.0)	494	(3.9)	480	(4.8)	468	(5.2)
	Italy	m	m	m	m	m	m	m	m	475	(2.4)	506	(2.0)	504	(2.0)	469	(2.7)
	Japan	508	(2.6)	518	(2.8)	537	(2.9)	534	(3.5)	501	(5.5)	515	(4.5)	546	(3.8)	536	(4.9)
	Korea	554	(4.2)	578	(3.5)	574	(3.0)	567	(4.3)	524	(4.8)	552	(3.5)	548	(3.6)	534	(4.7)
	Netherlands	m	m	m	m	m	m	m	m	481	(7.2)	513	(5.4)	527	(5.4)	528	(5.7)
	New Zealand	522	(3.8)	559	(3.3)	559	(3.1)	528	(4.3)	506	(4.1)	545	(3.5)	541	(3.6)	507	(4.5)
	Norway	484	(4.7)	513	(3.3)	512	(3.6)	498	(4.3)	487	(3.7)	520	(3.4)	517	(3.4)	496	(4.3)
	Poland	451	(3.9)	487	(3.8)	474	(4.3)	450	(4.0)	496	(3.3)	522	(3.5)	510	(3.6)	480	(4.1)
	Portugal	m	m	m	m	m	m	m	m	491	(4.2)	502	(3.9)	500	(3.7)	468	(3.8)
	Slovak Republic	m	m	m	m	m	m	m	m	458	(4.6)	492	(3.4)	492	(3.5)	474	(4.0)
	Slovenia	m	m	m	m	m	m	m	m	493	(2.8)	500	(2.6)	492	(2.7)	462	(3.0)
	Spain	464	(4.5)	496	(4.8)	491	(4.7)	461	(5.1)	472	(2.7)	501	(2.5)	493	(2.8)	466	(3.0)
	Sweden	504	(3.8)	527	(3.8)	524	(4.0)	497	(5.1)	485	(3.7)	517	(3.8)	513	(4.3)	487	(5.0)
	Switzerland	m	m	m	m	m	m	m	m	502	(3.3)	517	(3.8)	510	(3.6)	477	(6.1)
	Turkey	m	m	m	m	m	m	m	m	462	(4.4)	477	(4.6)	470	(4.6)	452	(4.3)
	OECD average	485	(1.1)	515	(1.0)	514	(1.0)	497	(1.2)	487	(0.8)	513	(0.7)	510	(0.7)	488	(0.8)
Partners	Bulgaria	m	m	m	m	m	m	m	m	432	(8.1)	458	(7.2)	439	(6.9)	411	(7.5)
	Croatia	m	m	m	m	m	m	m	m	456	(3.7)	493	(3.7)	490	(3.8)	472	(4.4)
	Hong Kong-China	489	(3.8)	518	(3.4)	522	(3.1)	535	(3.2)	508	(3.5)	539	(2.8)	544	(3.1)	548	(3.9)
	Jordan	m	m	m	m	m	m	m	m	413	(4.0)	433	(3.7)	411	(4.5)	390	(4.9)
	Latvia	m	m	m	m	m	m	m	m	495	(3.9)	501	(3.9)	487	(3.8)	460	(4.6)
	Liechtenstein	m	m	m	m	m	m	m	m	485	(9.0)	516	(9.1)	523	(8.8)	473	(11.2)
	Lithuania	m	m	m	m	m	m	m	m	459	(3.1)	488	(3.1)	484	(3.5)	447	(4.2)
	Macao-China	479	(1.8)	496	(1.9)	496	(2.2)	499	(1.7)	473	(1.9)	492	(2.1)	493	(2.5)	493	(2.1)
	Panama	m	m	m	m	m	m	m	m	356	(5.8)	367	(7.5)	398	(9.6)	398	(11.2)
	Qatar	m	m	m	m	m	m	m	m	381	(2.5)	389	(2.6)	370	(2.4)	362	(2.0)
	Russian Federation	m	m	m	m	m	m	m	m	445	(4.7)	468	(3.9)	480	(4.3)	454	(5.8)
	Serbia	m	m	m	m	m	m	m	m	423	(3.3)	457	(2.9)	468	(3.2)	430	(4.5)
	Singapore	m	m	m	m	m	m	m	m	509	(2.5)	531	(2.8)	534	(2.8)	534	(3.0)
	Thailand	m	m	m	m	m	m	m	m	407	(3.3)	405	(3.2)	423	(4.0)	451	(4.8)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	407	(3.3)	436	(3.1)	459	(3.9)	404	(3.6)
	Uruguay	m	m	m	m	m	m	m	m	407	(3.3)	449	(4.1)	447	(4.5)	420	(4.8)

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[Part 1/1]

Table VI.5.17 Percentage of students who reported that they did the following activity at school at least once a week

Results based on students' self-reports

		Percentage of students who reported that they did the following activity at school at least once a week ("Once or twice a week" or "Everyday or almost every day")																	
		Chat on line at school		Use e-mail at school		Browse the Internet for schoolwork		Download, upload or browse material from the school's website		Post work on the school's website		Play simulations at school		Practice and drilling, such as for foreign language learning or mathematics		Do individual homework on a school computer		Use school computers for group work and communication with other students	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	8.4	(0.6)	27.4	(1.4)	65.2	(0.9)	21.9	(1.0)	6.3	(0.5)	14.4	(0.5)	9.4	(0.6)	37.9	(0.7)	26.9	(0.8)
	Austria	30.5	(1.5)	29.9	(1.5)	45.6	(1.5)	15.8	(1.0)	10.9	(0.8)	10.8	(0.6)	11.8	(0.8)	15.0	(0.9)	22.3	(1.0)
	Belgium	5.4	(0.4)	9.0	(0.5)	16.9	(0.7)	11.3	(0.6)	10.4	(0.6)	8.0	(0.5)	12.5	(0.5)	8.0	(0.5)	11.3	(0.5)
	Canada	9.9	(0.5)	25.0	(0.8)	47.8	(0.7)	14.7	(0.6)	5.6	(0.3)	7.0	(0.3)	8.2	(0.4)	31.7	(0.6)	25.2	(0.5)
	Chile	11.0	(0.7)	14.3	(0.9)	44.7	(1.2)	19.4	(0.8)	8.2	(0.5)	7.6	(0.5)	15.3	(0.9)	31.6	(1.3)	31.2	(1.1)
	Czech Republic	34.2	(1.3)	42.9	(1.2)	37.9	(1.1)	19.3	(0.8)	6.1	(0.5)	12.2	(0.6)	18.6	(0.8)	19.7	(0.8)	33.2	(0.9)
	Denmark	34.9	(1.1)	29.5	(1.0)	74.3	(1.1)	21.9	(1.0)	8.4	(0.5)	14.1	(0.6)	16.6	(0.7)	56.8	(1.5)	56.1	(1.2)
	Estonia	6.1	(0.5)	17.9	(0.9)	21.6	(1.0)	10.9	(0.6)	3.8	(0.3)	6.3	(0.5)	9.4	(0.7)	10.6	(0.7)	13.1	(0.7)
	Finland	18.1	(0.9)	14.9	(0.7)	30.7	(1.1)	8.0	(0.5)	6.5	(0.5)	8.8	(0.6)	10.4	(0.6)	3.9	(0.4)	10.7	(0.7)
	Germany	8.3	(0.6)	7.8	(0.5)	26.8	(1.1)	6.5	(0.5)	4.6	(0.4)	12.1	(0.7)	8.1	(0.5)	6.7	(0.5)	13.5	(0.7)
	Greece	22.1	(0.8)	20.1	(0.9)	36.0	(1.1)	20.5	(0.9)	15.9	(0.8)	16.0	(0.7)	17.3	(0.8)	24.5	(1.0)	26.3	(1.1)
	Hungary	22.5	(1.1)	26.2	(1.2)	40.5	(1.3)	14.6	(0.8)	13.6	(0.7)	11.8	(0.7)	12.8	(0.7)	12.7	(0.7)	29.4	(0.8)
	Iceland	16.2	(0.6)	17.8	(0.6)	38.2	(0.6)	10.6	(0.5)	2.8	(0.3)	5.8	(0.4)	14.4	(0.6)	15.6	(0.5)	20.3	(0.6)
	Ireland	8.8	(0.8)	12.4	(1.1)	26.3	(1.3)	8.6	(0.6)	3.0	(0.3)	7.1	(0.5)	8.5	(0.7)	9.9	(0.8)	14.5	(0.7)
	Israel	8.3	(0.5)	13.2	(0.7)	28.2	(1.1)	16.6	(0.7)	11.8	(0.5)	11.6	(0.5)	16.6	(0.7)	14.4	(0.8)	15.8	(0.7)
	Italy	8.4	(0.4)	7.1	(0.4)	28.0	(0.6)	12.4	(0.4)	8.0	(0.3)	12.9	(0.4)	28.2	(0.6)	12.5	(0.4)	20.1	(0.5)
	Japan	1.0	(0.2)	3.0	(0.6)	13.3	(1.1)	3.2	(0.4)	3.8	(0.5)	3.1	(0.3)	1.5	(0.3)	2.0	(0.3)	5.7	(0.5)
	Korea	5.6	(0.5)	4.5	(0.6)	13.6	(1.0)	8.4	(0.8)	2.5	(0.4)	2.5	(0.3)	8.0	(0.5)	5.6	(0.6)	5.1	(0.5)
	Netherlands	22.1	(1.3)	41.0	(1.4)	67.4	(1.4)	36.7	(1.2)	13.1	(0.8)	14.1	(1.0)	22.8	(1.0)	23.4	(1.1)	27.0	(1.0)
	New Zealand	9.3	(0.7)	21.7	(0.9)	50.4	(0.9)	16.4	(0.9)	5.4	(0.6)	7.6	(0.5)	9.4	(0.6)	26.6	(0.9)	18.7	(0.7)
	Norway	20.2	(0.8)	22.0	(0.9)	69.5	(1.3)	30.3	(1.3)	42.4	(1.7)	14.0	(0.7)	24.2	(0.8)	40.2	(1.4)	40.8	(1.1)
	Poland	4.5	(0.4)	6.9	(0.5)	26.8	(1.1)	10.4	(0.5)	4.5	(0.4)	6.8	(0.4)	10.2	(0.5)	10.8	(0.6)	12.3	(0.7)
	Portugal	12.6	(0.5)	23.6	(0.8)	40.5	(1.1)	18.4	(0.8)	12.2	(0.7)	11.7	(0.5)	14.8	(0.6)	17.5	(0.7)	27.8	(1.0)
	Slovak Republic	33.3	(1.8)	27.1	(1.3)	43.4	(1.6)	16.4	(0.8)	9.7	(0.5)	9.5	(0.6)	15.4	(0.9)	10.8	(0.7)	24.1	(1.1)
	Slovenia	20.2	(0.6)	21.5	(0.6)	34.5	(0.7)	20.0	(0.6)	11.7	(0.5)	13.9	(0.5)	13.1	(0.5)	13.7	(0.5)	25.5	(0.7)
	Spain	11.6	(0.6)	14.8	(0.6)	42.9	(1.0)	14.6	(0.7)	9.9	(0.6)	8.0	(0.5)	24.9	(0.7)	16.2	(0.7)	25.6	(0.7)
	Sweden	13.6	(0.7)	21.9	(1.0)	60.8	(1.6)	11.6	(0.7)	5.4	(0.4)	5.0	(0.4)	11.3	(0.7)	17.4	(0.8)	19.6	(0.8)
	Switzerland	10.2	(0.7)	13.9	(1.0)	35.6	(1.1)	12.5	(0.7)	9.1	(0.6)	8.1	(0.5)	18.6	(0.8)	11.3	(0.7)	17.9	(0.8)
	Turkey	11.0	(0.7)	11.8	(0.7)	28.5	(1.1)	13.7	(0.7)	9.8	(0.5)	9.2	(0.6)	18.4	(0.8)	16.4	(0.9)	17.8	(0.9)
	OECD average-29	14.8	(0.2)	18.9	(0.2)	39.2	(0.2)	15.3	(0.1)	9.2	(0.1)	9.7	(0.1)	14.2	(0.1)	18.1	(0.1)	22.0	(0.2)
Partners	Bulgaria	44.1	(1.7)	31.1	(1.4)	37.6	(1.5)	31.3	(1.3)	21.0	(1.3)	23.8	(1.0)	29.6	(1.1)	25.5	(1.3)	38.6	(1.2)
	Croatia	20.5	(1.0)	16.2	(0.8)	28.3	(1.1)	12.4	(0.6)	7.6	(0.5)	13.0	(0.6)	14.4	(0.6)	10.8	(0.7)	19.5	(0.9)
	Hong Kong-China	13.4	(0.7)	18.0	(1.0)	28.4	(1.1)	19.8	(1.0)	22.2	(1.0)	8.9	(0.5)	11.4	(0.5)	15.7	(0.9)	12.2	(0.8)
	Jordan	12.8	(0.7)	16.8	(0.9)	32.8	(1.3)	23.4	(1.0)	23.5	(0.9)	21.1	(0.9)	26.4	(1.0)	26.1	(0.8)	35.8	(0.9)
	Latvia	14.7	(1.2)	17.6	(1.0)	17.3	(0.9)	10.6	(0.6)	6.7	(0.5)	6.8	(0.5)	9.9	(0.6)	7.6	(0.6)	11.0	(0.7)
	Liechtenstein	13.9	(1.9)	38.4	(2.7)	56.6	(3.1)	12.5	(2.1)	11.8	(1.6)	11.3	(1.9)	26.6	(2.1)	16.7	(1.8)	25.5	(2.1)
	Lithuania	13.0	(0.6)	21.4	(1.0)	27.9	(0.8)	13.5	(0.7)	8.3	(0.5)	10.3	(0.6)	13.9	(0.6)	9.5	(0.6)	16.2	(0.7)
	Macao-China	12.6	(0.4)	10.3	(0.4)	25.5	(0.5)	18.0	(0.4)	31.1	(0.5)	8.6	(0.4)	12.9	(0.5)	24.1	(0.6)	12.8	(0.4)
	Panama	10.9	(1.3)	12.9	(1.7)	38.8	(1.7)	17.0	(1.0)	16.8	(1.4)	14.0	(1.0)	31.8	(1.7)	35.5	(1.7)	30.1	(1.9)
	Qatar	13.9	(0.4)	19.4	(0.4)	33.6	(0.5)	23.2	(0.4)	19.0	(0.4)	17.5	(0.4)	22.1	(0.5)	24.8	(0.5)	27.4	(0.5)
	Russian Federation	12.8	(0.8)	11.7	(0.8)	17.2	(0.9)	14.1	(0.8)	9.3	(0.6)	9.5	(0.6)	14.6	(0.6)	15.2	(0.7)	18.4	(0.7)
	Serbia	19.1	(1.3)	13.1	(0.8)	18.4	(0.9)	10.6	(0.6)	6.7	(0.5)	8.3	(0.6)	14.1	(0.7)	9.2	(0.5)	20.8	(0.7)
	Singapore	8.1	(0.3)	12.0	(0.4)	26.2	(0.6)	12.4	(0.4)	8.3	(0.3)	5.4	(0.3)	8.9	(0.4)	15.7	(0.5)	17.2	(0.6)
	Thailand	23.4	(0.9)	29.9	(1.1)	43.2	(1.1)	28.0	(0.8)	28.6	(1.0)	21.7	(0.8)	31.0	(0.8)	30.7	(1.0)	33.7	(0.9)
	Trinidad and Tobago	8.1	(0.4)	11.7	(0.5)	32.0	(0.9)	14.0	(0.5)	8.3	(0.5)	10.4	(0.5)	14.1	(0.5)	25.7	(0.7)	23.9	(0.8)
	Uruguay	6.4	(0.5)	8.7	(0.7)	29.1	(1.1)	19.6	(0.8)	8.9	(0.6)	11.1	(0.6)	15.7	(0.7)	16.6	(0.7)	21.7	(0.8)

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[Part 1/2]
Table VI.5.18 Index of computer use at school, and reading performance
Results based on students' self-reports

		Index of computer use at school (29 OECD countries)															
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Second quarter of ESCS[1]		Third quarter of ESCS[1]		Top quarter of ESCS[1]	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.40	(0.02)	0.40	(0.02)	0.40	(0.02)	0.00	(0.02)	**0.28**	(0.02)	0.35	(0.02)	0.44	(0.03)	**0.56**	(0.03)
	Austria	0.16	(0.03)	0.16	(0.04)	0.17	(0.04)	0.00	(0.05)	0.15	(0.04)	0.18	(0.04)	0.21	(0.04)	0.12	(0.06)
	Belgium	-0.32	(0.02)	-0.30	(0.03)	-0.34	(0.03)	0.04	(0.03)	**-0.27**	(0.04)	-0.26	(0.03)	-0.34	(0.03)	**-0.39**	(0.04)
	Canada	0.22	(0.02)	0.25	(0.02)	0.20	(0.02)	**0.06**	(0.02)	**0.18**	(0.02)	0.20	(0.02)	0.22	(0.02)	**0.29**	(0.03)
	Chile	0.11	(0.03)	0.12	(0.04)	0.10	(0.04)	0.03	(0.04)	**0.20**	(0.04)	0.19	(0.04)	0.08	(0.05)	**-0.03**	(0.06)
	Czech Republic	0.35	(0.03)	0.39	(0.03)	0.29	(0.03)	**0.10**	(0.04)	0.32	(0.04)	0.39	(0.04)	0.36	(0.04)	0.33	(0.03)
	Denmark	0.74	(0.02)	0.81	(0.02)	0.66	(0.02)	**0.15**	(0.02)	0.73	(0.02)	0.75	(0.02)	0.73	(0.02)	0.73	(0.03)
	Estonia	-0.35	(0.03)	-0.30	(0.04)	-0.40	(0.03)	**0.09**	(0.03)	-0.32	(0.04)	-0.36	(0.04)	-0.34	(0.04)	-0.37	(0.04)
	Finland	0.11	(0.02)	0.17	(0.03)	0.05	(0.02)	**0.12**	(0.02)	**0.06**	(0.03)	0.08	(0.03)	0.11	(0.03)	**0.18**	(0.03)
	Germany	-0.25	(0.02)	-0.18	(0.03)	-0.31	(0.02)	**0.14**	(0.03)	**-0.18**	(0.03)	-0.27	(0.03)	-0.23	(0.04)	**-0.32**	(0.04)
	Greece	0.06	(0.03)	0.24	(0.04)	-0.12	(0.04)	**0.36**	(0.05)	**0.15**	(0.05)	0.13	(0.05)	0.07	(0.05)	**-0.12**	(0.05)
	Hungary	0.04	(0.03)	0.11	(0.04)	-0.04	(0.04)	**0.15**	(0.04)	**0.23**	(0.04)	0.05	(0.04)	0.05	(0.04)	**-0.19**	(0.05)
	Iceland	0.07	(0.01)	0.03	(0.02)	0.11	(0.01)	**-0.08**	(0.03)	**0.04**	(0.03)	0.02	(0.03)	0.08	(0.03)	**0.14**	(0.03)
	Ireland	-0.37	(0.03)	-0.37	(0.05)	-0.37	(0.04)	0.00	(0.06)	-0.38	(0.04)	-0.36	(0.04)	-0.36	(0.04)	-0.39	(0.06)
	Israel	-0.24	(0.03)	-0.17	(0.04)	-0.32	(0.04)	**0.14**	(0.05)	-0.15	(0.04)	-0.32	(0.04)	-0.31	(0.04)	-0.21	(0.05)
	Italy	-0.16	(0.02)	-0.09	(0.02)	-0.22	(0.02)	**0.13**	(0.02)	**-0.11**	(0.02)	-0.11	(0.02)	-0.16	(0.02)	**-0.24**	(0.02)
	Japan	-1.05	(0.03)	-1.06	(0.03)	-1.03	(0.03)	-0.03	(0.03)	-1.09	(0.04)	-1.05	(0.03)	-1.03	(0.03)	-1.01	(0.04)
	Korea	-0.91	(0.03)	-0.90	(0.04)	-0.91	(0.04)	0.01	(0.05)	-0.88	(0.03)	-0.96	(0.04)	-0.91	(0.04)	-0.87	(0.07)
	Netherlands	0.59	(0.02)	0.61	(0.03)	0.57	(0.02)	0.04	(0.03)	0.57	(0.03)	0.60	(0.03)	0.59	(0.03)	0.61	(0.03)
	New Zealand	0.15	(0.02)	0.10	(0.02)	0.20	(0.02)	**-0.10**	(0.03)	0.17	(0.03)	0.14	(0.03)	0.11	(0.03)	0.18	(0.03)
	Norway	0.74	(0.02)	0.81	(0.02)	0.67	(0.03)	**0.13**	(0.02)	**0.69**	(0.03)	0.73	(0.03)	0.75	(0.03)	**0.80**	(0.03)
	Poland	-0.36	(0.02)	-0.27	(0.03)	-0.45	(0.03)	**0.17**	(0.03)	**-0.15**	(0.04)	-0.32	(0.04)	-0.40	(0.03)	**-0.56**	(0.04)
	Portugal	0.05	(0.03)	0.17	(0.03)	-0.07	(0.03)	**0.24**	(0.03)	**0.30**	(0.03)	0.13	(0.03)	0.00	(0.04)	**-0.22**	(0.05)
	Slovak Republic	0.17	(0.03)	0.20	(0.04)	0.14	(0.04)	0.06	(0.03)	0.11	(0.04)	0.18	(0.04)	0.26	(0.04)	0.12	(0.05)
	Slovenia	-0.02	(0.02)	0.10	(0.03)	-0.15	(0.02)	**0.25**	(0.04)	-0.04	(0.03)	-0.02	(0.03)	0.00	(0.04)	-0.03	(0.04)
	Spain	0.05	(0.02)	0.06	(0.03)	0.03	(0.03)	**0.03**	(0.02)	**0.09**	(0.04)	0.06	(0.03)	0.06	(0.03)	**-0.03**	(0.04)
	Sweden	0.23	(0.02)	0.28	(0.02)	0.17	(0.02)	**0.10**	(0.02)	**0.18**	(0.03)	0.24	(0.03)	0.22	(0.03)	**0.27**	(0.03)
	Switzerland	0.04	(0.03)	0.09	(0.03)	-0.01	(0.03)	**0.10**	(0.02)	**0.12**	(0.04)	0.04	(0.02)	0.04	(0.03)	**-0.04**	(0.04)
	Turkey	-0.33	(0.03)	-0.18	(0.05)	-0.49	(0.04)	**0.30**	(0.04)	**-0.20**	(0.05)	-0.29	(0.04)	-0.34	(0.05)	**-0.49**	(0.05)
	OECD average	0.00	(0.00)	0.04	(0.01)	-0.05	(0.01)	**0.09**	(0.01)	**0.03**	(0.01)	0.01	(0.01)	0.00	(0.01)	**-0.04**	(0.01)
Partners	Bulgaria	0.53	(0.05)	0.64	(0.06)	0.40	(0.04)	**0.24**	(0.04)	0.54	(0.05)	0.63	(0.05)	0.54	(0.08)	0.40	(0.07)
	Croatia	-0.18	(0.03)	-0.08	(0.04)	-0.28	(0.04)	**0.20**	(0.04)	-0.19	(0.05)	-0.16	(0.04)	-0.11	(0.04)	-0.26	(0.05)
	Hong Kong-China	0.13	(0.03)	0.16	(0.03)	0.11	(0.03)	0.05	(0.03)	0.12	(0.03)	0.12	(0.04)	0.13	(0.03)	0.18	(0.06)
	Jordan	0.23	(0.03)	0.40	(0.05)	0.08	(0.03)	**0.32**	(0.05)	**0.08**	(0.04)	0.23	(0.05)	0.29	(0.05)	**0.33**	(0.05)
	Latvia	-0.42	(0.04)	-0.31	(0.04)	-0.54	(0.05)	**0.23**	(0.04)	**-0.17**	(0.05)	-0.32	(0.05)	-0.54	(0.05)	**-0.68**	(0.05)
	Liechtenstein	0.40	(0.04)	0.46	(0.06)	0.32	(0.05)	**0.14**	(0.07)	0.49	(0.06)	0.31	(0.08)	0.44	(0.12)	0.33	(0.09)
	Lithuania	-0.16	(0.03)	-0.07	(0.03)	-0.25	(0.03)	**0.17**	(0.03)	**-0.01**	(0.04)	-0.10	(0.04)	-0.20	(0.04)	**-0.33**	(0.03)
	Macao-China	0.02	(0.01)	0.03	(0.01)	0.02	(0.01)	0.01	(0.02)	**-0.05**	(0.02)	0.02	(0.02)	0.05	(0.02)	**0.07**	(0.02)
	Panama	0.11	(0.05)	0.14	(0.06)	0.08	(0.05)	0.06	(0.05)	**-0.10**	(0.06)	0.01	(0.05)	0.14	(0.06)	**0.41**	(0.12)
	Qatar	0.08	(0.01)	0.35	(0.02)	-0.19	(0.02)	**0.55**	(0.03)	**0.01**	(0.03)	-0.01	(0.03)	0.03	(0.03)	**0.26**	(0.03)
	Russian Federation	-0.32	(0.03)	-0.18	(0.05)	-0.45	(0.04)	**0.27**	(0.05)	-0.28	(0.05)	-0.33	(0.04)	-0.32	(0.06)	-0.34	(0.05)
	Serbia	-0.37	(0.03)	-0.34	(0.04)	-0.40	(0.04)	0.07	(0.04)	-0.44	(0.05)	-0.38	(0.04)	-0.30	(0.04)	-0.37	(0.04)
	Singapore	-0.13	(0.01)	-0.12	(0.02)	-0.13	(0.02)	0.01	(0.02)	**-0.05**	(0.03)	-0.08	(0.03)	-0.21	(0.03)	**-0.17**	(0.03)
	Thailand	0.52	(0.03)	0.56	(0.03)	0.50	(0.03)	0.06	(0.04)	**0.35**	(0.04)	0.54	(0.04)	0.63	(0.03)	**0.58**	(0.04)
	Trinidad and Tobago	-0.22	(0.02)	-0.19	(0.03)	-0.24	(0.02)	0.05	(0.03)	-0.27	(0.03)	-0.21	(0.04)	-0.10	(0.04)	-0.31	(0.04)
	Uruguay	-0.36	(0.03)	-0.28	(0.04)	-0.43	(0.04)	**0.15**	(0.04)	-0.25	(0.04)	-0.38	(0.04)	-0.45	(0.05)	-0.38	(0.06)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
StatLink http://dx.doi.org/10.1787/888932436613

[Part 2/2]
Table VI.5.18 Index of computer use at school, and reading performance
Results based on students' self-reports

		Digital reading performance, by national quarters of this index (15 OECD countries)								Print reading performance, by national quarters of this index (29 OECD countries)							
		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	Australia	530	(3.7)	550	(3.5)	548	(3.0)	537	(4.6)	509	(3.2)	527	(2.8)	526	(2.7)	516	(5.1)
	Austria	472	(5.0)	477	(5.3)	473	(5.7)	445	(6.1)	479	(4.8)	491	(4.7)	483	(4.3)	450	(5.4)
	Belgium	517	(3.6)	529	(2.9)	529	(2.6)	488	(3.7)	519	(3.5)	531	(3.1)	529	(3.0)	481	(4.1)
	Canada	m	m	m	m	m	m	m	m	532	(2.1)	541	(2.4)	532	(2.2)	501	(2.8)
	Chile	452	(5.4)	451	(4.2)	436	(3.8)	410	(5.2)	464	(4.6)	467	(3.8)	456	(3.5)	424	(4.7)
	Czech Republic	m	m	m	m	m	m	m	m	492	(4.1)	496	(3.6)	482	(4.1)	447	(5.2)
	Denmark	509	(3.7)	500	(3.4)	485	(3.5)	467	(4.1)	516	(3.4)	508	(2.9)	493	(3.0)	470	(3.9)
	Estonia	m	m	m	m	m	m	m	m	511	(3.8)	517	(3.9)	511	(3.6)	469	(3.8)
	Finland	m	m	m	m	m	m	m	m	544	(3.0)	551	(3.1)	542	(3.3)	513	(3.7)
	Germany	m	m	m	m	m	m	m	m	515	(4.7)	531	(3.6)	512	(3.6)	468	(4.5)
	Greece	m	m	m	m	m	m	m	m	514	(3.9)	506	(4.5)	484	(5.9)	434	(6.5)
	Hungary	501	(5.8)	482	(5.3)	466	(5.4)	430	(6.0)	525	(4.3)	509	(3.7)	493	(4.2)	454	(4.9)
	Iceland	505	(3.2)	524	(3.2)	521	(2.8)	508	(3.1)	491	(4.1)	514	(3.6)	518	(3.3)	490	(3.0)
	Ireland	512	(3.8)	518	(3.6)	517	(4.0)	503	(5.1)	504	(4.0)	509	(4.1)	506	(4.0)	486	(5.5)
	Israel	m	m	m	m	m	m	m	m	499	(5.1)	513	(3.9)	500	(4.4)	413	(5.8)
	Italy	m	m	m	m	m	m	m	m	498	(3.2)	509	(1.8)	496	(1.9)	452	(2.8)
	Japan	522	(3.2)	522	(3.3)	529	(3.8)	525	(3.7)	523	(4.9)	521	(4.3)	530	(4.2)	524	(5.7)
	Korea	573	(3.4)	572	(3.2)	570	(3.5)	557	(6.0)	545	(3.7)	546	(3.7)	542	(4.1)	527	(6.7)
	Netherlands	m	m	m	m	m	m	m	m	523	(6.5)	528	(5.7)	520	(4.9)	478	(7.3)
	New Zealand	545	(3.1)	559	(2.9)	552	(3.2)	514	(4.8)	528	(3.4)	545	(3.5)	536	(3.3)	492	(4.8)
	Norway	509	(4.2)	512	(3.7)	504	(3.7)	482	(3.4)	517	(4.1)	518	(3.9)	507	(3.5)	477	(3.4)
	Poland	486	(4.1)	479	(3.7)	466	(3.4)	429	(4.2)	519	(4.0)	516	(3.4)	507	(3.1)	467	(3.6)
	Portugal	m	m	m	m	m	m	m	m	522	(3.2)	516	(3.8)	482	(4.0)	441	(4.0)
	Slovak Republic	m	m	m	m	m	m	m	m	480	(5.1)	494	(3.3)	486	(3.4)	457	(4.2)
	Slovenia	m	m	m	m	m	m	m	m	491	(2.7)	511	(2.6)	503	(2.7)	441	(2.9)
	Spain	483	(5.3)	494	(4.2)	482	(4.1)	454	(6.0)	485	(3.2)	498	(2.6)	490	(2.4)	461	(2.8)
	Sweden	518	(4.4)	525	(4.0)	519	(4.0)	490	(4.8)	506	(4.3)	514	(3.4)	506	(3.7)	476	(4.6)
	Switzerland	m	m	m	m	m	m	m	m	515	(4.0)	518	(3.2)	504	(3.6)	469	(5.4)
	Turkey	m	m	m	m	m	m	m	m	482	(5.6)	480	(4.4)	467	(4.2)	433	(4.6)
	OECD average	509	(1.1)	513	(1.0)	506	(1.0)	483	(1.2)	509	(0.8)	515	(0.7)	505	(0.7)	469	(0.9)
Partners	Bulgaria	m	m	m	m	m	m	m	m	461	(9.9)	459	(6.6)	428	(7.1)	391	(6.6)
	Croatia	m	m	m	m	m	m	m	m	480	(4.6)	496	(3.9)	486	(3.1)	449	(3.9)
	Hong Kong-China	529	(3.2)	522	(3.3)	515	(3.7)	497	(4.4)	544	(3.1)	541	(3.4)	537	(3.5)	516	(3.9)
	Jordan	m	m	m	m	m	m	m	m	418	(4.2)	440	(3.8)	407	(4.0)	380	(4.8)
	Latvia	m	m	m	m	m	m	m	m	506	(4.0)	505	(3.5)	487	(4.8)	444	(4.3)
	Liechtenstein	m	m	m	m	m	m	m	m	496	(9.2)	518	(9.1)	505	(10.2)	479	(9.2)
	Lithuania	m	m	m	m	m	m	m	m	487	(3.2)	485	(3.3)	478	(3.2)	426	(3.8)
	Macao-China	490	(2.0)	491	(2.2)	497	(2.0)	491	(2.4)	489	(2.1)	487	(1.9)	493	(2.1)	482	(2.0)
	Panama	m	m	m	m	m	m	m	m	375	(6.3)	394	(7.2)	382	(8.2)	370	(12.9)
	Qatar	m	m	m	m	m	m	m	m	398	(2.1)	394	(2.5)	378	(2.5)	331	(2.4)
	Russian Federation	m	m	m	m	m	m	m	m	464	(4.7)	478	(5.0)	475	(4.2)	433	(4.5)
	Serbia	m	m	m	m	m	m	m	m	439	(3.6)	452	(3.9)	457	(3.3)	429	(5.0)
	Singapore	m	m	m	m	m	m	m	m	548	(2.6)	539	(2.7)	531	(3.0)	489	(2.6)
	Thailand	m	m	m	m	m	m	m	m	423	(4.0)	431	(3.3)	424	(3.6)	410	(3.3)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	433	(3.8)	450	(3.9)	440	(3.4)	386	(3.4)
	Uruguay	m	m	m	m	m	m	m	m	445	(4.2)	447	(4.2)	432	(3.8)	398	(5.5)

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[Part 1/1]

Table VI.5.19 **Percentage of students who attend regular lessons, by time spent on using a computer during classroom lessons in a typical school week**

		Language-of-instruction lessons								Mathematics lessons								Science lessons							
		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	46.3	(1.4)	31.5	(0.9)	15.2	(0.7)	7.0	(1.2)	73.5	(1.5)	16.2	(0.8)	7.1	(0.6)	3.2	(1.1)	53.6	(1.5)	28.4	(0.8)	12.7	(0.6)	5.3	(1.4)
	Austria	76.4	(1.2)	12.5	(0.8)	5.5	(0.5)	5.6	(0.7)	88.7	(1.1)	6.4	(0.6)	2.8	(0.4)	2.1	(0.6)	81.4	(1.2)	10.7	(0.8)	4.9	(0.5)	3.0	(0.5)
	Belgium	83.4	(1.0)	12.0	(0.8)	3.2	(0.4)	1.3	(0.2)	90.5	(0.7)	6.3	(0.5)	2.4	(0.3)	0.9	(0.1)	87.5	(0.6)	8.1	(0.5)	3.3	(0.3)	1.1	(0.2)
	Canada	61.0	(0.8)	26.2	(0.6)	9.0	(0.3)	3.8	(0.4)	88.2	(0.5)	8.3	(0.4)	2.0	(0.2)	1.4	(0.2)	70.5	(0.8)	20.4	(0.6)	6.8	(0.3)	2.3	(0.3)
	Chile	83.0	(1.0)	8.9	(0.7)	5.6	(0.5)	2.5	(0.3)	89.1	(1.1)	6.4	(0.6)	3.3	(0.6)	1.2	(0.3)	82.9	(1.0)	9.5	(0.6)	5.9	(0.6)	1.6	(0.2)
	Czech Republic	79.2	(1.4)	11.9	(1.0)	6.1	(0.7)	2.9	(0.4)	87.2	(1.3)	7.9	(0.8)	3.9	(0.5)	1.1	(0.2)	67.0	(1.7)	19.4	(1.1)	9.9	(0.7)	3.7	(0.6)
	Denmark	23.2	(1.2)	35.7	(0.9)	25.1	(1.0)	15.9	(1.0)	60.3	(1.4)	26.0	(1.0)	7.6	(0.5)	6.1	(0.9)	49.0	(1.5)	31.2	(0.9)	13.1	(0.7)	6.7	(0.7)
	Estonia	87.5	(1.1)	9.2	(0.9)	2.6	(0.4)	0.7	(0.1)	85.7	(0.8)	10.4	(0.7)	2.9	(0.3)	1.1	(0.2)	79.5	(1.3)	14.1	(0.9)	5.0	(0.5)	1.3	(0.2)
	Finland	67.1	(1.9)	25.7	(1.4)	6.0	(0.7)	1.2	(0.2)	81.8	(1.4)	14.8	(1.1)	2.9	(0.5)	0.5	(0.2)	70.4	(1.6)	23.3	(1.2)	5.5	(0.6)	0.9	(0.2)
	Germany	83.2	(1.0)	12.3	(0.8)	3.0	(0.3)	1.6	(0.3)	86.1	(1.0)	10.9	(0.8)	2.3	(0.3)	0.7	(0.2)	75.0	(1.3)	19.0	(1.0)	4.5	(0.4)	1.5	(0.2)
	Greece	82.3	(0.8)	10.4	(0.7)	4.0	(0.3)	3.3	(0.3)	81.6	(0.9)	9.0	(0.6)	5.8	(0.5)	3.6	(0.3)	79.2	(0.9)	10.7	(0.6)	6.3	(0.4)	3.8	(0.3)
	Hungary	89.5	(0.6)	6.0	(0.5)	2.7	(0.3)	1.8	(0.2)	92.7	(0.7)	4.7	(0.5)	1.8	(0.3)	0.8	(0.1)	90.0	(0.8)	6.8	(0.6)	2.2	(0.3)	1.1	(0.2)
	Iceland	78.5	(0.7)	15.8	(0.6)	4.4	(0.3)	1.2	(0.2)	82.0	(0.6)	13.9	(0.6)	3.3	(0.3)	0.8	(0.2)	69.5	(0.7)	19.1	(0.6)	8.6	(0.5)	2.8	(0.3)
	Ireland	89.7	(0.8)	6.8	(0.6)	2.7	(0.3)	0.7	(0.2)	92.2	(0.7)	5.1	(0.5)	2.0	(0.3)	0.6	(0.2)	83.9	(1.0)	10.3	(0.7)	4.1	(0.5)	1.8	(0.3)
	Israel	87.6	(0.7)	8.1	(0.5)	2.4	(0.2)	2.0	(0.2)	85.6	(0.8)	8.6	(0.5)	3.7	(0.3)	2.1	(0.2)	68.9	(1.1)	17.3	(0.8)	9.1	(0.5)	4.7	(0.4)
	Italy	88.8	(0.5)	5.0	(0.2)	3.9	(0.3)	2.4	(0.2)	72.6	(1.0)	8.9	(0.4)	13.7	(0.6)	4.8	(0.4)	87.5	(0.5)	6.4	(0.3)	4.4	(0.3)	1.7	(0.1)
	Japan	99.0	(0.2)	0.6	(0.1)	0.2	(0.1)	0.2	(0.1)	98.7	(0.3)	0.7	(0.2)	0.4	(0.1)	0.2	(0.1)	98.4	(0.5)	0.8	(0.2)	0.6	(0.3)	0.2	(0.1)
	Korea	72.6	(1.6)	12.7	(0.7)	6.4	(0.5)	8.4	(1.2)	91.7	(0.9)	4.4	(0.4)	1.6	(0.2)	2.3	(0.6)	69.2	(1.9)	10.1	(0.7)	10.3	(0.7)	10.5	(1.1)
	Netherlands	60.6	(2.4)	25.1	(1.6)	11.2	(1.0)	3.1	(0.5)	82.8	(1.3)	12.2	(0.9)	4.0	(0.5)	1.0	(0.2)	77.8	(1.1)	15.2	(0.8)	5.5	(0.5)	1.5	(0.2)
	New Zealand	62.9	(1.3)	25.0	(1.1)	8.3	(0.6)	3.8	(0.9)	88.3	(0.9)	8.7	(0.6)	2.4	(0.4)	0.6	(0.2)	79.0	(1.4)	14.5	(0.9)	5.1	(0.7)	1.4	(0.4)
	Norway	30.6	(1.3)	37.4	(1.1)	21.9	(1.0)	10.1	(0.8)	53.2	(1.7)	36.0	(1.3)	8.9	(0.7)	1.9	(0.2)	56.1	(1.7)	28.7	(1.2)	10.6	(0.7)	4.7	(0.7)
	Poland	94.3	(0.5)	3.7	(0.4)	1.3	(0.2)	0.7	(0.1)	94.1	(0.6)	3.8	(0.4)	1.4	(0.2)	0.7	(0.2)	91.1	(0.8)	6.1	(0.6)	2.1	(0.3)	0.7	(0.2)
	Portugal	83.8	(0.9)	9.7	(0.6)	3.3	(0.3)	3.2	(0.4)	84.6	(0.9)	9.5	(0.7)	3.6	(0.3)	2.2	(0.3)	77.7	(1.1)	12.0	(0.6)	6.3	(0.5)	4.1	(0.5)
	Slovak Republic	89.3	(0.8)	6.6	(0.6)	2.7	(0.3)	1.4	(0.2)	89.4	(0.9)	6.7	(0.6)	2.9	(0.4)	1.0	(0.2)	77.1	(1.4)	13.3	(0.8)	6.8	(0.6)	2.9	(0.6)
	Slovenia	86.4	(0.6)	8.7	(0.5)	2.4	(0.2)	2.5	(0.3)	88.2	(0.6)	7.6	(0.4)	2.8	(0.3)	1.4	(0.2)	80.4	(0.7)	11.5	(0.5)	5.1	(0.4)	3.0	(0.3)
	Spain	88.6	(1.0)	6.3	(0.5)	3.6	(0.4)	1.6	(0.2)	89.9	(1.1)	5.6	(0.8)	3.4	(0.4)	1.1	(0.2)	83.8	(0.9)	9.2	(0.6)	4.7	(0.4)	2.3	(0.3)
	Sweden	46.3	(1.7)	34.7	(1.0)	14.1	(0.9)	5.0	(0.5)	89.5	(0.8)	7.6	(0.7)	2.3	(0.3)	0.7	(0.1)	56.2	(1.7)	28.7	(1.2)	11.7	(0.7)	3.4	(0.5)
	Switzerland	67.2	(1.0)	22.8	(0.8)	7.7	(0.5)	2.3	(0.2)	83.5	(0.8)	12.0	(0.5)	3.2	(0.4)	1.2	(0.2)	69.2	(1.2)	21.9	(0.9)	7.1	(0.6)	1.8	(0.2)
	Turkey	58.9	(1.2)	22.5	(0.8)	12.0	(0.6)	6.5	(0.5)	71.7	(0.9)	15.0	(0.7)	8.6	(0.5)	4.8	(0.3)	73.6	(1.1)	13.3	(0.6)	8.0	(0.6)	5.1	(0.4)
	OECD average-29	74.0	(0.2)	15.6	(0.2)	6.8	(0.1)	3.5	(0.1)	84.2	(0.2)	10.1	(0.1)	3.9	(0.1)	1.7	(0.1)	75.4	(0.2)	15.2	(0.1)	6.6	(0.1)	2.9	(0.1)
Partners	Bulgaria	76.8	(1.1)	11.5	(0.7)	6.7	(0.5)	5.0	(0.5)	81.2	(1.2)	10.1	(0.7)	5.0	(0.5)	3.7	(0.5)	75.8	(1.2)	12.6	(0.7)	7.5	(0.6)	4.0	(0.5)
	Croatia	93.9	(0.5)	3.6	(0.3)	1.2	(0.2)	1.2	(0.2)	93.1	(0.8)	4.3	(0.4)	2.0	(0.4)	0.6	(0.1)	89.2	(0.8)	6.6	(0.5)	2.9	(0.3)	1.2	(0.2)
	Hong Kong-China	81.1	(0.9)	12.2	(0.6)	4.9	(0.4)	1.8	(0.2)	86.3	(0.6)	9.5	(0.5)	2.5	(0.3)	1.6	(0.2)	80.6	(0.8)	8.3	(0.6)	5.8	(0.4)	5.3	(0.5)
	Jordan	68.7	(1.2)	19.4	(0.8)	8.1	(0.5)	3.9	(0.3)	64.1	(1.4)	22.2	(1.0)	10.3	(0.7)	3.3	(0.3)	61.1	(1.4)	19.7	(0.9)	13.7	(0.7)	5.6	(0.5)
	Latvia	86.9	(0.7)	9.1	(0.5)	2.5	(0.3)	1.5	(0.3)	88.2	(0.7)	7.9	(0.5)	2.7	(0.3)	1.3	(0.3)	81.8	(1.0)	11.0	(0.6)	5.3	(0.5)	1.9	(0.2)
	Liechtenstein	59.1	(2.4)	27.2	(2.3)	9.8	(1.6)	3.9	(1.0)	77.4	(1.9)	20.0	(2.1)	1.9	(0.8)	0.6	(0.5)	76.0	(2.2)	19.9	(2.2)	4.1	(1.1)	0.0	c
	Lithuania	87.6	(0.8)	8.9	(0.6)	2.7	(0.3)	0.9	(0.1)	90.2	(0.9)	7.0	(0.6)	2.2	(0.3)	0.7	(0.1)	78.3	(1.3)	15.4	(1.0)	4.8	(0.4)	1.4	(0.2)
	Macao-China	74.4	(0.5)	11.6	(0.4)	6.6	(0.3)	7.4	(0.3)	84.9	(0.4)	9.4	(0.3)	3.4	(0.2)	2.3	(0.2)	73.5	(0.6)	8.7	(0.4)	7.7	(0.4)	10.0	(0.4)
	Panama	75.8	(1.3)	13.1	(1.0)	6.4	(0.6)	4.7	(0.8)	77.6	(1.4)	11.8	(1.1)	6.1	(0.6)	4.5	(0.7)	70.1	(1.5)	13.4	(0.9)	9.6	(0.8)	7.0	(0.8)
	Qatar	80.7	(0.4)	10.3	(0.3)	5.3	(0.2)	3.7	(0.2)	78.6	(0.5)	11.8	(0.4)	5.9	(0.3)	3.7	(0.2)	74.0	(0.5)	11.5	(0.4)	9.1	(0.3)	5.4	(0.3)
	Russian Federation	68.6	(1.2)	17.2	(0.8)	8.9	(0.5)	5.3	(0.3)	69.3	(1.1)	15.7	(0.7)	9.3	(0.5)	5.7	(0.4)	55.5	(1.2)	21.6	(0.8)	15.4	(0.6)	7.5	(0.5)
	Serbia	93.8	(0.5)	3.1	(0.4)	1.6	(0.2)	1.5	(0.2)	95.5	(0.4)	2.5	(0.3)	1.2	(0.2)	0.7	(0.1)	87.6	(0.7)	6.7	(0.5)	3.2	(0.3)	2.6	(0.3)
	Singapore	75.4	(0.6)	15.3	(0.5)	7.0	(0.4)	2.3	(0.2)	82.1	(0.6)	11.6	(0.5)	5.0	(0.3)	1.4	(0.2)	83.0	(0.6)	9.8	(0.4)	4.6	(0.3)	2.6	(0.3)
	Thailand	81.0	(1.0)	9.2	(0.6)	6.8	(0.5)	2.9	(0.3)	81.7	(1.0)	8.4	(0.6)	7.4	(0.5)	2.6	(0.2)	76.1	(1.0)	10.5	(0.6)	9.8	(0.6)	3.6	(0.3)
	Trinidad and Tobago	85.6	(0.6)	7.8	(0.4)	3.7	(0.3)	2.8	(0.3)	88.0	(0.5)	5.3	(0.4)	4.4	(0.4)	2.3	(0.3)	82.3	(0.7)	8.6	(0.5)	5.1	(0.4)	4.0	(0.3)
	Uruguay	92.1	(0.5)	4.1	(0.3)	2.3	(0.3)	1.5	(0.2)	92.0	(0.7)	4.5	(0.5)	2.5	(0.3)	1.0	(0.2)	87.2	(0.6)	6.8	(0.4)	4.0	(0.3)	2.0	(0.2)

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Table VI.5.20 **Percentage of students, by time spent on using a computer during foreign-language lessons in a typical school week**

		Foreign-language lessons							
		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	86.7	(1.0)	7.5	(0.4)	3.4	(0.2)	2.4	(0.7)
	Austria	79.0	(1.3)	12.7	(0.8)	5.3	(0.5)	3.0	(0.6)
	Belgium	82.6	(0.8)	11.1	(0.6)	4.7	(0.4)	1.6	(0.2)
	Canada	75.4	(0.7)	15.9	(0.5)	5.8	(0.3)	2.9	(0.2)
	Chile	81.9	(1.5)	9.2	(0.7)	6.7	(0.8)	2.2	(0.3)
	Czech Republic	61.4	(1.8)	21.2	(1.0)	13.3	(1.0)	4.2	(0.4)
	Denmark	39.1	(1.4)	33.3	(1.0)	17.8	(0.9)	9.7	(0.8)
	Estonia	80.6	(1.1)	13.1	(0.8)	4.7	(0.5)	1.6	(0.2)
	Finland	58.8	(2.0)	30.8	(1.5)	9.1	(0.8)	1.3	(0.2)
	Germany	82.1	(1.0)	13.2	(0.7)	3.5	(0.4)	1.2	(0.2)
	Greece	77.1	(0.9)	10.1	(0.6)	6.9	(0.5)	6.0	(0.5)
	Hungary	84.7	(1.1)	8.7	(0.6)	4.8	(0.6)	1.7	(0.2)
	Iceland	62.8	(0.7)	21.9	(0.7)	10.4	(0.5)	4.9	(0.4)
	Ireland	83.9	(1.3)	9.8	(0.8)	4.9	(0.6)	1.4	(0.3)
	Israel	78.0	(1.2)	11.2	(0.7)	5.6	(0.5)	5.2	(0.4)
	Italy	74.7	(0.9)	9.8	(0.4)	10.9	(0.5)	4.6	(0.2)
	Japan	95.8	(1.0)	1.2	(0.3)	2.2	(0.7)	0.8	(0.2)
	Korea	58.7	(1.7)	10.0	(0.7)	10.9	(0.7)	20.4	(1.5)
	Netherlands	63.4	(1.8)	23.6	(1.3)	10.1	(0.8)	2.9	(0.4)
	New Zealand	85.9	(0.7)	8.4	(0.5)	4.0	(0.4)	1.6	(0.3)
	Norway	48.7	(1.3)	27.4	(1.0)	15.2	(0.7)	8.7	(0.6)
	Poland	91.2	(0.7)	5.5	(0.5)	2.1	(0.2)	1.2	(0.2)
	Portugal	81.7	(1.0)	10.8	(0.6)	4.7	(0.3)	2.8	(0.4)
	Slovak Republic	73.5	(1.9)	15.5	(1.0)	8.0	(0.8)	3.0	(0.6)
	Slovenia	80.9	(0.8)	11.2	(0.6)	4.7	(0.3)	3.2	(0.3)
	Spain	81.5	(1.2)	9.9	(0.6)	6.6	(0.6)	2.1	(0.2)
	Sweden	66.1	(1.2)	23.7	(1.0)	7.9	(0.6)	2.3	(0.3)
	Switzerland	67.8	(1.2)	22.7	(0.8)	7.3	(0.6)	2.3	(0.3)
	Turkey	66.7	(1.2)	16.8	(0.7)	10.2	(0.5)	6.4	(0.5)
	OECD average-29	74.2	(0.2)	14.7	(0.1)	7.3	(0.1)	3.8	(0.1)
Partners	Bulgaria	71.5	(1.3)	13.3	(0.8)	7.7	(0.6)	7.5	(0.6)
	Croatia	92.6	(0.6)	4.5	(0.5)	1.9	(0.3)	1.0	(0.2)
	Hong Kong-China	69.2	(1.3)	12.1	(0.8)	11.2	(0.7)	7.5	(0.5)
	Jordan	64.2	(1.6)	18.5	(1.0)	10.2	(0.6)	7.1	(0.6)
	Latvia	75.5	(1.2)	14.4	(0.8)	7.0	(0.5)	3.1	(0.3)
	Liechtenstein	60.9	(2.7)	28.1	(2.5)	8.0	(1.5)	3.1	(0.9)
	Lithuania	82.3	(1.0)	11.8	(0.7)	4.2	(0.4)	1.7	(0.2)
	Macao-China	72.7	(0.5)	11.9	(0.5)	8.6	(0.3)	6.8	(0.3)
	Panama	68.5	(1.6)	12.8	(1.2)	9.8	(0.8)	9.0	(1.0)
	Qatar	74.4	(0.5)	10.7	(0.3)	7.8	(0.3)	7.1	(0.3)
	Russian Federation	69.1	(1.1)	15.8	(0.7)	8.9	(0.4)	6.2	(0.4)
	Serbia	91.9	(0.6)	4.6	(0.4)	1.9	(0.2)	1.7	(0.2)
	Singapore	88.9	(0.5)	6.2	(0.4)	3.5	(0.3)	1.4	(0.2)
	Thailand	73.5	(1.2)	11.7	(0.6)	10.4	(0.7)	4.4	(0.4)
	Trinidad and Tobago	84.4	(0.6)	7.1	(0.4)	4.4	(0.3)	4.1	(0.4)
	Uruguay	91.8	(0.5)	3.6	(0.3)	2.6	(0.3)	2.1	(0.2)

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Table VI.5.21 Percentage of students who reported using laptops at school

		Percentage of students who use laptops at school	
		%	S.E.
OECD	Australia	37.5	(2.0)
	Austria	12.1	(1.3)
	Belgium	9.7	(1.1)
	Canada	19.9	(1.0)
	Chile	5.9	(0.4)
	Czech Republic	4.8	(0.7)
	Denmark	73.2	(2.0)
	Estonia	8.8	(0.6)
	Finland	17.4	(1.8)
	Germany	14.3	(1.2)
	Greece	9.1	(0.7)
	Hungary	4.1	(0.4)
	Iceland	27.9	(0.5)
	Ireland	10.0	(1.1)
	Israel	8.3	(0.6)
	Italy	5.3	(0.3)
	Japan	12.1	(1.2)
	Korea	20.1	(1.3)
	Netherlands	26.5	(2.2)
	New Zealand	15.3	(1.3)
	Norway	73.5	(2.2)
	Poland	5.5	(0.5)
	Portugal	24.7	(1.1)
	Slovak Republic	14.1	(1.9)
	Slovenia	8.1	(0.4)
	Spain	10.2	(0.9)
	Sweden	24.0	(2.6)
	Switzerland	28.4	(1.7)
	Turkey	7.0	(0.6)
	OECD average-29	18.5	(0.2)
Partners	Bulgaria	18.9	(1.3)
	Croatia	8.9	(0.6)
	Hong Kong-China	7.4	(0.9)
	Jordan	12.1	(0.6)
	Latvia	5.5	(0.4)
	Liechtenstein	2.2	(0.8)
	Lithuania	6.2	(0.5)
	Macao-China	2.8	(0.2)
	Panama	11.4	(1.1)
	Qatar	19.2	(0.3)
	Russian Federation	20.6	(1.1)
	Serbia	5.7	(0.4)
	Singapore	17.0	(0.4)
	Thailand	13.1	(0.6)
	Trinidad and Tobago	16.9	(0.6)
	Uruguay	5.0	(0.4)

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[Part 1/1]
Table VI.5.22 Percentage of students, by their attitudes towards computers
Results based on students' self-reports

		Percentage of students who agreed with the following statements ("Agree" or "strongly agree")							
		It is very important to me to work with a computer		I think playing or working with a computer is really fun		I use a computer because I am very interested		I lose track of time when I am working with the computer	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	79.9	(0.5)	85.0	(0.4)	48.3	(0.6)	65.9	(0.6)
	Austria	86.3	(0.7)	93.1	(0.4)	80.1	(0.7)	70.6	(0.6)
	Belgium	81.1	(0.5)	89.6	(0.4)	78.5	(0.5)	73.4	(0.5)
	Canada	83.0	(0.5)	88.5	(0.3)	79.3	(0.4)	68.2	(0.5)
	Chile	93.9	(0.3)	90.4	(0.4)	91.3	(0.5)	62.9	(0.7)
	Czech Republic	83.0	(0.5)	85.7	(0.5)	79.5	(0.6)	67.8	(0.9)
	Denmark	88.2	(0.5)	91.6	(0.5)	72.2	(0.8)	65.1	(0.8)
	Estonia	82.1	(0.6)	72.5	(0.9)	89.4	(0.5)	48.6	(0.9)
	Finland	87.9	(0.5)	88.2	(0.5)	48.9	(0.8)	68.3	(0.8)
	Germany	85.7	(0.6)	93.3	(0.4)	79.5	(0.7)	63.7	(0.9)
	Greece	84.0	(0.7)	90.8	(0.6)	84.5	(0.7)	83.4	(0.6)
	Hungary	71.6	(1.0)	89.3	(0.6)	77.0	(0.8)	69.8	(0.8)
	Iceland	83.4	(0.6)	93.6	(0.4)	69.9	(0.8)	63.4	(0.8)
	Ireland	74.5	(0.8)	89.0	(0.5)	75.9	(0.8)	76.6	(0.8)
	Israel	84.6	(0.8)	90.0	(0.6)	85.5	(0.7)	71.7	(0.7)
	Italy	89.9	(0.3)	87.0	(0.3)	90.3	(0.3)	67.9	(0.4)
	Japan	77.3	(0.7)	81.5	(0.6)	66.6	(0.8)	62.0	(0.8)
	Korea	81.1	(0.6)	87.7	(0.5)	59.3	(1.0)	66.1	(0.8)
	Netherlands	m	m	m	m	m	m	m	m
	New Zealand	79.4	(0.7)	88.9	(0.4)	51.7	(0.9)	66.5	(0.8)
	Norway	83.6	(0.6)	92.3	(0.5)	75.4	(0.8)	67.8	(0.7)
	Poland	75.3	(0.7)	71.6	(0.7)	74.3	(0.7)	81.3	(0.5)
	Portugal	95.9	(0.3)	92.3	(0.4)	95.0	(0.3)	77.5	(0.8)
	Slovak Republic	85.3	(0.7)	86.9	(0.7)	83.9	(0.7)	71.0	(0.9)
	Slovenia	85.8	(0.6)	86.5	(0.5)	79.0	(0.7)	71.9	(0.8)
	Spain	81.4	(0.4)	84.7	(0.4)	84.2	(0.4)	60.8	(0.5)
	Sweden	80.9	(0.7)	90.1	(0.5)	74.5	(0.7)	65.0	(0.7)
	Switzerland	82.4	(0.6)	89.7	(0.5)	78.5	(0.6)	69.4	(0.8)
	Turkey	72.0	(0.9)	70.5	(0.9)	69.7	(0.9)	73.0	(0.8)
	OECD average-28	82.8	(0.1)	87.2	(0.1)	75.8	(0.1)	68.6	(0.1)
Partners	Bulgaria	93.0	(0.6)	88.1	(0.7)	88.7	(0.7)	78.6	(0.8)
	Croatia	94.1	(0.4)	87.6	(0.5)	90.8	(0.4)	73.7	(0.6)
	Hong Kong-China	85.5	(0.5)	92.6	(0.4)	79.1	(0.7)	51.2	(0.8)
	Jordan	84.9	(0.8)	85.1	(0.7)	85.5	(0.7)	85.5	(0.6)
	Latvia	79.1	(1.0)	75.7	(1.0)	79.2	(1.0)	63.4	(1.0)
	Liechtenstein	88.7	(1.7)	90.4	(1.7)	80.8	(2.0)	66.1	(2.5)
	Lithuania	86.7	(1.1)	82.5	(0.9)	85.2	(1.1)	48.8	(1.0)
	Macao-China	88.8	(0.5)	93.0	(0.3)	82.2	(0.5)	57.0	(0.6)
	Panama	88.6	(1.3)	77.6	(1.5)	83.1	(1.3)	53.5	(1.5)
	Qatar	85.1	(0.4)	83.4	(0.4)	86.2	(0.4)	74.6	(0.5)
	Russian Federation	73.4	(0.9)	77.3	(0.8)	80.3	(0.6)	73.0	(0.6)
	Serbia	84.5	(0.6)	88.0	(0.4)	81.7	(0.6)	63.5	(0.8)
	Singapore	88.0	(0.5)	93.8	(0.3)	64.3	(0.6)	66.5	(0.7)
	Thailand	79.9	(0.7)	82.3	(0.6)	83.4	(0.6)	62.7	(0.7)
	Trinidad and Tobago	84.4	(0.5)	90.0	(0.5)	87.3	(0.5)	66.8	(0.8)
	Uruguay	88.9	(0.5)	86.3	(0.6)	86.4	(0.5)	65.2	(0.7)

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[Part 1/2]
Table VI.5.23 **Index of attitude towards computers and reading performance**
Results based on students' self-reports

		Index of attitude towards computers (28 OECD countries)															
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Second quarter of ESCS[1]		Third quarter of ESCS[1]		Top quarter of ESCS[1]	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	-0.32	(0.01)	-0.21	(0.02)	-0.42	(0.02)	**0.21**	(0.02)	**-0.42**	(0.02)	-0.35	(0.02)	-0.29	(0.02)	**-0.22**	(0.02)
	Austria	0.14	(0.02)	0.16	(0.02)	0.13	(0.02)	0.04	(0.03)	0.14	(0.03)	0.18	(0.03)	0.18	(0.03)	0.10	(0.03)
	Belgium	0.08	(0.01)	0.15	(0.02)	0.00	(0.02)	**0.15**	(0.02)	0.07	(0.02)	0.12	(0.02)	0.10	(0.02)	0.03	(0.02)
	Canada	0.04	(0.01)	0.03	(0.02)	0.06	(0.01)	-0.03	(0.02)	**-0.03**	(0.02)	0.05	(0.02)	0.06	(0.02)	**0.10**	(0.02)
	Chile	0.21	(0.01)	0.25	(0.01)	0.17	(0.02)	**0.08**	(0.02)	**0.06**	(0.02)	0.18	(0.02)	0.28	(0.02)	**0.31**	(0.02)
	Czech Republic	0.01	(0.01)	0.07	(0.02)	-0.06	(0.02)	**0.13**	(0.03)	-0.03	(0.03)	0.09	(0.04)	0.03	(0.03)	-0.06	(0.03)
	Denmark	0.02	(0.02)	0.16	(0.02)	-0.12	(0.02)	**0.28**	(0.03)	0.02	(0.03)	0.08	(0.03)	0.02	(0.03)	-0.04	(0.04)
	Estonia	-0.22	(0.02)	-0.15	(0.02)	-0.29	(0.02)	**0.13**	(0.03)	-0.24	(0.04)	-0.23	(0.03)	-0.21	(0.03)	-0.18	(0.03)
	Finland	-0.20	(0.02)	-0.04	(0.02)	-0.35	(0.02)	**0.31**	(0.03)	-0.19	(0.03)	-0.18	(0.03)	-0.21	(0.03)	-0.19	(0.03)
	Germany	0.06	(0.02)	0.15	(0.02)	-0.02	(0.02)	**0.16**	(0.03)	**0.08**	(0.03)	0.11	(0.03)	0.10	(0.03)	**-0.02**	(0.03)
	Greece	0.28	(0.02)	0.32	(0.03)	0.24	(0.03)	**0.07**	(0.04)	**0.13**	(0.05)	0.31	(0.03)	0.30	(0.03)	**0.37**	(0.03)
	Hungary	-0.06	(0.02)	-0.04	(0.03)	-0.08	(0.03)	0.03	(0.04)	**-0.20**	(0.05)	0.06	(0.03)	-0.02	(0.03)	**-0.08**	(0.04)
	Iceland	-0.04	(0.02)	0.06	(0.03)	-0.14	(0.02)	**0.20**	(0.03)	**-0.10**	(0.03)	-0.06	(0.03)	-0.02	(0.03)	**0.01**	(0.03)
	Ireland	0.02	(0.02)	0.01	(0.03)	0.03	(0.02)	-0.02	(0.03)	**-0.12**	(0.04)	-0.03	(0.04)	0.16	(0.03)	**0.07**	(0.03)
	Israel	0.16	(0.02)	0.08	(0.03)	0.24	(0.02)	**-0.16**	(0.04)	0.10	(0.04)	0.22	(0.03)	0.20	(0.04)	0.15	(0.03)
	Italy	0.18	(0.01)	0.19	(0.01)	0.18	(0.01)	0.01	(0.01)	**0.12**	(0.02)	0.21	(0.01)	0.21	(0.01)	**0.19**	(0.01)
	Japan	-0.23	(0.02)	-0.26	(0.03)	-0.20	(0.03)	-0.06	(0.04)	**-0.44**	(0.04)	-0.21	(0.04)	-0.15	(0.04)	**-0.10**	(0.03)
	Korea	-0.18	(0.02)	-0.08	(0.03)	-0.28	(0.02)	**0.21**	(0.04)	-0.21	(0.04)	-0.20	(0.03)	-0.18	(0.03)	-0.11	(0.03)
	New Zealand	-0.26	(0.02)	-0.18	(0.02)	-0.34	(0.03)	**0.16**	(0.04)	**-0.31**	(0.04)	-0.27	(0.03)	-0.25	(0.03)	**-0.19**	(0.03)
	Norway	0.04	(0.01)	0.12	(0.02)	-0.04	(0.02)	**0.16**	(0.02)	0.02	(0.03)	0.03	(0.03)	0.12	(0.03)	0.01	(0.03)
	Poland	-0.10	(0.02)	-0.04	(0.03)	-0.15	(0.02)	**0.12**	(0.04)	**-0.28**	(0.04)	-0.01	(0.04)	-0.04	(0.04)	**-0.06**	(0.04)
	Portugal	0.43	(0.01)	0.48	(0.01)	0.37	(0.02)	**0.11**	(0.02)	0.41	(0.02)	0.44	(0.02)	0.45	(0.02)	0.41	(0.02)
	Slovak Republic	0.12	(0.02)	0.13	(0.03)	0.10	(0.03)	0.04	(0.04)	**0.02**	(0.04)	0.11	(0.04)	0.17	(0.03)	**0.17**	(0.03)
	Slovenia	0.08	(0.02)	0.11	(0.02)	0.06	(0.02)	0.05	(0.03)	**0.01**	(0.03)	0.13	(0.03)	0.10	(0.03)	**0.10**	(0.03)
	Spain	-0.03	(0.01)	-0.06	(0.01)	-0.01	(0.02)	**-0.05**	(0.02)	**-0.13**	(0.02)	-0.01	(0.02)	-0.02	(0.02)	**0.03**	(0.02)
	Sweden	-0.04	(0.01)	0.02	(0.02)	-0.09	(0.02)	**0.11**	(0.03)	**-0.13**	(0.03)	-0.06	(0.03)	0.01	(0.03)	**0.02**	(0.03)
	Switzerland	0.05	(0.02)	0.10	(0.02)	0.00	(0.02)	**0.10**	(0.02)	**0.10**	(0.02)	0.04	(0.03)	0.08	(0.03)	**-0.01**	(0.02)
	Turkey	-0.25	(0.03)	-0.23	(0.03)	-0.27	(0.04)	0.04	(0.04)	**-0.67**	(0.05)	-0.35	(0.04)	-0.08	(0.04)	**0.10**	(0.03)
	OECD average	0.00	(0.00)	0.05	(0.00)	-0.05	(0.00)	**0.09**	(0.01)	**-0.08**	(0.01)	0.01	(0.01)	0.04	(0.01)	**0.03**	(0.01)
Partners	Bulgaria	0.31	(0.02)	0.30	(0.02)	0.33	(0.03)	-0.02	(0.03)	0.23	(0.03)	0.39	(0.03)	0.34	(0.04)	0.29	(0.03)
	Croatia	0.28	(0.01)	0.34	(0.02)	0.22	(0.02)	**0.13**	(0.02)	**0.18**	(0.03)	0.32	(0.02)	0.33	(0.02)	**0.31**	(0.02)
	Hong Kong-China	-0.07	(0.01)	-0.04	(0.01)	-0.11	(0.02)	**0.06**	(0.02)	-0.10	(0.03)	-0.10	(0.03)	-0.04	(0.03)	-0.05	(0.02)
	Jordan	0.26	(0.02)	0.12	(0.03)	0.39	(0.03)	**-0.27**	(0.04)	**0.04**	(0.04)	0.24	(0.03)	0.33	(0.03)	**0.45**	(0.03)
	Latvia	-0.16	(0.02)	-0.09	(0.03)	-0.23	(0.04)	**0.13**	(0.05)	**-0.33**	(0.05)	-0.10	(0.04)	-0.07	(0.03)	**-0.12**	(0.04)
	Liechtenstein	0.11	(0.05)	0.16	(0.07)	0.05	(0.08)	0.12	(0.11)	-0.04	(0.13)	0.07	(0.10)	0.29	(0.09)	0.12	(0.12)
	Lithuania	-0.13	(0.03)	-0.04	(0.04)	-0.22	(0.03)	**0.18**	(0.03)	-0.18	(0.04)	-0.13	(0.05)	-0.09	(0.04)	-0.11	(0.03)
	Macao-China	0.04	(0.01)	0.09	(0.01)	0.00	(0.02)	**0.09**	(0.02)	-0.01	(0.02)	0.05	(0.02)	0.08	(0.02)	0.05	(0.02)
	Panama	-0.13	(0.04)	-0.14	(0.05)	-0.11	(0.05)	-0.03	(0.06)	**-0.48**	(0.06)	-0.29	(0.06)	0.04	(0.05)	**0.26**	(0.03)
	Qatar	0.13	(0.01)	-0.03	(0.02)	0.29	(0.01)	**-0.32**	(0.02)	**-0.01**	(0.03)	0.07	(0.02)	0.19	(0.02)	**0.29**	(0.02)
	Russian Federation	-0.09	(0.02)	-0.05	(0.03)	-0.12	(0.03)	0.07	(0.05)	**-0.21**	(0.04)	-0.09	(0.04)	-0.02	(0.03)	**-0.03**	(0.04)
	Serbia	0.03	(0.02)	0.14	(0.02)	-0.08	(0.02)	**0.23**	(0.03)	**-0.17**	(0.03)	0.04	(0.03)	0.10	(0.03)	**0.16**	(0.03)
	Singapore	-0.03	(0.01)	0.06	(0.02)	-0.12	(0.01)	**0.17**	(0.02)	**0.01**	(0.03)	0.01	(0.03)	-0.05	(0.03)	**-0.08**	(0.02)
	Thailand	-0.05	(0.02)	-0.11	(0.03)	-0.01	(0.02)	**-0.10**	(0.04)	**-0.32**	(0.03)	-0.15	(0.03)	-0.02	(0.04)	**0.29**	(0.03)
	Trinidad and Tobago	0.12	(0.01)	0.10	(0.02)	0.14	(0.02)	-0.04	(0.03)	**-0.02**	(0.03)	0.07	(0.03)	0.16	(0.03)	**0.28**	(0.03)
	Uruguay	0.11	(0.02)	0.14	(0.02)	0.08	(0.02)	**0.06**	(0.03)	**-0.01**	(0.02)	0.08	(0.03)	0.18	(0.03)	**0.18**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 2/2]

Table VI.5.23 Index of attitude towards computers and reading performance

Results based on students' self-reports

		Digital reading performance, by national quarters of this index (15 OECD countries)								Print reading performance, by national quarters of this index (28 OECD countries)							
		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	Australia	525	(3.3)	547	(3.1)	549	(3.5)	549	(3.6)	507	(3.2)	527	(3.7)	527	(3.1)	521	(3.1)
	Austria	463	(4.3)	477	(4.5)	465	(5.1)	461	(5.5)	478	(4.4)	486	(4.9)	469	(5.2)	470	(4.6)
	Belgium	512	(3.0)	521	(2.9)	519	(2.9)	517	(3.5)	517	(3.2)	521	(3.7)	513	(3.3)	514	(3.2)
	Canada	m	m	m	m	m	m	m	m	518	(2.5)	528	(2.4)	529	(2.5)	531	(2.4)
	Chile	422	(4.7)	436	(4.0)	446	(4.5)	447	(4.5)	442	(3.5)	453	(3.7)	459	(3.7)	459	(4.3)
	Czech Republic	m	m	m	m	m	m	m	m	474	(3.6)	492	(3.7)	477	(3.7)	477	(3.7)
	Denmark	486	(3.8)	497	(3.1)	493	(3.8)	491	(3.3)	502	(3.5)	504	(3.4)	490	(3.5)	494	(3.3)
	Estonia	m	m	m	m	m	m	m	m	508	(3.7)	507	(4.5)	499	(3.9)	497	(3.8)
	Finland	m	m	m	m	m	m	m	m	545	(3.9)	546	(3.7)	535	(4.1)	524	(3.7)
	Germany	m	m	m	m	m	m	m	m	515	(4.5)	515	(3.9)	498	(3.8)	500	(3.9)
	Greece	m	m	m	m	m	m	m	m	476	(6.7)	489	(5.6)	488	(5.3)	489	(5.9)
	Hungary	459	(5.9)	482	(5.8)	470	(5.9)	468	(5.3)	488	(4.9)	506	(4.4)	493	(4.3)	494	(4.5)
	Iceland	509	(3.2)	523	(3.1)	514	(4.6)	512	(3.5)	504	(3.5)	515	(4.0)	498	(3.8)	497	(3.4)
	Ireland	495	(4.0)	513	(4.5)	523	(4.6)	525	(4.5)	489	(4.1)	503	(3.7)	508	(4.4)	511	(4.8)
	Israel	m	m	m	m	m	m	m	m	454	(6.4)	493	(4.9)	486	(4.4)	488	(4.6)
	Italy	m	m	m	m	m	m	m	m	480	(2.6)	496	(3.2)	490	(2.2)	490	(2.8)
	Japan	499	(2.7)	526	(3.1)	537	(2.8)	535	(3.1)	508	(4.1)	533	(4.3)	528	(5.1)	529	(4.1)
	Korea	555	(3.5)	569	(4.0)	575	(3.7)	574	(4.0)	533	(4.0)	542	(4.5)	543	(4.7)	542	(4.3)
	New Zealand	535	(4.3)	546	(3.5)	546	(3.6)	545	(3.5)	526	(3.9)	531	(3.8)	525	(5.0)	520	(3.6)
	Norway	506	(3.8)	508	(3.8)	497	(3.7)	498	(3.9)	514	(4.4)	515	(3.4)	496	(3.8)	497	(3.7)
	Poland	445	(3.9)	466	(4.0)	476	(4.3)	474	(4.5)	486	(3.3)	505	(3.9)	508	(4.1)	510	(3.4)
	Portugal	m	m	m	m	m	m	m	m	495	(4.2)	491	(3.9)	487	(4.3)	487	(4.2)
	Slovak Republic	m	m	m	m	m	m	m	m	472	(4.9)	488	(4.0)	479	(3.8)	479	(3.6)
	Slovenia	m	m	m	m	m	m	m	m	482	(3.2)	496	(3.6)	486	(3.4)	483	(3.0)
	Spain	459	(6.6)	481	(4.2)	487	(4.6)	488	(4.7)	469	(2.8)	487	(3.2)	490	(2.9)	490	(2.8)
	Sweden	499	(4.8)	519	(4.2)	517	(4.1)	519	(4.2)	493	(4.6)	509	(4.1)	500	(3.7)	502	(4.2)
	Switzerland	m	m	m	m	m	m	m	m	509	(3.3)	512	(3.5)	493	(3.4)	493	(3.4)
	Turkey	m	m	m	m	m	m	m	m	440	(4.5)	468	(3.9)	475	(4.4)	481	(4.9)
	OECD average	491	(1.1)	507	(1.0)	507	(1.1)	507	(1.1)	494	(0.8)	506	(0.7)	499	(0.8)	499	(0.7)
Partners	Bulgaria	m	m	m	m	m	m	m	m	433	(9.6)	438	(9.5)	434	(8.4)	436	(7.2)
	Croatia	m	m	m	m	m	m	m	m	478	(4.3)	480	(3.7)	477	(3.8)	476	(3.7)
	Hong Kong-China	505	(3.6)	517	(3.2)	519	(3.4)	522	(3.9)	528	(3.1)	538	(3.3)	535	(3.9)	538	(3.2)
	Jordan	m	m	m	m	m	m	m	m	362	(4.6)	422	(3.9)	430	(3.8)	428	(4.3)
	Latvia	m	m	m	m	m	m	m	m	475	(4.2)	491	(4.4)	488	(4.3)	487	(3.8)
	Liechtenstein	m	m	m	m	m	m	m	m	508	(9.3)	511	(10.1)	495	(10.3)	484	(9.8)
	Lithuania	m	m	m	m	m	m	m	m	463	(4.2)	477	(3.2)	471	(3.5)	470	(3.8)
	Macao-China	486	(1.8)	492	(1.9)	496	(3.2)	495	(2.2)	485	(2.5)	490	(2.1)	488	(3.2)	488	(3.1)
	Panama	m	m	m	m	m	m	m	m	334	(7.7)	388	(6.8)	393	(9.7)	412	(10.6)
	Qatar	m	m	m	m	m	m	m	m	332	(3.0)	390	(3.2)	391	(2.6)	392	(2.9)
	Russian Federation	m	m	m	m	m	m	m	m	453	(3.6)	468	(4.2)	465	(4.9)	466	(4.8)
	Serbia	m	m	m	m	m	m	m	m	437	(4.0)	452	(3.5)	445	(3.2)	443	(3.6)
	Singapore	m	m	m	m	m	m	m	m	535	(2.7)	532	(2.8)	522	(2.9)	519	(2.9)
	Thailand	m	m	m	m	m	m	m	m	403	(3.4)	423	(2.9)	432	(3.5)	430	(3.3)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	401	(4.2)	425	(4.1)	443	(3.7)	443	(3.8)
	Uruguay	m	m	m	m	m	m	m	m	412	(3.6)	431	(3.8)	441	(4.5)	443	(3.9)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 1/1]
Table VI.5.24 Percentage of students, by level of self-confidence in ICT high-level tasks
Results based on students' self-reports

		Edit digital photographs or other graphic images				Create a database				Use a spreadsheet to plot a graph				Create a presentation				Create a multi-media presentation (with sound, pictures, video)			
		"I can do this very well by myself"		"I can do this with help from someone"		"I can do this very well by myself"		"I can do this with help from someone"		"I can do this very well by myself"		"I can do this with help from someone"		"I can do this very well by myself"		"I can do this with help from someone"		"I can do this very well by myself"		"I can do this with help from someone"	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	58.7	(0.6)	28.5	(0.5)	27.3	(0.5)	31.0	(0.4)	56.7	(0.6)	28.0	(0.4)	90.0	(0.4)	6.6	(0.3)	61.3	(0.5)	28.2	(0.4)
	Austria	70.7	(0.8)	22.8	(0.7)	35.5	(1.2)	32.3	(0.8)	70.9	(1.0)	19.3	(0.8)	85.2	(0.9)	9.3	(0.6)	56.6	(1.0)	30.1	(0.8)
	Belgium	69.2	(0.7)	22.0	(0.5)	34.0	(0.7)	36.8	(0.5)	37.6	(0.7)	28.7	(0.6)	73.6	(0.7)	16.5	(0.6)	56.2	(0.6)	29.8	(0.5)
	Canada	61.0	(0.5)	24.8	(0.5)	29.0	(0.5)	28.3	(0.5)	50.9	(0.6)	28.4	(0.5)	79.6	(0.5)	12.9	(0.4)	56.2	(0.6)	28.9	(0.5)
	Chile	56.6	(0.8)	27.5	(0.6)	23.5	(0.9)	33.1	(0.8)	43.5	(0.7)	32.9	(0.7)	76.4	(1.0)	15.6	(0.6)	54.9	(0.9)	31.4	(0.8)
	Czech Republic	77.4	(0.6)	15.3	(0.5)	24.3	(0.7)	36.0	(0.8)	62.8	(1.1)	22.1	(0.7)	82.2	(0.8)	10.5	(0.5)	66.0	(0.8)	23.3	(0.8)
	Denmark	53.4	(0.8)	33.6	(0.7)	16.1	(0.6)	27.6	(0.6)	53.4	(1.1)	31.5	(0.9)	82.6	(0.7)	12.5	(0.6)	57.9	(0.7)	31.0	(0.7)
	Estonia	78.0	(0.7)	15.2	(0.6)	30.5	(1.0)	35.6	(0.9)	52.6	(1.0)	31.9	(0.8)	69.1	(1.2)	18.8	(0.7)	47.7	(1.0)	32.1	(0.8)
	Finland	53.7	(0.9)	34.3	(0.8)	16.1	(0.7)	31.4	(0.7)	31.3	(0.8)	34.5	(0.8)	59.8	(1.4)	25.4	(0.9)	41.3	(0.8)	34.7	(0.7)
	Germany	70.6	(0.8)	22.3	(0.7)	27.9	(0.9)	34.4	(0.8)	57.4	(1.0)	28.1	(0.7)	69.7	(1.1)	20.4	(0.8)	54.3	(0.9)	30.4	(0.8)
	Greece	56.3	(0.7)	28.3	(0.7)	36.6	(0.8)	31.9	(0.8)	55.6	(1.0)	25.6	(0.6)	54.3	(1.0)	25.6	(0.8)	55.1	(0.9)	26.7	(0.7)
	Hungary	68.2	(0.8)	21.4	(0.8)	30.6	(1.0)	35.4	(0.8)	65.1	(1.0)	23.9	(0.7)	66.9	(1.3)	19.3	(0.9)	51.7	(1.1)	30.9	(0.8)
	Iceland	59.7	(0.8)	25.6	(0.8)	27.0	(0.9)	27.5	(0.9)	33.4	(0.8)	33.0	(0.8)	80.4	(0.6)	12.4	(0.5)	45.8	(0.9)	29.9	(0.8)
	Ireland	58.5	(1.0)	25.1	(0.7)	31.1	(0.9)	28.3	(0.7)	46.7	(1.3)	26.6	(0.9)	59.6	(1.3)	20.6	(0.7)	47.6	(1.1)	26.6	(0.8)
	Israel	56.9	(0.6)	24.2	(0.5)	29.5	(0.8)	26.5	(0.7)	39.4	(1.0)	25.8	(0.6)	68.5	(0.9)	15.5	(0.7)	54.1	(0.9)	26.0	(0.8)
	Italy	61.1	(0.4)	23.9	(0.3)	22.9	(0.4)	27.6	(0.4)	50.3	(0.5)	24.4	(0.4)	70.6	(0.4)	17.6	(0.4)	64.4	(0.4)	21.8	(0.4)
	Japan	33.7	(0.8)	38.4	(0.7)	15.0	(0.6)	31.4	(0.6)	30.6	(0.8)	41.6	(0.8)	30.9	(0.9)	34.7	(0.7)	17.6	(0.6)	32.0	(0.7)
	Korea	65.7	(0.8)	21.6	(0.8)	13.2	(0.5)	37.6	(0.9)	34.2	(1.0)	36.4	(0.8)	63.5	(1.3)	23.8	(1.0)	36.9	(0.9)	38.3	(0.7)
	Netherlands	28.8	(1.1)	30.3	(0.8)	30.5	(0.9)	29.8	(0.9)	83.4	(0.8)	12.8	(0.6)	53.3	(1.1)	30.4	(0.9)	65.4	(1.0)	26.1	(0.9)
	New Zealand	52.0	(0.8)	29.8	(0.9)	23.1	(0.7)	28.0	(0.8)	52.1	(0.8)	29.5	(0.6)	79.7	(0.7)	13.1	(0.5)	48.6	(0.9)	33.8	(0.8)
	Norway	58.5	(1.0)	26.5	(0.8)	20.6	(0.7)	28.2	(0.6)	62.4	(1.1)	25.6	(0.9)	86.8	(0.6)	8.0	(0.5)	58.7	(0.9)	27.1	(0.7)
	Poland	68.3	(0.8)	21.9	(0.7)	32.1	(1.1)	35.9	(0.8)	64.2	(1.0)	25.3	(0.7)	74.7	(0.9)	16.8	(0.7)	56.0	(0.9)	31.4	(0.8)
	Portugal	76.2	(0.6)	16.9	(0.5)	45.9	(0.8)	33.1	(0.7)	67.6	(0.8)	24.6	(0.6)	89.5	(0.6)	7.7	(0.4)	72.0	(0.8)	22.0	(0.7)
	Slovak Republic	60.4	(0.9)	25.5	(0.7)	21.4	(0.7)	32.0	(0.7)	56.5	(1.0)	25.7	(0.7)	68.6	(1.1)	18.6	(0.7)	51.8	(0.9)	29.2	(0.7)
	Slovenia	61.4	(0.8)	26.8	(0.7)	30.2	(0.7)	36.3	(0.8)	61.6	(0.8)	26.4	(0.7)	81.9	(0.6)	11.7	(0.5)	60.7	(0.9)	26.8	(0.8)
	Spain	67.6	(0.6)	19.8	(0.4)	34.9	(0.6)	30.9	(0.5)	58.1	(0.7)	25.8	(0.5)	76.3	(0.7)	15.0	(0.5)	61.5	(0.8)	25.2	(0.6)
	Sweden	60.5	(0.8)	27.5	(0.7)	18.2	(0.7)	27.2	(0.7)	33.6	(0.9)	31.9	(0.7)	60.3	(1.2)	22.1	(0.7)	50.9	(0.8)	29.3	(0.8)
	Switzerland	65.8	(0.7)	24.4	(0.6)	28.7	(0.7)	32.0	(0.6)	52.5	(1.0)	30.5	(0.8)	71.3	(1.2)	18.7	(0.8)	51.6	(0.6)	31.9	(0.6)
	Turkey	44.7	(0.9)	34.0	(0.7)	26.3	(0.8)	38.3	(0.7)	42.8	(1.0)	32.9	(0.7)	59.0	(1.0)	23.2	(0.7)	51.1	(0.9)	29.2	(0.7)
	OECD average-29	60.5	(0.1)	25.5	(0.1)	27.0	(0.1)	31.9	(0.1)	52.0	(0.2)	28.1	(0.1)	71.2	(0.2)	17.4	(0.1)	53.6	(0.2)	29.1	(0.1)
Partners	Bulgaria	61.5	(1.3)	22.9	(1.0)	42.2	(1.1)	30.3	(0.9)	55.5	(1.1)	25.8	(0.8)	57.9	(1.3)	22.6	(0.9)	52.2	(1.2)	27.1	(1.0)
	Croatia	63.2	(0.6)	28.1	(0.6)	36.7	(0.7)	40.2	(0.7)	63.2	(0.9)	25.9	(0.7)	79.8	(0.9)	12.6	(0.6)	66.0	(0.7)	25.0	(0.7)
	Hong Kong-China	58.6	(0.8)	31.8	(0.8)	28.7	(0.7)	39.4	(0.6)	53.2	(1.1)	35.9	(0.9)	81.7	(0.8)	14.5	(0.7)	57.3	(0.9)	34.7	(0.9)
	Jordan	50.3	(0.9)	24.9	(0.7)	52.6	(1.0)	24.7	(0.9)	51.7	(1.1)	24.5	(0.7)	59.6	(1.0)	17.5	(0.7)	54.8	(0.8)	22.2	(0.7)
	Latvia	67.2	(1.0)	21.8	(0.9)	25.4	(1.0)	32.2	(0.9)	52.1	(1.1)	28.6	(0.9)	74.7	(1.0)	16.3	(0.8)	56.9	(1.0)	27.1	(0.8)
	Liechtenstein	70.3	(2.6)	22.0	(2.3)	34.8	(2.8)	35.1	(2.6)	65.0	(2.6)	22.9	(2.4)	87.1	(1.7)	9.0	(1.6)	58.3	(2.7)	30.1	(2.6)
	Lithuania	65.1	(0.8)	24.3	(0.7)	28.9	(0.7)	33.8	(0.7)	62.8	(1.0)	23.7	(0.7)	60.9	(1.3)	22.9	(1.0)	45.6	(0.9)	34.1	(0.8)
	Macao-China	48.1	(0.6)	35.6	(0.5)	23.1	(0.5)	35.5	(0.6)	31.1	(0.6)	36.1	(0.6)	69.9	(0.5)	19.4	(0.5)	46.9	(0.7)	36.6	(0.6)
	Panama	45.6	(2.2)	29.2	(1.3)	31.0	(1.5)	32.1	(1.2)	35.3	(1.6)	33.9	(1.2)	50.2	(2.2)	23.9	(1.1)	44.5	(2.4)	30.4	(1.3)
	Qatar	58.5	(0.6)	25.6	(0.5)	48.5	(0.5)	29.2	(0.6)	42.7	(0.5)	29.4	(0.5)	67.2	(0.4)	16.4	(0.4)	56.6	(0.6)	24.5	(0.5)
	Russian Federation	56.7	(0.9)	28.8	(0.7)	35.0	(0.9)	34.3	(1.1)	51.5	(1.1)	30.0	(0.9)	61.5	(1.6)	21.8	(0.8)	51.6	(1.1)	30.8	(0.7)
	Serbia	69.9	(0.9)	19.0	(0.7)	35.5	(0.8)	36.5	(0.7)	57.3	(0.9)	25.9	(0.7)	57.8	(1.1)	24.4	(0.8)	43.9	(1.0)	34.0	(0.7)
	Singapore	42.4	(0.7)	39.3	(0.6)	19.0	(0.6)	34.0	(0.7)	28.3	(0.6)	38.4	(0.6)	81.9	(0.6)	14.1	(0.5)	48.6	(0.8)	37.7	(0.7)
	Thailand	23.4	(0.8)	44.0	(0.8)	18.3	(0.7)	43.3	(0.9)	28.8	(0.8)	46.1	(0.8)	40.7	(0.9)	37.6	(0.8)	24.4	(0.8)	45.1	(0.9)
	Trinidad and Tobago	57.5	(0.9)	26.6	(0.7)	40.5	(0.7)	32.1	(0.8)	46.0	(0.7)	30.2	(0.7)	53.7	(0.8)	26.5	(0.7)	49.3	(0.8)	30.4	(0.8)
	Uruguay	61.5	(0.8)	23.7	(0.7)	38.3	(0.9)	31.7	(0.7)	47.9	(0.9)	29.1	(0.8)	73.1	(0.9)	14.6	(0.6)	60.4	(0.9)	25.0	(0.8)

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[Part 1/2]
Table VI.5.25 Index of self-confidence in ICT high-level tasks, and reading performance
Results based on students' self-reports

		Index of self confidence in ICT high level tasks (29 OECD countries)															
		All students		Boys		Girls		Difference (B – G)		Bottom quarter of ESCS[1]		Second quarter of ESCS[1]		Third quarter of ESCS[1]		Top quarter of ESCS[1]	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	0.14	(0.01)	0.20	(0.02)	0.09	(0.01)	**0.11**	(0.02)	**-0.05**	(0.02)	0.13	(0.02)	0.20	(0.02)	**0.32**	(0.02)
	Austria	0.33	(0.02)	0.41	(0.03)	0.25	(0.03)	**0.16**	(0.04)	**0.15**	(0.04)	0.31	(0.03)	0.39	(0.04)	**0.46**	(0.04)
	Belgium	0.02	(0.01)	0.12	(0.02)	-0.09	(0.02)	**0.21**	(0.02)	**-0.10**	(0.03)	-0.01	(0.03)	0.06	(0.03)	**0.13**	(0.02)
	Canada	0.05	(0.01)	0.08	(0.02)	0.02	(0.01)	**0.06**	(0.02)	**-0.14**	(0.02)	0.06	(0.02)	0.06	(0.02)	**0.22**	(0.02)
	Chile	-0.07	(0.02)	-0.05	(0.02)	-0.10	(0.02)	0.05	(0.03)	**-0.34**	(0.03)	-0.10	(0.03)	0.04	(0.02)	**0.11**	(0.02)
	Czech Republic	0.23	(0.02)	0.35	(0.02)	0.08	(0.02)	**0.27**	(0.03)	**0.03**	(0.04)	0.20	(0.03)	0.30	(0.02)	**0.37**	(0.03)
	Denmark	-0.06	(0.01)	0.15	(0.02)	-0.25	(0.02)	**0.40**	(0.03)	**-0.19**	(0.03)	-0.07	(0.03)	-0.08	(0.02)	**0.12**	(0.02)
	Estonia	0.10	(0.02)	0.23	(0.03)	-0.03	(0.02)	**0.26**	(0.03)	**-0.11**	(0.05)	0.08	(0.03)	0.16	(0.03)	**0.28**	(0.04)
	Finland	-0.31	(0.02)	-0.03	(0.02)	-0.58	(0.02)	**0.55**	(0.02)	**-0.40**	(0.03)	-0.34	(0.03)	-0.27	(0.03)	**-0.23**	(0.03)
	Germany	0.13	(0.02)	0.32	(0.02)	-0.06	(0.02)	**0.38**	(0.03)	**0.00**	(0.03)	0.07	(0.03)	0.19	(0.03)	**0.26**	(0.03)
	Greece	0.05	(0.02)	0.16	(0.03)	-0.06	(0.03)	**0.22**	(0.04)	**-0.27**	(0.04)	0.01	(0.04)	0.22	(0.03)	**0.25**	(0.03)
	Hungary	0.13	(0.02)	0.25	(0.03)	0.01	(0.03)	**0.25**	(0.04)	**-0.29**	(0.05)	0.12	(0.04)	0.32	(0.04)	**0.38**	(0.04)
	Iceland	-0.14	(0.02)	0.04	(0.03)	-0.33	(0.02)	**0.37**	(0.03)	**-0.31**	(0.04)	-0.17	(0.03)	-0.07	(0.03)	**-0.04**	(0.03)
	Ireland	-0.11	(0.03)	-0.05	(0.03)	-0.18	(0.04)	**0.13**	(0.05)	**-0.32**	(0.05)	-0.11	(0.05)	-0.04	(0.04)	**0.03**	(0.03)
	Israel	-0.18	(0.02)	-0.13	(0.02)	-0.23	(0.03)	**0.09**	(0.03)	**-0.47**	(0.04)	-0.20	(0.04)	-0.11	(0.04)	**0.07**	(0.03)
	Italy	-0.06	(0.01)	-0.01	(0.01)	-0.11	(0.01)	**0.11**	(0.02)	**-0.22**	(0.02)	-0.06	(0.02)	0.01	(0.01)	**0.05**	(0.02)
	Japan	-0.66	(0.02)	-0.61	(0.03)	-0.72	(0.02)	**0.11**	(0.03)	**-0.85**	(0.03)	-0.65	(0.03)	-0.62	(0.03)	**-0.53**	(0.03)
	Korea	-0.34	(0.02)	-0.38	(0.03)	-0.30	(0.03)	**-0.08**	(0.04)	**-0.61**	(0.04)	-0.36	(0.03)	-0.30	(0.03)	**-0.10**	(0.03)
	Netherlands	-0.06	(0.02)	0.12	(0.02)	-0.25	(0.02)	**0.37**	(0.03)	**-0.19**	(0.03)	-0.02	(0.03)	-0.05	(0.03)	**0.00**	(0.03)
	New Zealand	-0.07	(0.02)	-0.05	(0.03)	-0.09	(0.02)	0.04	(0.03)	**-0.22**	(0.03)	-0.10	(0.03)	-0.02	(0.03)	**0.07**	(0.03)
	Norway	0.03	(0.02)	0.19	(0.02)	-0.14	(0.02)	**0.33**	(0.03)	**-0.13**	(0.03)	0.01	(0.04)	0.09	(0.03)	**0.14**	(0.03)
	Poland	0.23	(0.02)	0.33	(0.03)	0.13	(0.02)	**0.21**	(0.03)	**-0.11**	(0.03)	0.19	(0.03)	0.39	(0.03)	**0.47**	(0.03)
	Portugal	0.56	(0.01)	0.60	(0.02)	0.53	(0.02)	**0.07**	(0.03)	**0.39**	(0.03)	0.56	(0.03)	0.67	(0.02)	**0.65**	(0.03)
	Slovak Republic	-0.05	(0.02)	0.12	(0.03)	-0.21	(0.02)	**0.32**	(0.03)	**-0.28**	(0.04)	-0.07	(0.03)	0.05	(0.03)	**0.12**	(0.03)
	Slovenia	0.22	(0.02)	0.29	(0.02)	0.14	(0.02)	**0.15**	(0.03)	**0.05**	(0.03)	0.25	(0.03)	0.24	(0.03)	**0.33**	(0.04)
	Spain	0.21	(0.01)	0.24	(0.02)	0.17	(0.02)	**0.07**	(0.02)	**-0.03**	(0.03)	0.21	(0.02)	0.33	(0.02)	**0.31**	(0.02)
	Sweden	-0.24	(0.02)	-0.05	(0.02)	-0.43	(0.02)	**0.38**	(0.03)	**-0.40**	(0.04)	-0.25	(0.03)	-0.21	(0.03)	**-0.11**	(0.03)
	Switzerland	0.07	(0.02)	0.19	(0.02)	-0.06	(0.02)	**0.25**	(0.03)	**-0.05**	(0.03)	0.05	(0.03)	0.12	(0.02)	**0.14**	(0.03)
	Turkey	-0.17	(0.02)	-0.15	(0.03)	-0.19	(0.03)	0.03	(0.04)	**-0.58**	(0.04)	-0.27	(0.03)	-0.06	(0.03)	**0.24**	(0.03)
	OECD average	0.00	(0.00)	0.10	(0.00)	-0.10	(0.00)	**0.20**	(0.01)	**-0.21**	(0.01)	-0.02	(0.01)	0.07	(0.01)	**0.15**	(0.01)
Partners	Bulgaria	0.06	(0.03)	0.05	(0.05)	0.08	(0.03)	-0.03	(0.05)	**-0.33**	(0.06)	0.06	(0.04)	0.17	(0.04)	**0.35**	(0.04)
	Croatia	0.34	(0.02)	0.41	(0.02)	0.26	(0.02)	**0.15**	(0.03)	**0.08**	(0.03)	0.28	(0.03)	0.49	(0.03)	**0.50**	(0.03)
	Hong Kong-China	0.16	(0.02)	0.16	(0.03)	0.15	(0.02)	0.01	(0.03)	**-0.09**	(0.03)	0.10	(0.03)	0.28	(0.02)	**0.35**	(0.03)
	Jordan	0.00	(0.03)	-0.21	(0.03)	0.21	(0.04)	**-0.42**	(0.05)	**-0.39**	(0.04)	-0.08	(0.05)	0.13	(0.04)	**0.37**	(0.05)
	Latvia	0.02	(0.02)	0.08	(0.03)	-0.03	(0.02)	**0.12**	(0.04)	**-0.15**	(0.05)	-0.01	(0.04)	0.09	(0.03)	**0.17**	(0.03)
	Liechtenstein	0.32	(0.05)	0.46	(0.07)	0.16	(0.06)	**0.29**	(0.10)	**0.10**	(0.10)	0.29	(0.10)	0.51	(0.10)	**0.40**	(0.10)
	Lithuania	0.02	(0.02)	0.13	(0.02)	-0.09	(0.02)	**0.22**	(0.03)	**-0.21**	(0.04)	-0.03	(0.03)	0.15	(0.03)	**0.19**	(0.03)
	Macao-China	-0.21	(0.01)	-0.23	(0.02)	-0.19	(0.01)	-0.04	(0.02)	**-0.40**	(0.02)	-0.26	(0.02)	-0.15	(0.02)	**-0.04**	(0.02)
	Panama	-0.35	(0.06)	-0.33	(0.07)	-0.37	(0.06)	0.04	(0.06)	**-0.81**	(0.06)	-0.55	(0.07)	-0.23	(0.07)	**0.22**	(0.07)
	Qatar	0.06	(0.01)	-0.06	(0.02)	0.17	(0.02)	**-0.23**	(0.03)	**-0.17**	(0.03)	-0.06	(0.02)	0.12	(0.02)	**0.34**	(0.03)
	Russian Federation	0.02	(0.03)	0.10	(0.03)	-0.06	(0.03)	**0.16**	(0.03)	**-0.36**	(0.05)	-0.01	(0.04)	0.13	(0.04)	**0.31**	(0.04)
	Serbia	0.06	(0.02)	0.10	(0.03)	0.02	(0.02)	**0.08**	(0.03)	**-0.32**	(0.03)	0.07	(0.04)	0.17	(0.03)	**0.32**	(0.03)
	Singapore	-0.23	(0.01)	-0.25	(0.02)	-0.22	(0.02)	-0.03	(0.03)	**-0.38**	(0.03)	-0.32	(0.03)	-0.20	(0.02)	**-0.03**	(0.02)
	Thailand	-0.56	(0.02)	-0.55	(0.02)	-0.56	(0.02)	0.00	(0.03)	**-0.82**	(0.04)	-0.64	(0.04)	-0.49	(0.03)	**-0.27**	(0.02)
	Trinidad and Tobago	-0.04	(0.02)	-0.04	(0.03)	-0.03	(0.03)	-0.01	(0.04)	**-0.39**	(0.04)	-0.14	(0.04)	0.10	(0.04)	**0.30**	(0.03)
	Uruguay	0.10	(0.02)	0.07	(0.03)	0.13	(0.02)	-0.06	(0.04)	**-0.23**	(0.04)	0.07	(0.03)	0.26	(0.04)	**0.30**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 2/2]
Table VI.5.25 Index of self-confidence in ICT high-level tasks, and reading performance
Results based on students' self-reports

		Digital reading performance, by national quarters of this index (15 OECD countries)								Print reading performance, by national quarters of this index (29 OECD countries)							
		Bottom quarter		Second quarter		Third quarter		Top quarter		Bottom quarter		Second quarter		Third quarter		Top quarter	
		Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.	Mean score	S.E.
OECD	Australia	511	(3.1)	550	(3.2)	559	(3.7)	549	(3.4)	494	(2.5)	530	(2.8)	536	(3.0)	521	(3.2)
	Austria	438	(5.6)	474	(4.6)	484	(3.9)	470	(5.2)	454	(5.1)	485	(4.1)	491	(3.6)	473	(4.4)
	Belgium	496	(2.9)	524	(3.0)	527	(3.0)	516	(3.0)	504	(3.3)	524	(2.9)	523	(3.0)	509	(3.2)
	Canada	m	m	m	m	m	m	m	m	508	(2.0)	539	(2.3)	541	(2.5)	519	(2.3)
	Chile	416	(4.4)	443	(4.2)	450	(4.4)	445	(4.3)	436	(3.9)	459	(4.0)	463	(3.9)	457	(3.4)
	Czech Republic	m	m	m	m	m	m	m	m	467	(4.4)	492	(3.8)	491	(4.0)	470	(4.1)
	Denmark	478	(3.3)	498	(3.6)	502	(3.2)	489	(3.7)	489	(3.3)	506	(3.6)	506	(3.2)	487	(2.9)
	Estonia	m	m	m	m	m	m	m	m	494	(3.7)	513	(4.1)	513	(3.9)	491	(3.7)
	Finland	m	m	m	m	m	m	m	m	545	(3.5)	546	(3.4)	540	(3.0)	520	(3.4)
	Germany	m	m	m	m	m	m	m	m	496	(3.8)	516	(4.0)	518	(3.3)	499	(4.2)
	Greece	m	m	m	m	m	m	m	m	469	(6.9)	485	(5.8)	504	(4.3)	484	(4.5)
	Hungary	428	(7.1)	476	(5.3)	492	(4.7)	483	(4.9)	459	(6.2)	504	(4.2)	517	(3.5)	502	(3.7)
	Iceland	504	(3.4)	530	(3.2)	527	(3.3)	497	(3.4)	493	(3.4)	522	(3.7)	519	(3.5)	479	(3.3)
	Ireland	492	(3.7)	518	(3.9)	526	(4.0)	516	(3.9)	487	(3.9)	510	(3.8)	514	(3.5)	497	(4.5)
	Israel	m	m	m	m	m	m	m	m	448	(5.3)	487	(4.5)	503	(4.4)	489	(4.2)
	Italy	m	m	m	m	m	m	m	m	471	(2.8)	497	(2.2)	502	(2.1)	484	(1.9)
	Japan	495	(2.7)	529	(2.4)	533	(3.1)	540	(2.9)	501	(4.2)	541	(3.4)	532	(4.1)	525	(4.2)
	Korea	546	(3.6)	567	(4.0)	577	(3.3)	582	(3.6)	520	(4.0)	537	(4.8)	551	(3.9)	551	(3.7)
	Netherlands	m	m	m	m	m	m	m	m	512	(6.0)	522	(5.1)	515	(6.1)	500	(5.6)
	New Zealand	512	(3.6)	548	(4.0)	560	(3.4)	551	(3.7)	501	(4.4)	534	(4.1)	540	(3.6)	527	(3.1)
	Norway	492	(3.8)	518	(4.0)	511	(3.8)	489	(4.0)	499	(3.7)	528	(3.5)	514	(4.0)	483	(3.8)
	Poland	423	(4.1)	474	(4.1)	485	(4.4)	481	(3.7)	470	(3.6)	513	(4.3)	519	(4.2)	509	(3.4)
	Portugal	m	m	m	m	m	m	m	m	470	(4.2)	506	(3.8)	501	(3.7)	485	(3.9)
	Slovak Republic	m	m	m	m	m	m	m	m	466	(4.4)	489	(3.4)	493	(3.6)	471	(3.3)
	Slovenia	m	m	m	m	m	m	m	m	470	(3.2)	506	(3.1)	500	(3.0)	470	(2.4)
	Spain	447	(5.0)	489	(4.4)	496	(3.7)	482	(4.7)	462	(3.1)	493	(3.0)	498	(2.5)	482	(2.4)
	Sweden	502	(4.6)	525	(4.1)	524	(4.1)	503	(4.5)	497	(4.0)	515	(3.5)	513	(4.4)	480	(4.3)
	Switzerland	m	m	m	m	m	m	m	m	490	(4.0)	515	(3.2)	510	(3.8)	492	(3.8)
	Turkey	m	m	m	m	m	m	m	m	441	(4.2)	468	(4.2)	479	(4.5)	474	(3.9)
	OECD average	479	(1.1)	511	(1.0)	517	(1.0)	506	(1.0)	483	(0.8)	510	(0.7)	512	(0.7)	494	(0.7)
Partners	Bulgaria	m	m	m	m	m	m	m	m	391	(8.0)	442	(8.0)	466	(6.9)	442	(6.4)
	Croatia	m	m	m	m	m	m	m	m	454	(4.2)	487	(3.8)	498	(3.3)	474	(3.5)
	Hong Kong-China	483	(4.3)	517	(3.2)	532	(2.9)	531	(3.4)	504	(3.8)	537	(3.2)	549	(2.8)	549	(3.2)
	Jordan	m	m	m	m	m	m	m	m	372	(3.9)	399	(3.2)	440	(3.4)	437	(4.8)
	Latvia	m	m	m	m	m	m	m	m	469	(4.2)	496	(4.1)	494	(3.5)	484	(3.6)
	Liechtenstein	m	m	m	m	m	m	m	m	495	(9.8)	504	(8.4)	502	(10.4)	498	(9.5)
	Lithuania	m	m	m	m	m	m	m	m	449	(4.2)	480	(3.3)	483	(3.0)	467	(3.3)
	Macao-China	470	(1.7)	490	(1.8)	500	(1.9)	510	(1.8)	464	(1.8)	485	(2.0)	498	(2.3)	504	(1.9)
	Panama	m	m	m	m	m	m	m	m	328	(6.6)	368	(8.0)	414	(8.4)	410	(8.5)
	Qatar	m	m	m	m	m	m	m	m	334	(2.3)	380	(2.7)	403	(2.4)	387	(2.4)
	Russian Federation	m	m	m	m	m	m	m	m	432	(4.9)	468	(3.9)	480	(4.6)	471	(4.6)
	Serbia	m	m	m	m	m	m	m	m	411	(3.6)	448	(3.8)	467	(3.0)	453	(2.9)
	Singapore	m	m	m	m	m	m	m	m	510	(2.7)	532	(3.1)	539	(3.1)	527	(2.6)
	Thailand	m	m	m	m	m	m	m	m	404	(2.8)	421	(2.9)	431	(3.2)	434	(3.8)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	391	(3.5)	425	(4.2)	450	(3.7)	449	(4.0)
	Uruguay	m	m	m	m	m	m	m	m	399	(4.1)	437	(4.0)	458	(3.4)	428	(3.8)

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[Part 1/1]
Table VI.5.26 Percentage of students, by level of self-confidence in creating a multi-media presentation
Results based on students' self-reports

		Percentage of students who reported that they are able to create a multi-media presentation (with sound, pictures, video)							
		"I can do this very well by myself"		"I can do this with help from someone"		"I know what this means but I cannot do it"		"I don't know what this means"	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	61.3	(0.5)	28.2	(0.4)	8.7	(0.3)	1.8	(0.1)
	Austria	56.6	(1.0)	30.1	(0.8)	11.2	(0.6)	2.2	(0.2)
	Belgium	56.2	(0.6)	29.8	(0.5)	11.3	(0.4)	2.7	(0.2)
	Canada	56.2	(0.6)	28.9	(0.5)	11.8	(0.4)	3.1	(0.2)
	Chile	54.9	(0.9)	31.4	(0.8)	10.4	(0.5)	3.2	(0.3)
	Czech Republic	66.0	(0.8)	23.3	(0.8)	8.7	(0.4)	2.0	(0.2)
	Denmark	57.9	(0.7)	31.0	(0.7)	9.4	(0.5)	1.7	(0.2)
	Estonia	47.7	(1.0)	32.1	(0.8)	17.2	(0.6)	3.0	(0.3)
	Finland	41.3	(0.8)	34.7	(0.7)	21.0	(0.7)	3.0	(0.2)
	Germany	54.3	(0.9)	30.4	(0.8)	13.4	(0.6)	1.9	(0.2)
	Greece	55.1	(0.9)	26.7	(0.7)	13.8	(0.6)	4.4	(0.4)
	Hungary	51.7	(1.1)	30.9	(0.8)	12.5	(0.5)	5.0	(0.5)
	Iceland	45.8	(0.9)	29.9	(0.8)	19.2	(0.7)	5.1	(0.4)
	Ireland	47.6	(1.1)	26.6	(0.8)	19.0	(0.8)	6.8	(0.4)
	Israel	54.1	(0.9)	26.0	(0.8)	13.3	(0.4)	6.6	(0.4)
	Italy	64.4	(0.4)	21.8	(0.4)	10.2	(0.2)	3.6	(0.2)
	Japan	17.6	(0.6)	32.0	(0.7)	41.2	(0.8)	9.3	(0.4)
	Korea	36.9	(0.9)	38.3	(0.7)	16.7	(0.6)	8.1	(0.5)
	Netherlands	65.4	(1.0)	26.1	(0.9)	7.5	(0.5)	1.0	(0.2)
	New Zealand	48.6	(0.9)	33.8	(0.8)	14.2	(0.6)	3.5	(0.3)
	Norway	58.7	(0.9)	27.1	(0.7)	11.7	(0.6)	2.5	(0.2)
	Poland	56.0	(0.9)	31.4	(0.8)	10.5	(0.5)	2.0	(0.2)
	Portugal	72.0	(0.8)	22.0	(0.7)	5.2	(0.3)	0.8	(0.1)
	Slovak Republic	51.8	(0.9)	29.2	(0.7)	16.1	(0.6)	2.9	(0.3)
	Slovenia	60.7	(0.9)	26.8	(0.8)	10.3	(0.5)	2.2	(0.2)
	Spain	61.5	(0.8)	25.2	(0.6)	10.9	(0.4)	2.5	(0.2)
	Sweden	50.9	(0.8)	29.3	(0.8)	16.0	(0.6)	3.8	(0.3)
	Switzerland	51.6	(0.6)	31.9	(0.6)	13.9	(0.5)	2.6	(0.2)
	Turkey	51.1	(0.9)	29.2	(0.7)	12.5	(0.7)	7.2	(0.4)
	OECD average-29	53.6	(0.2)	29.1	(0.1)	13.7	(0.1)	3.6	(0.1)
Partners	Bulgaria	52.2	(1.2)	27.1	(1.0)	14.7	(0.7)	5.9	(0.7)
	Croatia	66.0	(0.7)	25.0	(0.7)	7.1	(0.4)	1.9	(0.2)
	Hong Kong-China	57.3	(0.9)	34.7	(0.9)	6.6	(0.4)	1.4	(0.2)
	Jordan	54.8	(0.8)	22.2	(0.7)	13.3	(0.6)	9.8	(0.5)
	Latvia	56.9	(1.0)	27.1	(0.8)	12.1	(0.8)	3.8	(0.4)
	Liechtenstein	58.3	(2.7)	30.1	(2.6)	c	c	c	c
	Lithuania	45.6	(0.9)	34.1	(0.8)	16.9	(0.6)	3.3	(0.3)
	Macao-China	46.9	(0.7)	36.6	(0.6)	14.0	(0.4)	2.4	(0.2)
	Panama	44.5	(2.4)	30.4	(1.3)	15.2	(1.8)	9.8	(1.1)
	Qatar	56.6	(0.6)	24.5	(0.5)	12.0	(0.3)	6.9	(0.3)
	Russian Federation	51.6	(1.1)	30.8	(0.7)	12.1	(0.8)	5.5	(0.5)
	Serbia	43.9	(1.0)	34.0	(0.7)	17.2	(0.7)	5.0	(0.3)
	Singapore	48.6	(0.8)	37.7	(0.7)	11.3	(0.5)	2.5	(0.2)
	Thailand	24.4	(0.8)	45.1	(0.9)	21.6	(0.6)	8.8	(0.5)
	Trinidad and Tobago	49.3	(0.8)	30.4	(0.8)	13.7	(0.6)	6.5	(0.4)
	Uruguay	60.4	(0.9)	25.0	(0.8)	9.7	(0.5)	4.8	(0.4)

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Table VI.5.27 Percentage of students, by level of self-confidence in using a spreadsheet to plot a graph
Results based on students' self-reports

		Percentage of students who reported that they are able to use a spreadsheet to plot a graph							
		"I can do this very well by myself"		"I can do this with help from someone"		"I know what this means but I cannot do it"		"I don't know what this means"	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.
OECD	Australia	56.7	(0.6)	28.0	(0.4)	10.8	(0.4)	4.5	(0.2)
	Austria	70.9	(1.0)	19.3	(0.8)	7.0	(0.4)	2.7	(0.2)
	Belgium	37.6	(0.7)	28.7	(0.6)	15.4	(0.5)	18.3	(0.6)
	Canada	50.9	(0.6)	28.4	(0.5)	13.8	(0.4)	7.0	(0.3)
	Chile	43.5	(0.7)	32.9	(0.7)	16.6	(0.6)	6.9	(0.5)
	Czech Republic	62.8	(1.1)	22.1	(0.7)	11.6	(0.5)	3.4	(0.3)
	Denmark	53.4	(1.1)	31.5	(0.9)	12.8	(0.7)	2.3	(0.3)
	Estonia	52.6	(1.0)	31.9	(0.8)	12.4	(0.6)	3.1	(0.3)
	Finland	31.3	(0.8)	34.5	(0.8)	23.0	(0.6)	11.2	(0.6)
	Germany	57.4	(1.0)	28.1	(0.7)	11.6	(0.6)	2.9	(0.3)
	Greece	55.6	(1.0)	25.6	(0.6)	12.9	(0.7)	5.9	(0.4)
	Hungary	65.1	(1.0)	23.9	(0.7)	8.1	(0.5)	2.9	(0.4)
	Iceland	33.4	(0.8)	33.0	(0.8)	23.3	(0.7)	10.3	(0.5)
	Ireland	46.7	(1.3)	26.6	(0.9)	17.0	(0.6)	9.6	(0.5)
	Israel	39.4	(1.0)	25.8	(0.6)	20.1	(0.7)	14.7	(0.6)
	Italy	50.3	(0.5)	24.4	(0.4)	16.1	(0.3)	9.3	(0.3)
	Japan	30.6	(0.8)	41.6	(0.8)	21.5	(0.7)	6.4	(0.4)
	Korea	34.2	(1.0)	36.4	(0.8)	15.2	(0.5)	14.3	(0.6)
	Netherlands	83.4	(0.8)	12.8	(0.6)	2.7	(0.3)	1.1	(0.2)
	New Zealand	52.1	(0.8)	29.5	(0.6)	12.6	(0.5)	5.8	(0.3)
	Norway	62.4	(1.1)	25.6	(0.9)	9.6	(0.6)	2.4	(0.3)
	Poland	64.2	(1.0)	25.3	(0.7)	7.8	(0.5)	2.6	(0.3)
	Portugal	67.6	(0.8)	24.6	(0.6)	6.4	(0.4)	1.4	(0.2)
	Slovak Republic	56.5	(1.0)	25.7	(0.7)	13.5	(0.6)	4.2	(0.4)
	Slovenia	61.6	(0.8)	26.4	(0.7)	9.5	(0.4)	2.6	(0.2)
	Spain	58.1	(0.7)	25.8	(0.5)	12.3	(0.4)	3.7	(0.3)
	Sweden	33.6	(0.9)	31.9	(0.7)	24.3	(0.7)	10.2	(0.5)
	Switzerland	52.5	(1.0)	30.5	(0.8)	12.5	(0.5)	4.4	(0.3)
	Turkey	42.8	(1.0)	32.9	(0.7)	16.1	(0.7)	8.2	(0.4)
	OECD average-29	52.0	(0.2)	28.1	(0.1)	13.7	(0.1)	6.3	(0.1)
Partners	Bulgaria	55.5	(1.1)	25.8	(0.8)	12.6	(0.6)	6.1	(0.6)
	Croatia	63.2	(0.9)	25.9	(0.7)	8.9	(0.5)	2.0	(0.2)
	Hong Kong-China	53.2	(1.1)	35.9	(0.9)	7.8	(0.5)	3.2	(0.3)
	Jordan	51.7	(1.1)	24.5	(0.7)	15.3	(0.6)	8.6	(0.5)
	Latvia	52.1	(1.1)	28.6	(0.9)	13.5	(0.6)	5.9	(0.5)
	Liechtenstein	65.0	(2.6)	22.9	(2.4)	8.1	(1.6)	4.0	(1.0)
	Lithuania	62.8	(1.0)	23.7	(0.7)	11.0	(0.5)	2.5	(0.3)
	Macao-China	31.1	(0.6)	36.1	(0.6)	22.7	(0.5)	10.1	(0.4)
	Panama	35.3	(1.6)	33.9	(1.2)	19.3	(1.2)	11.4	(1.1)
	Qatar	42.7	(0.5)	29.4	(0.5)	17.8	(0.5)	10.0	(0.3)
	Russian Federation	51.5	(1.1)	30.0	(0.9)	13.3	(0.6)	5.1	(0.5)
	Serbia	57.3	(0.9)	25.9	(0.7)	12.6	(0.6)	4.2	(0.3)
	Singapore	28.3	(0.6)	38.4	(0.6)	22.5	(0.6)	10.8	(0.4)
	Thailand	28.8	(0.8)	46.1	(0.8)	18.1	(0.6)	7.0	(0.5)
	Trinidad and Tobago	46.0	(0.7)	30.2	(0.7)	14.3	(0.6)	9.5	(0.5)
	Uruguay	47.9	(0.9)	29.1	(0.8)	14.2	(0.6)	8.8	(0.4)

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Table VI.5.28 Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by gender

	Percentage of students who reported to be able to use a spreadsheet to plot a graph																							
	PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
	All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	%	S.E.
OECD																								
Australia	58.4	(0.8)	63.8	(0.9)	52.8	(1.1)	**11.0**	(1.3)	56.7	(0.6)	59.0	(0.8)	54.6	(1.0)	**4.4**	(1.3)	-1.6	(1.0)	**-4.8**	(1.2)	1.8	(1.4)	**-6.6**	(1.8)
Austria	57.5	(1.2)	58.0	(1.6)	57.0	(1.6)	1.0	(2.1)	70.9	(1.0)	71.9	(1.3)	70.0	(1.2)	1.9	(1.4)	**13.4**	(1.5)	**13.9**	(2.0)	**13.0**	(2.0)	0.9	(2.5)
Belgium	32.9	(0.7)	40.0	(1.0)	25.4	(0.9)	**14.6**	(1.2)	37.6	(0.7)	44.1	(0.9)	30.9	(0.9)	**13.1**	(1.1)	**4.6**	(1.0)	**4.1**	(1.3)	**5.6**	(1.3)	-1.4	(1.7)
Canada	51.4	(0.6)	58.3	(0.7)	44.9	(0.9)	**13.4**	(1.1)	50.9	(0.6)	53.9	(0.8)	47.8	(0.8)	**6.1**	(1.0)	-0.6	(0.9)	**-4.3**	(1.1)	**2.9**	(1.2)	**-7.3**	(1.4)
Chile	m	m	m	m	m	m	m	m	43.5	(0.7)	45.4	(1.0)	41.6	(1.0)	**3.8**	(1.3)	m	m	m	m	m	m	m	m
Czech Republic	51.7	(1.4)	61.3	(1.5)	41.7	(1.6)	**19.5**	(2.0)	62.8	(1.1)	67.3	(1.4)	57.8	(1.2)	**9.6**	(1.5)	**11.1**	(1.7)	**6.1**	(2.0)	**16.0**	(2.1)	**10.0**	(2.5)
Denmark	54.3	(1.0)	65.3	(1.2)	43.5	(1.3)	**21.8**	(1.6)	53.4	(1.1)	61.2	(1.4)	45.9	(1.4)	**15.3**	(1.6)	-0.9	(1.5)	**-4.2**	(1.8)	2.3	(1.9)	**-6.5**	(2.2)
Estonia	m	m	m	m	m	m	m	m	52.6	(1.0)	56.5	(1.2)	48.6	(1.5)	**7.8**	(1.7)	m	m	m	m	m	m	m	(1.7)
Finland	40.9	(0.9)	53.6	(1.2)	28.5	(1.1)	**25.1**	(1.5)	31.3	(0.8)	43.1	(1.2)	19.6	(1.0)	**23.5**	(1.5)	**-9.6**	(1.2)	**10.5**	(1.7)	**-8.8**	(1.4)	-1.6	(2.1)
Germany	49.0	(0.9)	58.9	(1.3)	39.4	(1.3)	**19.5**	(1.8)	57.4	(1.0)	65.6	(1.0)	49.4	(1.4)	**16.2**	(1.3)	**8.4**	(1.4)	**6.7**	(1.6)	**10.0**	(1.9)	-3.3	(2.2)
Greece	29.1	(0.9)	36.5	(1.1)	22.2	(1.2)	**14.3**	(1.4)	55.6	(1.0)	58.6	(1.4)	52.7	(1.2)	**6.0**	(1.8)	**26.5**	(1.3)	**22.2**	(1.8)	**30.5**	(1.7)	**-8.3**	(2.3)
Hungary	31.1	(0.9)	38.2	(1.2)	23.3	(1.0)	**14.9**	(1.5)	65.1	(1.0)	68.4	(1.2)	61.7	(1.3)	**6.7**	(1.8)	**33.9**	(1.3)	**30.2**	(1.7)	**38.4**	(1.7)	**-8.2**	(2.3)
Iceland	36.3	(0.8)	49.6	(1.2)	22.4	(1.0)	**27.2**	(1.7)	33.4	(0.8)	42.0	(1.1)	24.9	(1.1)	**17.1**	(1.4)	**-2.9**	(1.1)	**-7.5**	(1.6)	2.6	(1.5)	**10.1**	(2.2)
Ireland	35.8	(1.1)	36.1	(1.3)	35.5	(1.3)	0.6	(1.4)	46.7	(1.3)	48.6	(1.7)	44.9	(1.7)	3.7	(2.1)	**10.9**	(1.7)	**12.5**	(2.1)	**9.4**	(2.2)	3.1	(2.6)
Israel	m	m	m	m	m	m	m	m	39.4	(1.0)	40.6	(1.2)	38.3	(1.4)	2.3	(1.6)	m	m	m	m	m	m	m	m
Italy	45.6	(0.8)	52.6	(1.1)	39.1	(1.1)	**13.5**	(1.5)	50.3	(0.5)	54.4	(0.6)	46.1	(0.7)	**8.4**	(0.8)	**4.7**	(0.9)	1.8	(1.3)	**7.0**	(1.3)	**-5.1**	(1.7)
Japan	22.8	(1.3)	24.8	(1.6)	21.1	(1.5)	**3.7**	(1.8)	30.6	(0.8)	32.6	(1.0)	28.4	(1.1)	**4.3**	(1.3)	**7.7**	(1.5)	**7.9**	(1.9)	**7.3**	(1.9)	0.6	(2.2)
Korea	13.1	(0.6)	15.2	(0.8)	10.0	(0.7)	**5.2**	(1.0)	34.2	(1.0)	35.2	(1.5)	33.0	(1.3)	2.1	(2.0)	**21.1**	(1.1)	**19.9**	(1.7)	**23.0**	(1.5)	-3.1	(2.3)
Mexico	37.4	(1.3)	40.4	(1.5)	34.5	(1.8)	**5.9**	(2.1)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Netherlands	m	m	m	m	m	m	m	m	83.4	(0.8)	82.9	(1.0)	83.8	(0.9)	-1.0	(1.1)	m	m	m	m	m	m	m	m
New Zealand	58.3	(0.9)	61.1	(1.2)	55.5	(1.2)	**5.6**	(1.6)	52.1	(0.8)	52.4	(1.0)	51.9	(1.1)	0.6	(1.5)	**-6.2**	(1.2)	**-8.7**	(1.6)	**-3.6**	(1.7)	**-5.0**	(2.3)
Norway	m	m	m	m	m	m	m	m	62.4	(1.1)	68.5	(1.1)	56.2	(1.5)	**12.3**	(1.5)	m	m	m	m	m	m	m	m
Poland	64.0	(1.1)	70.5	(1.2)	57.5	(1.6)	**13.0**	(1.7)	64.2	(1.0)	67.6	(1.1)	60.8	(1.3)	**6.8**	(1.2)	**0.3**	(1.5)	-2.9	(1.6)	3.4	(2.1)	**-6.2**	(2.1)
Portugal	51.7	(1.0)	58.1	(1.3)	45.8	(1.3)	**12.3**	(1.6)	67.6	(0.8)	69.6	(1.1)	65.7	(1.0)	**3.9**	(1.4)	**15.9**	(1.2)	**11.4**	(1.7)	**19.9**	(1.6)	**-8.5**	(2.2)
Slovak Republic	34.8	(1.1)	43.4	(1.2)	25.4	(1.5)	**18.0**	(1.7)	56.5	(1.0)	63.2	(1.2)	50.0	(1.3)	**13.1**	(1.6)	**21.7**	(1.5)	**19.8**	(1.7)	**24.6**	(2.0)	**-4.8**	(2.4)
Slovenia	m	m	m	m	m	m	m	m	61.6	(0.8)	63.7	(1.0)	59.4	(1.2)	**4.2**	(1.5)	m	m	m	m	m	m	m	m
Spain	m	m	m	m	m	m	m	m	58.1	(0.7)	60.7	(0.8)	55.5	(1.0)	**5.2**	(1.1)	m	m	m	m	m	m	m	m
Sweden	35.3	(1.2)	45.6	(1.6)	25.1	(1.3)	**20.5**	(1.8)	33.6	(0.9)	41.4	(1.1)	25.6	(1.1)	**15.7**	(1.1)	**-1.8**	(1.5)	**-4.2**	(1.9)	0.6	(1.7)	**-4.8**	(2.1)
Switzerland	45.7	(0.8)	55.6	(1.0)	35.1	(1.1)	**20.5**	(1.4)	52.5	(1.0)	58.9	(1.2)	46.1	(1.3)	**12.8**	(1.5)	**6.8**	(1.3)	**3.2**	(1.5)	**11.0**	(1.7)	**-7.7**	(2.0)
Turkey	38.3	(1.3)	39.9	(1.6)	35.6	(1.9)	4.3	(2.3)	42.8	(1.0)	43.8	(0.9)	41.7	(1.6)	2.1	(1.7)	**4.5**	(1.7)	**3.9**	(1.9)	**6.1**	(2.5)	-2.1	(2.9)
United States	53.5	(1.0)	56.5	(1.2)	50.4	(1.3)	**6.1**	(1.5)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD average	42.6	0.2	49.4	0.3	35.8	0.3	**13.6**	(0.3)	50.3	0.2	54.7	0.2	45.9	0.3	**8.8**	(0.3)	**7.6**	(0.3)	**5.3**	(0.4)	**10.1**	(0.4)	**-4.8**	(0.5)
Partners																								
Bulgaria	m	m	m	m	m	m	m	m	55.5	(1.1)	55.6	(1.5)	55.5	(1.6)	0.1	(2.1)	m	m	m	m	m	m	m	m
Croatia	m	m	m	m	m	m	m	m	63.2	(0.9)	66.9	(1.2)	59.1	(1.3)	**7.7**	(1.6)	m	m	m	m	m	m	m	m
Hong Kong-China	m	m	m	m	m	m	m	m	53.2	(1.1)	55.4	(1.4)	50.6	(1.6)	**4.8**	(2.0)	m	m	m	m	m	m	m	m
Jordan	m	m	m	m	m	m	m	m	51.7	(1.1)	44.0	(1.3)	59.0	(1.6)	**-15.0**	(2.0)	m	m	m	m	m	m	m	m
Latvia	30.2	(1.2)	39.3	(1.6)	21.4	(1.5)	**17.9**	(2.0)	52.1	(1.1)	56.2	(1.3)	48.2	(1.3)	**7.9**	(1.5)	**21.9**	(1.6)	**16.8**	(2.1)	**26.8**	(2.0)	**-10.0**	(2.5)
Liechtenstein	60.9	(2.2)	70.5	(3.3)	50.6	(4.2)	**19.9**	(5.8)	65.0	(2.6)	73.3	(3.6)	55.6	(3.9)	**17.7**	(5.4)	4.1	(3.5)	2.8	(4.9)	5.0	(5.7)	-2.1	(7.9)
Lithuania	m	m	m	m	m	m	m	m	62.8	(1.0)	65.3	(1.1)	60.2	(1.3)	**5.1**	(1.5)	m	m	m	m	m	m	m	m
Macao-China	m	m	m	m	m	m	m	m	31.1	(0.6)	32.3	(0.8)	29.9	(0.8)	**2.4**	(1.2)	m	m	m	m	m	m	m	m
Panama	m	m	m	m	m	m	m	m	35.3	(1.6)	36.6	(2.0)	34.1	(1.7)	2.6	(1.9)	m	m	m	m	m	m	m	m
Qatar	m	m	m	m	m	m	m	m	42.7	(0.5)	42.3	(0.9)	43.1	(0.7)	-0.8	(1.2)	m	m	m	m	m	m	m	m
Russian Federation	33.7	(1.3)	38.8	(1.7)	28.4	(1.4)	**10.4**	(1.8)	51.5	(1.1)	53.3	(1.4)	49.8	(1.2)	**3.4**	(1.5)	**17.8**	(1.7)	**14.4**	(2.2)	**21.4**	(1.9)	**-7.0**	(2.4)
Serbia	27.1	(0.9)	32.2	(1.1)	22.2	(1.2)	**10.0**	(1.6)	57.3	(0.9)	56.8	(1.2)	57.8	(1.2)	-0.9	(1.4)	**30.2**	(1.3)	**24.7**	(1.6)	**35.5**	(1.7)	**10.9**	(2.2)
Singapore	m	m	m	m	m	m	m	m	28.3	(0.6)	31.1	(0.9)	25.5	(0.9)	**5.6**	(1.2)	m	m	m	m	m	m	m	m
Thailand	16.8	(0.9)	16.9	(1.1)	16.7	(1.1)	0.2	(1.3)	28.8	(0.8)	28.8	(1.1)	28.7	(1.0)	0.1	(1.3)	**11.9**	(1.2)	**11.9**	(1.6)	**12.0**	(1.5)	-0.1	(1.8)
Trinidad and Tobago	m	m	m	m	m	m	m	m	46.0	(0.7)	46.3	(1.2)	45.8	(1.1)	0.5	(1.8)	m	m	m	m	m	m	m	m
Tunisia	24.2	(1.1)	29.5	(1.6)	18.3	(1.4)	**11.2**	(2.0)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Uruguay	48.0	(1.2)	52.4	(1.6)	43.8	(1.7)	**8.6**	(2.2)	47.9	(0.9)	50.2	(1.2)	46.0	(1.2)	**4.2**	(1.6)	-0.1	(1.5)	-2.3	(2.0)	2.2	(2.1)	-4.5	(2.7)

Note: Values that are statistically significant are indicated in bold (see Annex A3).

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Table VI.5.28

[Part 2/3]
Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by gender

		Percentage of students who reported to be able to create a presentation																							
		PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
		All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)	
		%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	%	S.E.
OECD	Australia	77.4	(0.7)	80.1	(0.7)	74.7	(1.1)	**5.5**	(1.2)	90.0	(0.4)	87.0	(0.5)	92.8	(0.4)	**-5.8**	(0.7)	**12.5**	(0.8)	**6.8**	(0.9)	**18.1**	(1.2)	**11.2**	(1.4)
	Austria	65.8	(1.5)	66.8	(1.7)	64.9	(2.0)	1.9	(2.2)	85.2	(0.9)	83.3	(1.1)	87.0	(1.0)	**-3.7**	(1.2)	**19.4**	(1.7)	**16.5**	(2.0)	**22.2**	(2.3)	**-5.6**	(2.5)
	Belgium	47.4	(1.0)	53.0	(1.1)	41.4	(1.1)	**11.6**	(1.1)	73.6	(0.7)	73.2	(0.9)	74.0	(0.9)	-0.8	(1.1)	**26.2**	(1.2)	**20.2**	(1.4)	**32.6**	(1.4)	**12.4**	(1.5)
	Canada	64.0	(0.7)	69.7	(0.8)	58.5	(1.0)	**11.2**	(1.1)	79.6	(0.5)	77.2	(0.7)	82.0	(0.7)	**-4.8**	(0.9)	**15.7**	(0.9)	**7.5**	(1.1)	**23.6**	(1.2)	**16.1**	(1.4)
	Chile	m	m	m	m	m	m	m	m	76.4	(1.0)	73.9	(1.1)	78.9	(1.2)	**-5.0**	(1.4)	m	m	m	m	m	m	m	m
	Czech Republic	32.9	(1.4)	43.9	(1.5)	21.6	(1.5)	**22.3**	(1.5)	82.2	(0.8)	82.2	(1.0)	82.1	(1.1)	0.1	(1.3)	**49.2**	(1.6)	**38.3**	(1.8)	**60.5**	(1.8)	**22.2**	(2.0)
	Denmark	48.6	(1.1)	61.5	(1.5)	36.2	(1.4)	**25.3**	(1.8)	82.6	(0.7)	83.4	(1.1)	81.9	(1.0)	1.4	(1.4)	**34.0**	(1.4)	**21.9**	(1.8)	**45.8**	(1.8)	**23.9**	(2.3)
	Estonia	m	m	m	m	m	m	m	m	69.1	(1.2)	70.5	(1.4)	67.8	(1.6)	2.7	(1.8)	m	m	m	m	m	m	m	m
	Finland	41.9	(1.2)	55.8	(1.5)	28.2	(1.3)	**27.6**	(1.4)	59.8	(1.4)	68.8	(1.4)	51.0	(1.6)	**17.8**	(1.4)	**17.9**	(1.8)	**13.0**	(2.1)	**22.8**	(2.1)	**-9.8**	(2.0)
	Germany	34.6	(1.2)	43.5	(1.5)	26.1	(1.3)	**17.3**	(1.7)	69.7	(1.1)	74.3	(1.3)	65.3	(1.3)	**9.0**	(1.5)	**35.2**	(1.6)	**30.8**	(2.0)	**39.1**	(1.9)	**-8.3**	(2.3)
	Greece	37.8	(1.3)	46.0	(1.6)	30.1	(1.4)	**15.9**	(1.5)	54.3	(1.0)	56.7	(1.4)	51.9	(1.2)	**4.8**	(1.5)	**16.5**	(1.6)	**10.7**	(2.1)	**21.8**	(1.8)	**11.0**	(2.1)
	Hungary	27.0	(1.2)	31.4	(1.5)	22.2	(1.4)	**9.3**	(1.7)	66.9	(1.3)	68.2	(1.3)	65.6	(1.6)	2.6	(1.5)	**39.9**	(1.7)	**36.8**	(2.0)	**43.4**	(2.1)	**-6.7**	(2.2)
	Iceland	55.7	(0.8)	65.5	(1.1)	45.5	(1.2)	**20.0**	(1.7)	80.4	(0.6)	79.5	(0.9)	81.2	(0.8)	-1.8	(1.2)	**24.6**	(1.0)	**14.0**	(1.5)	**35.8**	(1.5)	**21.8**	(2.1)
	Ireland	40.6	(1.5)	40.0	(1.7)	41.2	(2.1)	-1.2	(2.4)	59.6	(1.3)	60.6	(1.3)	58.6	(2.1)	2.0	(2.3)	**19.1**	(1.9)	**20.6**	(2.1)	**17.5**	(2.9)	3.1	(3.3)
	Israel	m	m	m	m	m	m	m	m	68.5	(0.9)	65.7	(1.1)	71.5	(1.2)	**-5.8**	(1.6)	m	m	m	m	m	m	m	m
	Italy	47.3	(1.0)	51.5	(1.2)	43.3	(1.4)	**8.2**	(1.6)	70.6	(0.4)	67.9	(0.7)	73.4	(0.6)	**-5.5**	(0.9)	**23.3**	(1.1)	**16.4**	(1.3)	**30.1**	(1.5)	**13.7**	(1.8)
	Japan	17.3	(0.9)	19.2	(1.2)	15.6	(1.1)	**3.6**	(1.4)	30.9	(0.9)	32.4	(1.1)	29.4	(1.1)	**3.0**	(1.3)	**13.6**	(1.3)	**13.2**	(1.7)	**13.8**	(1.5)	-0.6	(1.9)
	Korea	46.7	(1.0)	47.1	(1.4)	46.0	(1.6)	1.1	(2.2)	63.5	(1.3)	57.4	(1.8)	70.3	(1.5)	**12.9**	(2.2)	**16.9**	(1.6)	**10.3**	(2.3)	**24.3**	(2.2)	**14.0**	(3.1)
	Mexico	52.5	(1.3)	53.5	(1.4)	51.6	(1.7)	1.9	(1.7)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	53.3	(1.1)	61.7	(1.2)	45.2	(1.4)	**16.5**	(1.4)	m	m	m	m	m	m	m	m
	New Zealand	59.8	(1.1)	61.3	(1.4)	58.3	(1.5)	3.0	(2.0)	79.7	(0.7)	75.0	(1.0)	84.4	(0.8)	**-9.4**	(1.2)	**19.9**	(1.3)	**13.7**	(1.7)	**26.1**	(1.7)	**12.4**	(2.3)
	Norway	m	m	m	m	m	m	m	m	86.8	(0.6)	85.7	(0.8)	88.1	(0.8)	**-2.4**	(1.1)	m	m	m	m	m	m	m	m
	Poland	50.3	(1.4)	58.2	(1.6)	42.4	(1.9)	**15.9**	(1.9)	74.7	(0.9)	75.1	(1.0)	74.3	(1.1)	0.8	(1.2)	**24.4**	(1.7)	**16.9**	(1.9)	**31.9**	(2.2)	**15.0**	(2.3)
	Portugal	57.6	(1.1)	63.4	(1.3)	52.2	(1.5)	**11.2**	(1.8)	89.5	(0.6)	87.1	(0.8)	91.8	(0.6)	**-4.6**	(0.9)	**31.9**	(1.3)	**23.7**	(1.5)	**39.5**	(1.7)	**15.8**	(2.0)
	Slovak Republic	21.1	(1.1)	28.0	(1.5)	13.5	(1.3)	**14.5**	(1.7)	68.6	(1.1)	69.8	(1.3)	67.5	(1.5)	2.2	(1.7)	**47.6**	(1.6)	**41.8**	(2.0)	**54.1**	(2.0)	**12.3**	(2.4)
	Slovenia	m	m	m	m	m	m	m	m	81.9	(0.6)	79.1	(0.9)	84.7	(0.8)	**-5.6**	(1.1)	m	m	m	m	m	m	m	m
	Spain	m	m	m	m	m	m	m	m	76.3	(0.7)	74.6	(0.7)	78.1	(0.9)	**-3.6**	(1.0)	m	m	m	m	m	m	m	m
	Sweden	50.0	(1.1)	56.1	(1.5)	43.9	(1.3)	**12.2**	(1.8)	60.3	(1.2)	62.8	(1.3)	57.8	(1.5)	**5.0**	(1.4)	**10.3**	(1.6)	**6.7**	(2.0)	**13.9**	(2.0)	**-7.2**	(2.2)
	Switzerland	39.5	(1.4)	47.8	(1.7)	30.5	(1.6)	**17.2**	(2.2)	71.3	(1.2)	72.8	(1.4)	69.9	(1.5)	**2.9**	(1.4)	**31.9**	(1.8)	**25.0**	(2.2)	**39.3**	(2.1)	**14.3**	(2.6)
	Turkey	40.2	(1.8)	42.4	(1.9)	36.6	(2.9)	5.9	(3.1)	59.0	(1.0)	58.7	(1.0)	59.4	(1.5)	-0.8	(1.6)	**18.8**	(2.1)	**16.3**	(2.2)	**22.9**	(3.3)	-6.6	(3.5)
	United States	69.8	(1.1)	70.3	(1.1)	69.3	(1.3)	1.0	(1.2)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	45.6	0.3	51.5	0.3	39.7	0.3	**11.8**	(0.4)	70.6	0.2	70.6	0.2	70.5	0.3	0.1	(0.3)	**24.9**	(0.3)	**19.1**	(0.4)	**30.9**	(0.4)	**11.7**	(0.5)
Partners	Bulgaria	m	m	m	m	m	m	m	m	57.9	(1.3)	56.7	(1.6)	59.2	(1.7)	-2.5	(1.9)	m	m	m	m	m	m	m	m
	Croatia	m	m	m	m	m	m	m	m	79.8	(0.9)	78.1	(1.1)	81.6	(1.1)	**-3.5**	(1.5)	m	m	m	m	m	m	m	m
	Hong Kong-China	m	m	m	m	m	m	m	m	81.7	(0.8)	78.3	(1.2)	85.5	(1.2)	**-7.2**	(1.7)	m	m	m	m	m	m	m	m
	Jordan	m	m	m	m	m	m	m	m	59.6	(1.0)	48.0	(1.4)	70.6	(1.3)	**22.5**	(1.9)	m	m	m	m	m	m	m	m
	Latvia	28.5	(1.4)	37.0	(1.5)	20.4	(1.9)	**16.6**	(2.0)	74.7	(1.0)	72.9	(1.3)	76.5	(1.5)	-3.6	(2.0)	**46.3**	(1.7)	**35.9**	(2.0)	**56.1**	(2.4)	**20.2**	(2.8)
	Liechtenstein	72.2	(2.5)	80.8	(3.0)	62.9	(3.7)	**18.0**	(4.4)	87.1	(1.7)	87.3	(2.4)	86.9	(2.7)	0.4	(3.7)	**14.9**	(3.0)	6.4	(3.8)	**24.0**	(4.5)	**17.6**	(5.8)
	Lithuania	m	m	m	m	m	m	m	m	60.9	(1.3)	61.9	(1.3)	59.9	(1.7)	2.1	(1.5)	m	(1.3)	m	(1.3)	m	(1.7)	m	m
	Macao-China	m	m	m	m	m	m	m	m	69.9	(0.5)	63.3	(0.8)	76.5	(0.6)	**13.1**	(1.0)	m	m	m	m	m	m	m	m
	Panama	m	m	m	m	m	m	m	m	50.2	(2.2)	47.9	(2.5)	52.5	(2.7)	-4.6	(2.8)	m	m	m	m	m	m	m	m
	Qatar	m	m	m	m	m	m	m	m	67.2	(0.4)	57.9	(0.8)	76.1	(0.7)	**18.2**	(1.1)	m	m	m	m	m	m	m	m
	Russian Federation	28.1	(1.5)	33.6	(2.0)	22.2	(1.4)	**11.5**	(1.7)	61.5	(1.6)	61.5	(1.6)	61.6	(1.8)	-0.0	(1.2)	**33.5**	(2.2)	**27.9**	(2.6)	**39.4**	(2.3)	**11.5**	(2.1)
	Serbia	18.4	(0.9)	25.5	(1.4)	11.5	(0.9)	**13.9**	(1.6)	57.8	(1.1)	57.9	(1.5)	57.8	(1.2)	0.1	(1.5)	**39.5**	(1.4)	**32.4**	(2.0)	**46.2**	(1.5)	**13.8**	(2.2)
	Singapore	m	m	m	m	m	m	m	m	81.9	(0.6)	77.3	(0.9)	86.6	(0.6)	**-9.3**	(1.0)	m	m	m	m	m	m	m	m
	Thailand	28.0	(1.4)	26.3	(1.6)	29.3	(1.7)	-3.0	(1.9)	40.7	(0.9)	39.1	(1.1)	41.9	(1.2)	-2.8	(1.5)	**12.7**	(1.7)	**12.7**	(2.0)	**12.6**	(2.1)	0.2	(2.4)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	53.7	(0.8)	50.4	(1.3)	56.7	(1.0)	**-6.3**	(1.7)	m	m	m	m	m	m	m	m
	Tunisia	30.9	(2.2)	38.1	(2.2)	23.0	(2.7)	**15.2**	(2.1)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Uruguay	67.6	(1.0)	68.8	(1.6)	66.3	(1.2)	2.5	(1.9)	73.1	(0.9)	68.7	(1.2)	77.0	(0.9)	**-8.3**	(1.3)	**5.6**	(1.4)	-0.1	(2.0)	**10.7**	(1.5)	**10.8**	(2.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 3/3]
Table VI.5.28 Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by gender

	Percentage of students who reported to be able to create a multi-media presentation (with sound, pictures, video)																							
	PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
	All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)		All students		Boys		Girls		Difference (B – G)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	%	S.E.
OECD																								
Australia	48.2	(0.6)	57.6	(0.9)	38.6	(1.0)	**19.0**	(1.5)	61.3	(0.5)	64.4	(0.8)	58.3	(0.8)	**6.1**	(1.2)	**13.1**	(0.8)	**6.8**	(1.2)	**19.7**	(1.3)	**12.9**	(1.9)
Austria	42.0	(1.1)	53.8	(1.4)	30.2	(1.2)	**23.6**	(1.6)	56.6	(1.0)	63.3	(1.2)	50.3	(1.2)	**13.0**	(1.5)	**14.6**	(1.5)	**9.5**	(1.8)	**20.1**	(1.7)	**10.6**	(2.2)
Belgium	38.0	(0.9)	48.5	(0.9)	26.8	(0.9)	**21.7**	(0.9)	56.2	(0.6)	59.9	(0.9)	52.5	(0.7)	**7.4**	(1.1)	**18.2**	(1.1)	**11.4**	(1.3)	**25.7**	(1.2)	**14.3**	(1.5)
Canada	46.2	(0.6)	57.3	(0.8)	35.5	(0.7)	**21.9**	(1.1)	56.2	(0.6)	59.1	(0.8)	53.3	(0.8)	**5.9**	(1.1)	**10.0**	(0.8)	1.8	(1.1)	**17.8**	(1.1)	**16.0**	(1.5)
Chile	m	m	m	m	m	m	m	m	54.9	(0.9)	56.8	(1.1)	52.9	(1.1)	**3.9**	(1.4)	m	m	m	m	m	m	m	m
Czech Republic	32.4	(1.0)	46.0	(1.1)	18.4	(0.9)	**27.6**	(1.3)	66.0	(0.8)	71.0	(0.8)	60.4	(1.2)	**10.6**	(1.3)	**33.6**	(1.3)	**25.0**	(1.4)	**42.0**	(1.5)	**17.0**	(1.8)
Denmark	38.3	(0.7)	56.0	(1.2)	21.3	(0.9)	**34.7**	(1.5)	57.9	(0.7)	65.9	(1.0)	50.1	(1.1)	**15.8**	(1.7)	**19.5**	(1.0)	**9.9**	(1.5)	**28.7**	(1.4)	**18.8**	(2.3)
Estonia	m	m	m	m	m	m	m	m	47.7	(1.0)	55.5	(1.3)	39.6	(1.4)	**15.9**	(1.8)	m	m	m	m	m	m	m	m
Finland	28.2	(0.7)	44.1	(1.2)	12.5	(0.6)	**31.6**	(1.2)	41.3	(0.8)	54.3	(1.2)	28.3	(0.9)	**25.9**	(1.5)	**13.1**	(1.1)	**10.2**	(1.7)	**15.9**	(1.1)	**-5.6**	(1.9)
Germany	36.0	(0.9)	50.2	(1.3)	22.1	(1.0)	**28.1**	(1.7)	54.3	(0.9)	61.5	(1.1)	47.2	(1.3)	**14.3**	(1.6)	**18.4**	(1.3)	**11.4**	(1.7)	**25.2**	(1.6)	**13.8**	(2.3)
Greece	35.5	(0.8)	46.1	(1.2)	25.6	(0.9)	**20.5**	(1.4)	55.1	(0.9)	60.6	(1.4)	49.9	(1.4)	**10.7**	(2.0)	**19.7**	(1.2)	**14.5**	(1.8)	**24.3**	(1.6)	**-9.8**	(2.5)
Hungary	22.4	(0.6)	30.7	(0.9)	13.2	(0.9)	**17.6**	(1.2)	51.7	(1.1)	56.6	(1.4)	46.7	(1.4)	**9.9**	(1.9)	**29.3**	(1.3)	**25.9**	(1.7)	**33.5**	(1.7)	**-7.6**	(2.2)
Iceland	30.5	(0.8)	45.3	(1.3)	14.9	(0.9)	**30.4**	(1.7)	45.8	(0.9)	57.5	(1.4)	34.3	(1.1)	**23.2**	(1.7)	**15.3**	(1.2)	**12.2**	(1.9)	**19.4**	(1.4)	**-7.2**	(2.4)
Ireland	27.9	(1.0)	32.2	(1.2)	23.6	(1.5)	**8.6**	(1.8)	47.6	(1.1)	51.1	(1.6)	44.1	(1.5)	**7.0**	(2.2)	**19.7**	(1.5)	**18.9**	(2.0)	**20.5**	(2.1)	-1.6	(2.8)
Israel	m	m	m	m	m	m	m	m	54.1	(0.9)	54.8	(1.1)	53.4	(1.3)	1.4	(1.6)	m	m	m	m	m	m	m	m
Italy	31.9	(0.8)	39.4	(1.1)	25.0	(1.3)	**14.4**	(1.6)	64.4	(0.4)	64.3	(0.7)	64.5	(0.6)	-0.3	(0.9)	**32.4**	(0.9)	**24.9**	(1.2)	**39.5**	(1.4)	**14.7**	(1.9)
Japan	16.6	(0.6)	18.4	(0.9)	14.9	(0.8)	**3.5**	(1.4)	17.6	(0.6)	21.6	(0.9)	13.3	(0.7)	**8.3**	(1.2)	1.0	(0.8)	**3.2**	(1.3)	-1.6	(1.1)	**4.8**	(1.8)
Korea	44.3	(0.8)	45.6	(1.1)	42.4	(1.2)	**3.3**	(1.6)	36.9	(0.9)	34.5	(1.2)	39.6	(1.3)	**-5.1**	(1.6)	**-7.4**	(1.2)	**11.1**	(1.6)	-2.7	(1.8)	**-8.4**	(2.3)
Mexico	31.2	(1.0)	37.2	(1.3)	25.7	(1.2)	**11.5**	(1.4)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Netherlands	m	m	m	m	m	m	m	m	65.4	(1.0)	63.3	(1.1)	67.4	(1.3)	**-4.2**	(1.5)	m	m	m	m	m	m	m	m
New Zealand	38.6	(1.0)	46.5	(1.4)	30.5	(1.2)	**16.0**	(1.8)	48.6	(0.9)	50.9	(1.1)	46.2	(1.2)	**4.7**	(1.5)	**10.0**	(1.3)	**4.4**	(1.8)	**15.7**	(1.7)	**11.3**	(2.3)
Norway	m	m	m	m	m	m	m	m	58.7	(0.9)	67.8	(1.0)	49.3	(1.4)	**18.5**	(1.6)	m	m	m	m	m	m	m	m
Poland	34.0	(0.9)	46.3	(1.4)	21.7	(1.1)	**24.7**	(1.7)	56.0	(0.9)	62.8	(1.2)	49.2	(1.4)	**13.6**	(1.7)	**22.0**	(1.3)	**16.5**	(1.8)	**27.6**	(1.8)	**11.1**	(2.4)
Portugal	36.9	(0.9)	50.5	(1.4)	24.3	(1.0)	**26.2**	(1.6)	72.0	(0.8)	73.1	(0.9)	71.0	(1.0)	2.1	(1.2)	**35.1**	(1.2)	**22.5**	(1.7)	**46.7**	(1.4)	**24.1**	(2.0)
Slovak Republic	18.2	(0.7)	25.9	(1.1)	9.7	(0.7)	**16.2**	(1.3)	51.8	(0.9)	58.8	(1.3)	45.1	(1.3)	**13.7**	(1.8)	**33.7**	(1.2)	**32.9**	(1.7)	**35.4**	(1.4)	-2.5	(2.2)
Slovenia	m	m	m	m	m	m	m	m	60.7	(0.9)	65.0	(1.1)	56.4	(1.2)	**8.6**	(1.5)	m	m	m	m	m	m	m	m
Spain	m	m	m	m	m	m	m	m	61.5	(0.8)	62.8	(1.0)	60.2	(1.0)	**2.6**	(1.2)	m	m	m	m	m	m	m	m
Sweden	40.0	(1.1)	55.4	(1.5)	24.7	(1.1)	**30.7**	(1.7)	50.9	(0.8)	59.1	(1.0)	42.5	(1.1)	**16.6**	(1.4)	**10.9**	(1.4)	**3.7**	(1.8)	**17.9**	(1.6)	**14.2**	(2.2)
Switzerland	30.9	(0.9)	45.0	(1.2)	15.6	(0.9)	**29.5**	(1.3)	51.6	(0.6)	59.3	(1.0)	43.6	(1.0)	**15.7**	(1.5)	**20.7**	(1.1)	**14.3**	(1.6)	**28.1**	(1.3)	**13.7**	(2.0)
Turkey	34.1	(1.1)	39.7	(1.4)	24.8	(1.5)	**14.9**	(2.2)	51.1	(0.9)	54.2	(1.1)	47.8	(1.3)	**6.4**	(1.7)	**17.0**	(1.4)	**14.5**	(1.8)	**23.0**	(2.0)	**-8.5**	(2.8)
United States	50.9	(0.8)	56.6	(1.1)	45.3	(1.2)	**11.3**	(1.6)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
OECD average	34.1	0.2	44.6	0.3	23.5	0.2	**21.1**	(0.3)	52.3	0.2	57.4	0.2	47.2	0.2	**10.3**	(0.3)	**18.2**	(0.3)	**12.9**	(0.3)	**23.7**	(0.3)	**10.9**	(0.5)
Partners																								
Bulgaria	m	m	m	m	m	m	m	m	52.2	(1.2)	53.9	(1.5)	50.5	(1.5)	3.3	(1.8)	m	m	m	m	m	m	m	m
Croatia	m	m	m	m	m	m	m	m	66.0	(0.7)	67.9	(1.0)	63.8	(1.0)	**4.1**	(1.4)	m	m	m	m	m	m	m	m
Hong Kong-China	m	m	m	m	m	m	m	m	57.3	(0.9)	56.9	(1.3)	57.7	(1.3)	-0.7	(1.7)	m	m	m	m	m	m	m	m
Jordan	m	m	m	m	m	m	m	m	54.8	(0.8)	45.2	(1.2)	63.8	(1.2)	**18.6**	(1.6)	m	m	m	m	m	m	m	m
Latvia	22.7	(0.9)	33.1	(1.2)	12.8	(0.9)	**20.4**	(1.4)	56.9	(1.0)	59.2	(1.5)	54.8	(1.5)	**4.4**	(2.1)	**34.2**	(1.4)	**26.0**	(1.9)	**42.0**	(1.7)	**16.0**	(2.5)
Liechtenstein	44.7	(2.6)	60.6	(3.4)	27.6	(3.3)	**33.0**	(4.6)	58.3	(2.7)	65.3	(4.1)	50.5	(3.3)	**14.8**	(5.2)	**13.6**	(3.8)	4.7	(5.3)	**22.9**	(4.7)	**18.2**	(6.9)
Lithuania	m	m	m	m	m	m	m	m	45.6	(0.9)	53.9	(1.1)	37.2	(1.2)	**16.8**	(1.5)	m	m	m	m	m	m	m	m
Macao-China	m	m	m	m	m	m	m	m	46.9	(0.7)	45.5	(0.9)	48.4	(0.9)	**-2.9**	(1.2)	m	(0.7)	m	(0.9)	m	(0.9)	m	m
Panama	m	m	m	m	m	m	m	m	44.5	(2.4)	44.6	(2.8)	44.5	(2.6)	0.1	(2.4)	m	(2.4)	m	(2.8)	m	(2.6)	m	m
Qatar	m	m	m	m	m	m	m	m	56.6	(0.6)	52.3	(0.9)	60.7	(0.8)	**-8.4**	(1.3)	m	(0.6)	m	(0.9)	m	(0.8)	m	m
Russian Federation	21.0	(1.1)	28.6	(1.6)	13.0	(0.9)	**15.6**	(1.5)	51.6	(1.1)	56.6	(1.1)	46.7	(1.5)	**9.8**	(1.4)	**30.6**	(1.6)	**28.0**	(2.0)	**33.7**	(1.8)	**-5.8**	(2.0)
Serbia	24.0	(0.9)	30.4	(1.4)	17.8	(1.1)	**12.6**	(1.8)	43.9	(1.0)	48.6	(1.3)	39.1	(1.2)	**9.6**	(1.6)	**19.9**	(1.3)	**18.2**	(1.9)	**21.3**	(1.6)	-3.1	(2.4)
Singapore	m	m	m	m	m	m	m	m	48.6	(0.8)	47.5	(1.2)	49.7	(0.9)	-2.1	(1.5)	m	m	m	m	m	m	m	m
Thailand	10.8	(0.6)	13.0	(0.8)	9.0	(0.7)	**4.0**	(0.9)	24.4	(0.8)	26.5	(1.0)	22.9	(0.8)	**3.7**	(1.1)	**13.6**	(0.9)	**13.5**	(1.3)	**13.8**	(1.1)	-0.4	(1.4)
Trinidad and Tobago	m	m	m	m	m	m	m	m	49.3	(0.8)	52.3	(1.3)	46.6	(1.1)	**5.7**	(1.8)	m	m	m	m	m	m	m	m
Tunisia	33.6	(1.4)	37.5	(1.6)	29.3	(1.6)	**8.2**	(1.8)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Uruguay	32.8	(0.8)	39.2	(1.1)	26.5	(1.1)	**12.7**	(1.6)	60.4	(0.9)	59.4	(1.2)	61.3	(1.1)	-1.9	(1.5)	**27.7**	(1.2)	**20.2**	(1.6)	**34.9**	(1.6)	**14.7**	(2.1)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
StatLink http://dx.doi.org/10.1787/888932436613

Table VI.5.29

[Part 1/3]

Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by socio-economic background

Percentage of students who reported to be able to use a spreadsheet to plot a graph

		PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.
OECD	Australia	58.4	(0.8)	50.3	1.0	65.5	1.5	**15.2**	(1.7)	56.7	(0.6)	45.2	1.0	69.0	1.0	**23.8**	(1.4)	-1.6	(1.0)	**-5.1**	(1.4)	3.5	(1.8)	**8.5**	(2.2)
	Austria	57.5	(1.2)	48.1	1.9	60.9	2.1	**12.8**	(2.8)	70.9	(1.0)	63.5	2.0	73.5	1.3	**10.0**	(2.3)	**13.4**	(1.5)	**15.4**	(2.8)	**12.6**	(2.5)	-2.8	(3.6)
	Belgium	32.9	(0.7)	28.4	1.1	34.5	1.2	**6.1**	(1.3)	37.6	(0.7)	32.1	1.3	44.9	1.5	**12.7**	(2.1)	**4.6**	(1.0)	**3.7**	(1.7)	**10.4**	(1.9)	**6.7**	(2.4)
	Canada	51.4	(0.6)	44.2	1.0	57.8	1.3	**13.6**	(1.6)	50.9	(0.6)	41.7	0.9	60.3	1.2	**18.5**	(1.6)	-0.6	(0.9)	-2.5	(1.4)	2.4	(1.7)	**4.9**	(2.3)
	Chile	m	m	m	m	m	m	m	m	43.5	(0.7)	35.6	1.5	49.1	1.5	**13.5**	(2.1)	m	m	m	m	m	m	m	m
	Czech Republic	51.7	(1.4)	36.1	1.9	63.3	1.8	**27.2**	(2.2)	62.8	(1.1)	53.3	1.7	70.2	1.6	**16.9**	(2.3)	**11.1**	(1.7)	**17.2**	(2.5)	**6.9**	(2.4)	**-10.4**	(3.2)
	Denmark	54.3	(1.0)	46.8	1.5	62.0	1.7	**15.2**	(2.2)	53.4	(1.1)	44.6	1.9	65.0	1.7	**20.4**	(2.5)	-0.9	(1.5)	-2.2	(2.5)	3.1	(2.4)	5.2	(3.4)
	Estonia	m	m	m	m	m	m	m	m	52.6	(1.0)	43.4	2.2	60.3	1.8	**16.9**	(2.8)	m	m	m	m	m	m	m	m
	Finland	40.9	(0.9)	37.2	1.4	42.4	1.6	**5.2**	(2.1)	31.3	(0.8)	30.3	1.7	32.7	1.5	2.4	(2.2)	**-9.6**	(1.2)	**-6.9**	(2.2)	**-9.7**	(2.2)	-2.8	(3.0)
	Germany	49.0	(0.9)	42.4	1.7	53.0	1.4	**10.6**	(2.0)	57.4	(1.0)	53.0	1.6	60.1	1.9	**7.1**	(2.5)	**8.4**	(1.4)	**10.6**	(2.3)	**7.1**	(2.4)	-3.5	(3.2)
	Greece	29.1	(0.9)	21.5	1.5	35.4	2.4	**13.9**	(2.6)	55.6	(1.0)	46.7	2.1	62.4	1.6	**15.7**	(2.5)	**26.5**	(1.3)	**25.1**	(2.6)	**27.0**	(2.9)	1.8	(3.6)
	Hungary	31.1	(0.9)	20.3	1.5	38.2	1.8	**17.8**	(2.3)	65.1	(1.0)	51.2	1.9	75.2	1.6	**24.0**	(2.7)	**33.9**	(1.3)	**30.9**	(2.4)	**37.1**	(2.5)	6.1	(3.6)
	Iceland	36.3	(0.8)	31.1	1.6	38.4	1.8	**7.3**	(2.3)	33.4	(0.8)	28.1	1.5	36.2	1.7	**8.0**	(2.0)	**-2.9**	(1.1)	-3.0	(2.2)	-2.2	(2.5)	0.8	(3.1)
	Ireland	35.8	(1.1)	29.2	1.6	39.5	1.7	**10.2**	(2.2)	46.7	(1.3)	41.1	2.1	48.8	1.7	**7.7**	(2.1)	**10.9**	(1.7)	**11.9**	(2.6)	**9.3**	(2.4)	-2.6	(3.0)
	Israel	m	m	m	m	m	m	m	m	39.4	(1.0)	35.1	1.9	45.1	1.6	**10.0**	(2.4)	m	m	m	m	m	m	m	m
	Italy	45.6	(0.8)	38.9	1.4	47.9	1.5	**9.1**	(1.9)	50.3	(0.5)	43.6	1.0	54.6	0.8	**10.9**	(1.2)	**4.7**	(0.9)	**4.7**	(1.7)	**6.6**	(1.7)	1.9	(2.2)
	Japan	22.8	(1.3)	16.7	1.8	28.4	2.1	**11.7**	(2.6)	30.6	(0.8)	26.8	1.5	34.4	1.4	**7.7**	(1.8)	**7.7**	(1.5)	**10.1**	(2.3)	**6.0**	(2.5)	-4.0	(3.1)
	Korea	13.1	(0.6)	10.1	0.8	18.7	1.1	**8.5**	(1.1)	34.2	(1.0)	24.7	1.3	42.5	1.5	**17.7**	(2.0)	**21.1**	(1.1)	**14.6**	(1.5)	**23.8**	(1.9)	**9.2**	(2.3)
	Mexico	37.4	(1.3)	20.2	1.9	50.8	1.5	**30.6**	(2.2)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	83.4	(0.8)	80.6	1.4	86.2	1.2	**5.6**	(1.7)	m	m	m	m	m	m	m	m
	New Zealand	58.3	(0.9)	47.4	1.8	67.7	1.5	**20.3**	(2.0)	52.1	(0.8)	45.6	1.5	59.3	1.5	**13.6**	(2.0)	**-6.2**	(1.2)	-1.8	(2.3)	**-8.4**	(2.1)	**-6.6**	(2.8)
	Norway	m	m	m	m	m	m	m	m	62.4	(1.1)	50.9	1.6	71.3	1.6	**20.5**	(2.2)	m	m	m	m	m	m	m	m
	Poland	64.0	(1.1)	47.2	1.9	75.0	1.3	**27.8**	(2.0)	64.2	(1.0)	52.7	1.8	73.1	1.4	**20.4**	(2.2)	0.3	(1.5)	**5.5**	(2.6)	-2.0	(2.0)	**-7.4**	(3.0)
	Portugal	51.7	(1.0)	42.7	1.4	58.5	1.8	**15.8**	(2.0)	67.6	(0.8)	61.8	1.7	72.3	1.3	**10.5**	(2.1)	**15.9**	(1.2)	**19.1**	(2.2)	**13.8**	(2.2)	-5.3	(2.9)
	Slovak Republic	34.8	(1.1)	17.5	1.6	48.6	2.0	**31.1**	(2.2)	56.5	(1.0)	48.7	1.7	65.3	1.9	**16.6**	(2.5)	**21.7**	(1.5)	**31.2**	(2.4)	**16.6**	(2.8)	**-14.5**	(3.3)
	Slovenia	m	m	m	m	m	m	m	m	61.6	(0.8)	55.2	1.4	66.7	1.7	**11.5**	(2.2)	m	m	m	m	m	m	m	m
	Spain	m	m	m	m	m	m	m	m	58.1	(0.7)	49.4	1.2	62.1	1.5	**12.6**	(1.8)	m	m	m	m	m	m	m	m
	Sweden	35.3	(1.2)	30.2	1.9	40.8	1.9	**10.5**	(2.3)	33.6	(0.9)	28.4	1.5	39.7	1.7	**11.2**	(2.0)	-1.8	(1.5)	-1.8	(2.4)	-1.1	(2.6)	0.7	(3.0)
	Switzerland	45.7	(0.8)	34.6	2.0	52.2	1.5	**17.6**	(2.3)	52.5	(1.0)	46.3	1.5	57.1	1.7	**10.8**	(2.0)	**6.8**	(1.3)	**11.7**	(2.5)	**4.9**	(2.2)	**-6.8**	(3.1)
	Turkey	38.3	(1.3)	33.5	2.2	45.1	2.5	**11.6**	(3.2)	42.8	(1.0)	32.4	1.4	54.1	1.7	**21.7**	(2.2)	**4.5**	(1.7)	-1.1	(2.6)	**8.9**	(3.0)	**10.1**	(3.9)
	United States	53.5	(1.0)	41.7	1.7	62.3	1.7	**20.5**	(2.2)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	42.6	0.2	34.3	0.3	48.8	0.4	**14.5**	(0.5)	50.3	0.2	42.8	0.3	56.8	0.3	**14.0**	(0.5)	**7.6**	(0.3)	**8.5**	(0.5)	**8.0**	(0.5)	**-0.5**	(0.6)
Partners	Bulgaria	m	m	m	m	m	m	m	m	55.5	(1.1)	42.8	1.8	66.9	1.7	**24.0**	(2.6)	m	m	m	m	m	m	m	m
	Croatia	m	m	m	m	m	m	m	m	63.2	(0.9)	53.6	1.7	69.3	1.7	**15.7**	(2.3)	m	m	m	m	m	m	m	m
	Hong Kong-China	m	m	m	m	m	m	m	m	53.2	(1.1)	40.1	1.8	64.3	1.9	**24.2**	(2.5)	m	m	m	m	m	m	m	m
	Jordan	m	m	m	m	m	m	m	m	51.7	(1.1)	42.0	2.1	61.7	1.8	**19.7**	(2.6)	m	m	m	m	m	m	m	m
	Latvia	30.2	(1.2)	18.3	1.8	41.6	2.1	**23.3**	(2.7)	52.1	(1.1)	42.5	2.7	60.1	1.5	**17.6**	(3.2)	**21.9**	(1.6)	**24.2**	(3.3)	**18.5**	(2.6)	-5.7	(4.1)
	Liechtenstein	60.9	(2.2)	55.1	4.7	70.8	4.5	**15.7**	(6.8)	65.0	(2.6)	61.8	4.9	61.2	5.5	-0.6	(7.3)	4.1	(3.5)	6.8	(6.8)	-9.6	(7.1)	-16.4	(10.0)
	Lithuania	m	m	m	m	m	m	m	m	62.8	(1.0)	53.4	1.7	68.5	1.7	**15.1**	(2.3)	m	m	m	m	m	m	m	m
	Macao-China	m	m	m	m	m	m	m	m	31.1	(0.6)	25.1	1.2	39.1	1.3	**14.0**	(1.7)	m	m	m	m	m	m	m	m
	Panama	m	m	m	m	m	m	m	m	35.3	(1.6)	24.9	2.3	50.0	1.9	**25.1**	(2.9)	m	m	m	m	m	m	m	m
	Qatar	m	m	m	m	m	m	m	m	42.7	(0.5)	35.7	1.1	53.2	1.0	**17.5**	(1.4)	m	m	m	m	m	m	m	m
	Russian Federation	33.7	(1.3)	19.4	1.5	46.5	2.3	**27.1**	(2.4)	51.5	(1.1)	38.3	1.8	62.2	1.7	**23.9**	(2.4)	**17.8**	(1.7)	**18.9**	(2.3)	**15.7**	(2.9)	-3.2	(3.4)
	Serbia	27.1	(0.9)	17.9	1.6	34.3	1.7	**16.3**	(2.2)	57.3	(0.9)	45.0	1.7	64.5	1.4	**19.5**	(2.1)	**30.2**	(1.3)	**27.1**	(2.3)	**30.2**	(2.2)	3.2	(3.0)
	Singapore	m	m	m	m	m	m	m	m	28.3	(0.6)	24.4	1.2	37.1	1.4	**12.8**	(1.8)	m	m	m	m	m	m	m	m
	Thailand	16.8	(0.9)	11.8	1.2	22.4	1.5	**10.6**	(1.7)	28.8	(0.8)	22.7	1.2	36.9	1.7	**14.2**	(2.0)	**11.9**	(1.2)	**10.8**	(1.7)	**14.5**	(2.3)	3.6	(2.6)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	46.0	(0.7)	36.9	1.6	55.3	1.4	**18.4**	(2.4)	m	m	m	m	m	m	m	m
	Tunisia	24.2	(1.1)	13.9	2.4	33.7	1.8	**19.8**	(2.9)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Uruguay	48.0	(1.2)	29.2	1.9	63.4	1.8	**34.2**	(2.5)	47.9	(0.9)	40.2	1.6	53.5	1.4	**13.3**	(2.3)	-0.1	(1.5)	**11.0**	(2.5)	**-9.9**	(2.3)	**-20.9**	(3.4)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.

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[Part 2/3]

Table VI.5.29 Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by socio-economic background

		Percentage of students who reported to be able to create a presentation																							
		PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.
OECD	Australia	77.4	(0.7)	69.9	1.1	82.7	1.1	**12.8**	(1.4)	90.0	(0.4)	81.9	0.8	96.0	0.4	**14.1**	(0.9)	**12.5**	(0.8)	**12.0**	(1.4)	**13.3**	(1.2)	1.3	(1.6)
	Austria	65.8	(1.5)	53.6	2.8	73.9	2.0	**20.4**	(3.0)	85.2	(0.9)	77.8	1.9	91.3	0.8	**13.5**	(2.1)	**19.4**	(1.7)	**24.3**	(3.3)	**17.4**	(2.2)	-6.9	(3.6)
	Belgium	47.4	(1.0)	38.4	1.2	52.9	1.5	**14.5**	(1.6)	73.6	(0.7)	65.6	1.4	80.9	1.0	**15.3**	(1.7)	**26.2**	(1.2)	**27.2**	(1.8)	**28.0**	(1.8)	0.8	(2.3)
	Canada	64.0	(0.7)	56.0	1.3	70.5	1.1	**14.5**	(1.7)	79.6	(0.5)	71.4	1.0	86.4	0.9	**15.0**	(1.4)	**15.7**	(0.9)	**15.4**	(1.6)	**15.9**	(1.4)	0.5	(2.2)
	Chile	m	m	m	m	m	m	m	m	76.4	(1.0)	59.6	1.8	89.6	1.0	**30.0**	(2.1)	m	m	m	m	m	m	m	m
	Czech Republic	32.9	(1.4)	20.2	1.3	41.9	2.1	**21.7**	(2.1)	82.2	(0.8)	73.3	1.5	88.8	1.0	**15.5**	(1.8)	**49.2**	(1.6)	**53.1**	(2.0)	**46.9**	(2.3)	**-6.2**	(2.8)
	Denmark	48.6	(1.1)	41.7	1.6	58.1	1.9	**16.4**	(2.2)	82.6	(0.7)	74.6	1.3	90.5	1.1	**15.9**	(1.7)	**34.0**	(1.4)	**33.0**	(2.0)	**32.5**	(2.3)	-0.5	(2.8)
	Estonia	m	m	m	m	m	m	m	m	69.1	(1.2)	57.8	2.4	80.2	1.5	**22.4**	(2.6)	m	m	m	m	m	m	m	m
	Finland	41.9	(1.2)	38.1	1.8	44.0	1.9	**5.9**	(2.4)	59.8	(1.4)	53.0	1.8	67.6	1.9	**14.5**	(2.1)	**17.9**	(1.8)	**14.9**	(2.6)	**23.5**	(2.7)	**8.6**	(3.2)
	Germany	34.6	(1.2)	25.5	1.9	41.6	1.7	**16.1**	(2.4)	69.7	(1.1)	62.0	1.9	77.1	1.6	**15.1**	(2.3)	**35.2**	(1.6)	**36.5**	(2.7)	**35.5**	(2.3)	-1.0	(3.4)
	Greece	37.8	(1.3)	22.7	1.6	49.5	2.1	**26.8**	(2.4)	54.3	(1.0)	39.9	2.0	65.0	2.1	**25.1**	(3.0)	**16.5**	(1.6)	**17.2**	(2.5)	**15.5**	(2.9)	-1.6	(3.8)
	Hungary	27.0	(1.2)	16.0	1.4	35.1	2.3	**19.1**	(2.7)	66.9	(1.3)	47.8	2.4	80.8	1.9	**33.0**	(2.8)	**39.9**	(1.7)	**31.8**	(2.8)	**45.7**	(3.0)	**13.9**	(3.8)
	Iceland	55.7	(0.8)	48.2	1.7	58.0	1.6	**9.8**	(2.2)	80.4	(0.6)	72.2	1.6	86.5	1.2	**14.2**	(1.9)	**24.6**	(1.0)	**24.1**	(2.3)	**28.5**	(2.0)	4.4	(2.9)
	Ireland	40.6	(1.5)	29.5	1.9	49.4	2.3	**19.9**	(2.3)	59.6	(1.3)	51.5	2.0	66.4	1.9	**14.9**	(2.7)	**19.1**	(1.9)	**22.0**	(2.7)	**17.0**	(3.0)	-4.9	(3.5)
	Israel	m	m	m	m	m	m	m	m	68.5	(0.9)	53.0	1.5	78.8	1.2	**25.9**	(1.9)	m	m	m	m	m	m	m	m
	Italy	47.3	(1.0)	42.0	2.1	51.3	1.8	**9.3**	(2.9)	70.6	(0.4)	63.3	0.9	75.1	0.8	**11.8**	(1.1)	**23.3**	(1.1)	**21.3**	(2.3)	**23.8**	(1.9)	2.5	(3.1)
	Japan	17.3	(0.9)	11.8	1.2	23.5	1.9	**11.7**	(2.1)	30.9	(0.9)	23.2	1.4	37.2	1.6	**14.0**	(2.0)	**13.6**	(1.3)	**11.4**	(1.9)	**13.7**	(2.5)	2.3	(2.9)
	Korea	46.7	(1.0)	33.2	1.4	61.6	1.5	**28.4**	(2.0)	63.5	(1.3)	49.9	2.1	76.2	1.5	**26.3**	(2.6)	**16.9**	(1.6)	**16.6**	(2.5)	**14.6**	(2.1)	-2.1	(3.3)
	Mexico	52.5	(1.3)	30.4	2.2	71.2	1.4	**40.8**	(2.4)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	53.3	(1.1)	47.5	1.8	56.2	1.5	**8.7**	(1.9)	m	m	m	m	m	m	m	m
	New Zealand	59.8	(1.1)	50.9	1.9	67.1	1.7	**16.3**	(2.0)	79.7	(0.7)	72.5	1.4	87.0	1.1	**14.6**	(1.8)	**19.9**	(1.3)	**21.6**	(2.4)	**19.9**	(2.0)	-1.7	(2.7)
	Norway	m	m	m	m	m	m	m	m	86.8	(0.6)	80.3	1.3	91.9	1.0	**11.6**	(1.7)	m	m	m	m	m	m	m	m
	Poland	50.3	(1.4)	31.3	1.9	65.2	2.0	**33.9**	(2.5)	74.7	(0.9)	59.8	1.7	87.2	1.2	**27.4**	(2.0)	**24.4**	(1.7)	**28.5**	(2.6)	**22.0**	(2.4)	**-6.6**	(3.2)
	Portugal	57.6	(1.1)	45.6	1.6	68.8	2.0	**23.2**	(2.3)	89.5	(0.6)	84.4	1.1	94.5	0.7	**10.0**	(1.3)	**31.9**	(1.3)	**38.8**	(2.0)	**25.6**	(2.1)	**-13.1**	(2.6)
	Slovak Republic	21.1	(1.1)	8.3	0.8	32.4	2.2	**24.1**	(2.4)	68.6	(1.1)	58.5	1.9	77.8	1.7	**19.3**	(2.4)	**47.6**	(1.6)	**50.1**	(2.1)	**45.4**	(2.8)	-4.7	(3.4)
	Slovenia	m	m	m	m	m	m	m	m	81.9	(0.6)	73.8	1.4	89.4	1.1	**15.5**	(1.7)	m	m	m	m	m	m	m	m
	Spain	m	m	m	m	m	m	m	m	76.3	(0.7)	63.4	1.6	84.2	1.1	**20.7**	(2.0)	m	m	m	m	m	m	m	m
	Sweden	50.0	(1.1)	45.8	2.0	53.5	1.7	**7.7**	(2.2)	60.3	(1.2)	48.8	2.0	71.1	1.8	**22.3**	(2.5)	**10.3**	(1.6)	3.1	(2.8)	**17.7**	(2.5)	**14.6**	(3.4)
	Switzerland	39.5	(1.4)	26.4	1.6	49.2	1.8	**22.8**	(2.1)	71.3	(1.2)	62.6	1.5	78.2	1.8	**15.6**	(2.2)	**31.9**	(1.8)	**36.2**	(2.2)	**29.0**	(2.6)	**-7.2**	(3.0)
	Turkey	40.2	(1.8)	28.0	2.8	56.3	2.3	**28.3**	(3.4)	59.0	(1.0)	39.2	1.6	76.9	1.3	**37.8**	(2.2)	**18.8**	(2.1)	**11.2**	(3.2)	**20.7**	(2.7)	**9.5**	(4.0)
	United States	69.8	(1.1)	58.1	1.9	80.5	1.7	**22.4**	(2.4)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	45.6	0.3	35.6	0.4	53.9	0.4	**18.3**	(0.5)	70.6	0.2	60.6	0.4	79.0	0.3	**18.4**	(0.4)	**24.9**	(0.3)	**25.0**	(0.5)	**25.1**	(0.5)	0.1	(0.7)
Partners	Bulgaria	m	m	m	m	m	m	m	m	57.9	(1.3)	43.5	2.1	70.7	1.8	**27.2**	(3.1)	m	m	m	m	m	m	m	m
	Croatia	m	m	m	m	m	m	m	m	79.8	(0.9)	68.7	1.7	87.5	1.1	**18.8**	(2.0)	m	m	m	m	m	m	m	m
	Hong Kong-China	m	m	m	m	m	m	m	m	81.7	(0.8)	70.3	1.4	90.2	0.9	**19.9**	(1.4)	m	m	m	m	m	m	m	m
	Jordan	m	m	m	m	m	m	m	m	59.6	(1.0)	46.9	1.5	70.1	1.8	**23.2**	(2.5)	m	m	m	m	m	m	m	m
	Latvia	28.5	(1.4)	19.2	1.8	38.7	2.1	**19.5**	(2.3)	74.7	(1.0)	66.0	1.9	84.3	1.3	**18.3**	(2.2)	**46.3**	(1.7)	**46.8**	(2.6)	**45.6**	(2.5)	-1.2	(3.2)
	Liechtenstein	72.2	(2.5)	71.3	5.0	70.4	5.1	-0.9	(6.9)	87.1	(1.7)	79.6	4.1	92.4	2.8	**12.8**	(4.9)	**14.9**	(3.0)	8.3	(6.5)	**22.0**	(5.8)	13.7	(8.4)
	Lithuania	m	m	m	m	m	m	m	m	60.9	(1.3)	45.6	2.1	74.1	1.9	**28.5**	(2.6)	m	m	m	m	m	m	m	m
	Macao-China	m	m	m	m	m	m	m	m	69.9	(0.5)	61.6	0.9	77.8	1.1	**16.1**	(1.4)	m	m	m	m	m	m	m	m
	Panama	m	m	m	m	m	m	m	m	50.2	(2.2)	26.6	2.4	76.2	2.9	**49.6**	(3.5)	m	m	m	m	m	m	m	m
	Qatar	m	m	m	m	m	m	m	m	67.2	(0.4)	55.9	1.1	77.7	0.9	**21.8**	(1.4)	m	m	m	m	m	m	m	m
	Russian Federation	28.1	(1.5)	13.5	1.3	44.5	2.4	**31.0**	(2.3)	61.5	(1.6)	43.9	2.2	76.0	2.1	**32.1**	(2.8)	**33.5**	(2.2)	**30.4**	(2.6)	**31.5**	(3.2)	1.2	(3.6)
	Serbia	18.4	(0.9)	11.1	1.8	24.1	1.6	**13.1**	(2.4)	57.8	(1.1)	43.8	1.8	67.6	1.6	**23.8**	(1.9)	**39.5**	(1.4)	**32.7**	(2.5)	**43.5**	(2.2)	**10.7**	(3.1)
	Singapore	m	m	m	m	m	m	m	m	81.9	(0.6)	72.0	1.3	90.1	0.8	**18.2**	(1.5)	m	m	m	m	m	m	m	m
	Thailand	28.0	(1.4)	18.9	1.7	43.7	2.3	**24.8**	(2.6)	40.7	(0.9)	29.8	1.6	56.2	1.6	**26.4**	(2.2)	**12.7**	(1.7)	**10.9**	(2.3)	**12.5**	(2.8)	1.6	(3.5)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	53.7	(0.8)	39.8	1.8	68.1	1.5	**28.3**	(2.1)	m	m	m	m	m	m	m	m
	Tunisia	30.9	(2.2)	13.5	2.5	46.0	3.4	**32.4**	(3.2)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Uruguay	67.6	(1.0)	52.9	1.9	80.0	1.7	**27.1**	(2.5)	73.1	(0.9)	56.9	1.9	85.1	1.2	**28.2**	(2.2)	**5.6**	(1.4)	4.0	(2.7)	**5.1**	(2.1)	1.1	(3.4)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.
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[Part 3/3]

Table VI.5.29 **Percentage of students who reported being able to do some ICT high-level tasks in 2003 and 2009, by socio-economic background**

		Percentage of students who reported to be able to create a multi-media presentation (with sound, pictures, video)																							
		PISA 2003 (24 OECD countries)								PISA 2009 (29 OECD countries)								Change between 2003 and 2009 (PISA 2009 – PISA 2003) (22 OECD countries)							
		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)		All students		Bottom quarter of ESCS[1]		Top quarter of ESCS[1]		Difference (Top-bottom)	
		%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	%	S.E.	%	S.E.	%	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.	% dif.	S.E.
OECD	Australia	48.2	(0.6)	41.7	1.0	51.7	1.3	**10.0**	(1.7)	61.3	(0.5)	52.5	0.9	67.9	1.0	**15.4**	(1.3)	**13.1**	(0.8)	**10.8**	(1.4)	**16.2**	(1.6)	**5.4**	(2.2)
	Austria	42.0	(1.1)	33.1	2.1	45.7	1.7	**12.5**	(2.4)	56.6	(1.0)	50.0	2.0	61.3	1.8	**11.3**	(2.9)	**14.6**	(1.5)	**16.9**	(2.9)	**15.6**	(2.5)	-1.3	(3.8)
	Belgium	38.0	(0.9)	35.9	1.3	39.7	1.4	**3.8**	(1.9)	56.2	(0.6)	53.9	1.3	57.7	0.9	**3.7**	(1.5)	**18.2**	(1.1)	**18.0**	(1.8)	**17.9**	(1.6)	-0.0	(2.4)
	Canada	46.2	(0.6)	40.8	1.0	51.0	1.3	**10.2**	(1.7)	56.2	(0.6)	49.3	1.0	62.7	1.1	**13.4**	(1.5)	**10.0**	(0.8)	**8.5**	(1.4)	**11.7**	(1.7)	3.2	(2.2)
	Chile	m	m	m	m	m	m	m	m	54.9	(0.9)	38.8	1.5	67.6	1.2	**28.7**	(1.8)	m	m	m	m	m	m	m	m
	Czech Republic	32.4	(1.0)	24.5	1.3	37.6	1.8	**13.1**	(2.0)	66.0	(0.8)	59.7	1.8	70.7	1.1	**11.0**	(2.0)	**33.6**	(1.3)	**35.1**	(2.2)	**33.1**	(2.1)	-2.1	(2.8)
	Denmark	38.3	(0.7)	35.9	1.5	42.1	1.4	**6.2**	(1.9)	57.9	(0.7)	52.8	1.5	63.3	1.3	**10.5**	(2.2)	**19.5**	(1.0)	**16.9**	(2.1)	**21.2**	(1.9)	4.2	(2.9)
	Estonia	m	m	m	m	m	m	m	m	47.7	(1.0)	40.9	1.9	52.9	1.8	**12.0**	(2.7)	m	m	m	m	m	m	m	m
	Finland	28.2	(0.7)	28.2	1.4	29.5	1.4	1.3	(1.9)	41.3	(0.8)	40.1	1.5	42.0	1.5	1.9	(1.9)	**13.1**	(1.1)	**11.9**	(2.0)	**12.4**	(2.0)	0.5	(2.7)
	Germany	36.0	(0.9)	35.6	1.4	35.8	1.6	0.2	(1.9)	54.3	(0.9)	49.2	1.7	58.5	1.6	**9.3**	(2.2)	**18.4**	(1.3)	**13.6**	(2.1)	**22.8**	(2.3)	**9.2**	(2.9)
	Greece	35.5	(0.8)	23.6	1.2	44.3	1.3	**20.7**	(1.9)	55.1	(0.9)	44.8	1.7	61.6	1.5	**16.8**	(2.3)	**19.7**	(1.2)	**21.2**	(2.1)	**17.3**	(2.0)	-4.0	(3.0)
	Hungary	22.4	(0.6)	15.9	1.2	27.0	1.4	**11.1**	(2.0)	51.7	(1.1)	38.8	1.7	59.7	2.2	**20.8**	(2.7)	**29.3**	(1.3)	**23.0**	(2.1)	**32.7**	(2.6)	**9.7**	(3.4)
	Iceland	30.5	(0.8)	26.8	1.6	32.7	1.8	**5.9**	(2.6)	45.8	(0.9)	38.6	1.7	52.0	1.9	**13.4**	(2.4)	**15.3**	(1.2)	**11.7**	(2.3)	**19.2**	(2.6)	**7.5**	(3.6)
	Ireland	27.9	(1.0)	22.8	1.7	34.1	2.2	**11.2**	(2.6)	47.6	(1.1)	40.5	1.7	52.3	1.8	**11.8**	(2.2)	**19.7**	(1.5)	**17.6**	(2.4)	**18.2**	(2.8)	0.6	(3.4)
	Israel	m	m	m	m	m	m	m	m	54.1	(0.9)	45.6	1.3	60.4	1.5	**14.8**	(1.9)	m	m	m	m	m	m	m	m
	Italy	31.9	(0.8)	23.8	1.2	37.3	1.6	**13.5**	(1.9)	64.4	(0.4)	61.3	0.9	65.9	0.8	**4.6**	(1.2)	**32.4**	(0.9)	**37.5**	(1.5)	**28.6**	(1.8)	**-8.9**	(2.2)
	Japan	16.6	(0.6)	11.7	1.2	21.0	1.3	**9.3**	(1.7)	17.6	(0.6)	14.5	1.1	19.6	1.0	**5.1**	(1.5)	1.0	(0.8)	2.8	(1.6)	-1.4	(1.6)	-4.2	(2.2)
	Korea	44.3	(0.8)	32.9	1.2	56.6	1.3	**23.6**	(1.7)	36.9	(0.9)	26.7	1.7	48.9	1.5	**22.2**	(2.1)	**-7.4**	(1.2)	**-6.3**	(2.0)	**-7.7**	(2.0)	-1.4	(2.7)
	Mexico	31.2	(1.0)	15.3	1.6	44.9	1.3	**29.5**	(2.1)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Netherlands	m	m	m	m	m	m	m	m	65.4	(1.0)	63.6	1.7	64.9	1.5	1.3	(1.9)	m	m	m	m	m	m	m	m
	New Zealand	38.6	(1.0)	33.8	1.6	42.1	1.6	**8.3**	(2.0)	48.6	(0.9)	42.6	1.5	54.8	1.8	**12.2**	(2.2)	**10.0**	(1.3)	**8.8**	(2.1)	**12.6**	(2.4)	3.9	(2.9)
	Norway	m	m	m	m	m	m	m	m	58.7	(0.9)	54.7	1.5	62.6	1.5	**7.8**	(2.2)	m	m	m	m	m	m	m	m
	Poland	34.0	(0.9)	21.0	1.3	44.8	1.5	**23.8**	(1.9)	56.0	(0.9)	41.7	1.8	68.4	1.5	**26.7**	(2.3)	**22.0**	(1.3)	**20.7**	(2.3)	**23.6**	(2.1)	2.9	(2.9)
	Portugal	36.9	(0.9)	26.8	1.6	43.9	1.7	**17.1**	(2.2)	72.0	(0.8)	63.1	1.7	77.6	1.0	**14.6**	(1.9)	**35.1**	(1.2)	**36.3**	(2.3)	**33.8**	(2.0)	-2.5	(2.9)
	Slovak Republic	18.2	(0.7)	12.0	1.2	25.1	1.4	**13.1**	(1.9)	51.8	(0.9)	42.5	1.7	60.0	1.7	**17.5**	(2.1)	**33.7**	(1.2)	**30.5**	(2.1)	**35.0**	(2.2)	4.4	(2.8)
	Slovenia	m	m	m	m	m	m	m	m	60.7	(0.9)	52.6	1.4	65.7	1.5	**13.1**	(2.0)	m	m	m	m	m	m	m	m
	Spain	m	m	m	m	m	m	m	m	61.5	(0.8)	52.6	1.1	66.1	1.7	**13.5**	(1.9)	m	m	m	m	m	m	m	m
	Sweden	40.0	(1.1)	38.4	2.1	40.2	1.7	1.8	(2.4)	50.9	(0.8)	46.0	1.4	54.0	1.5	**8.0**	(2.1)	**10.9**	(1.4)	**7.6**	(2.5)	**13.8**	(2.3)	6.2	(3.2)
	Switzerland	30.9	(0.9)	28.7	1.9	32.4	1.2	3.7	(2.2)	51.6	(0.6)	48.8	1.3	52.8	1.2	**4.0**	(1.9)	**20.7**	(1.1)	**20.1**	(2.3)	**20.4**	(1.7)	0.3	(2.9)
	Turkey	34.1	(1.1)	23.7	2.1	46.4	2.0	**22.7**	(3.2)	51.1	(0.9)	35.1	1.6	67.0	1.3	**31.9**	(2.1)	**17.0**	(1.4)	**11.4**	(2.7)	**20.6**	(2.4)	**9.2**	(3.8)
	United States	50.9	(0.8)	42.6	1.7	58.9	1.7	**16.4**	(2.7)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	OECD average	34.1	0.2	28.1	0.3	39.1	0.3	**11.1**	(0.4)	52.3	0.2	45.1	0.3	58.1	0.3	**13.0**	(0.4)	**18.2**	(0.3)	**17.0**	(0.5)	**19.0**	(0.5)	**2.0**	(0.6)
Partners	Bulgaria	m	m	m	m	m	m	m	m	52.2	(1.2)	40.7	1.8	59.9	1.8	**19.2**	(2.4)	m	m	m	m	m	m	m	m
	Croatia	m	m	m	m	m	m	m	m	66.0	(0.7)	54.3	1.3	74.3	1.4	**20.0**	(1.9)	m	m	m	m	m	m	m	m
	Hong Kong-China	m	m	m	m	m	m	m	m	57.3	(0.9)	45.2	1.5	66.5	1.6	**21.3**	(2.3)	m	m	m	m	m	m	m	m
	Jordan	m	m	m	m	m	m	m	m	54.8	(0.8)	42.0	1.3	65.4	1.7	**23.4**	(2.1)	m	m	m	m	m	m	m	m
	Latvia	22.7	(0.9)	15.7	1.7	28.6	1.7	**13.0**	(2.3)	56.9	(1.0)	48.1	2.3	63.5	1.5	**15.4**	(2.7)	**34.2**	(1.4)	**32.4**	(2.9)	**34.8**	(2.3)	2.5	(3.5)
	Liechtenstein	44.7	(2.6)	45.2	5.3	45.5	5.7	0.3	(7.4)	58.3	(2.7)	47.0	5.4	66.3	5.5	**19.3**	(8.0)	**13.6**	(3.8)	1.9	(7.6)	**20.8**	(7.9)	19.0	(10.9)
	Lithuania	m	m	m	m	m	m	m	m	45.6	(0.9)	34.7	1.4	53.3	1.9	**18.5**	(2.3)	m	m	m	m	m	m	m	m
	Macao-China	m	m	m	m	m	m	m	m	46.9	(0.7)	40.0	1.2	52.2	1.4	**12.2**	(1.9)	m	m	m	m	m	m	m	m
	Panama	m	m	m	m	m	m	m	m	44.5	(2.4)	27.7	3.0	64.5	3.4	**36.9**	(4.6)	m	m	m	m	m	m	m	m
	Qatar	m	m	m	m	m	m	m	m	56.6	(0.6)	49.1	1.1	66.8	1.0	**17.7**	(1.5)	m	m	m	m	m	m	m	m
	Russian Federation	21.0	(1.1)	11.7	1.1	31.2	1.9	**19.5**	(1.8)	51.6	(1.1)	35.8	2.2	63.5	1.5	**27.8**	(2.8)	**30.6**	(1.6)	**24.1**	(2.5)	**32.4**	(2.4)	**8.3**	(3.3)
	Serbia	24.0	(0.9)	14.8	1.4	32.7	1.5	**17.9**	(1.9)	43.9	(1.0)	32.9	1.6	50.4	1.6	**17.5**	(2.1)	**19.9**	(1.3)	**18.1**	(2.1)	**17.7**	(2.2)	-0.4	(2.9)
	Singapore	m	m	m	m	m	m	m	m	48.6	(0.8)	39.7	1.4	59.6	1.4	**19.9**	(1.8)	m	m	m	m	m	m	m	m
	Thailand	10.8	(0.6)	6.3	0.9	18.9	1.1	**12.7**	(1.3)	24.4	(0.8)	18.1	1.2	32.6	1.3	**14.5**	(1.8)	**13.6**	(0.9)	**11.9**	(1.5)	**13.7**	(1.7)	1.8	(2.2)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	49.3	(0.8)	38.6	1.6	60.6	1.7	**22.0**	(2.2)	m	m	m	m	m	m	m	m
	Tunisia	33.6	(1.4)	15.1	2.1	48.9	1.9	**33.9**	(3.1)	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
	Uruguay	32.8	(0.8)	16.8	1.4	44.0	1.7	**27.1**	(2.2)	60.4	(0.9)	46.4	1.6	71.0	1.5	**24.6**	(2.3)	**27.7**	(1.2)	**29.6**	(2.1)	**27.0**	(2.2)	-2.5	(3.2)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
1. ESCS: PISA index of economic, social and cultural status.

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Table VI.6.1 **Digital reading performance, by access to a computer at home**

		Digital reading performance							
		Students who do not have a computer at home		Students who have at least one computer at home		Difference in digital reading scores (at least one computer – no computer)		Difference in digital reading scores, after accounting for socio-economic background of students (at least one computer – no computer)	
		Mean Score	S.E.	Mean Score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	448	(8.9)	540	(2.8)	**92**	(8.6)	**42**	(8.7)
	Austria	390	(19.5)	460	(3.7)	**70**	(18.4)	20	(19.3)
	Belgium	401	(12.5)	511	(2.1)	**109**	(12.4)	**44**	(10.2)
	Chile	382	(3.8)	452	(3.5)	**70**	(3.9)	**25**	(3.7)
	Denmark	c	c	490	(2.5)	c	c	c	c
	France	418	(11.2)	497	(5.2)	**79**	(11.5)	**30**	(9.7)
	Hungary	354	(9.2)	476	(3.9)	**122**	(9.2)	**47**	(8.7)
	Iceland	c	c	514	(1.4)	c	c	**c**	c
	Ireland	448	(10.0)	512	(2.8)	**64**	(9.5)	**36**	(9.8)
	Japan	482	(3.7)	526	(2.3)	**43**	(3.6)	**25**	(3.5)
	Korea	528	(13.2)	568	(3.0)	**40**	(12.6)	12	(11.2)
	New Zealand	455	(7.5)	543	(2.2)	**88**	(7.4)	**34**	(7.9)
	Norway	c	c	501	(2.8)	c	c	c	c
	Poland	391	(7.0)	468	(3.1)	**78**	(7.1)	**24**	(6.3)
	Spain	428	(7.5)	481	(3.9)	**53**	(7.7)	**22**	(7.0)
	Sweden	441	(17.5)	512	(3.3)	**71**	(17.2)	22	(14.3)
	OECD average-16	428	(3.1)	503	(0.8)	**73**	(3.8)	**29**	(3.5)
Partners	Colombia	342	(3.6)	407	(4.2)	**65**	(5.4)	**32**	(5.0)
	Hong Kong-China	407	(16.9)	516	(2.5)	**109**	(17.0)	**89**	(17.5)
	Macao-China	458	(9.7)	492	(0.7)	**34**	(9.7)	**24**	(9.4)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.2 **Digital reading performance, by computer use at home**

		Digital reading performance							
		Students who do not use a computer at home		Students who use a computer at home		Difference in digital reading scores (use – no use)		Difference in digital reading scores, after accounting for socio-economic background of students (use – no use)	
		Mean Score	S.E.	Mean Score	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	459	(5.9)	543	(2.7)	**84**	(6.0)	**48**	(5.7)
	Austria	374	(13.0)	468	(3.5)	**94**	(12.3)	**66**	(12.0)
	Belgium	416	(6.8)	518	(2.0)	**102**	(6.9)	**62**	(5.9)
	Chile	386	(3.8)	454	(3.5)	**69**	(3.8)	**27**	(3.8)
	Denmark	412	(11.9)	491	(2.6)	**79**	(12.4)	**50**	(13.1)
	Hungary	375	(9.3)	478	(3.9)	**102**	(8.8)	**39**	(6.8)
	Iceland	441	(24.7)	515	(1.4)	**74**	(24.8)	**57**	(23.3)
	Ireland	456	(6.4)	516	(2.8)	**60**	(6.4)	**42**	(6.4)
	Japan	487	(2.9)	534	(2.3)	**48**	(2.9)	**38**	(2.7)
	Korea	525	(4.6)	574	(3.1)	**49**	(4.7)	**36**	(4.2)
	New Zealand	458	(5.7)	548	(2.2)	**90**	(5.6)	**50**	(6.3)
	Norway	425	(14.9)	502	(2.8)	**77**	(14.7)	**56**	(15.2)
	Poland	387	(5.2)	471	(3.1)	**84**	(5.2)	**40**	(5.3)
	Spain	405	(7.0)	483	(3.8)	**78**	(6.9)	**48**	(6.8)
	Sweden	410	(10.9)	515	(3.2)	**105**	(10.4)	**73**	(11.1)
	OECD average-15	428	(2.7)	507	(0.8)	**80**	(2.7)	**49**	(2.6)
Partners	Hong Kong-China	457	(7.3)	518	(2.5)	**61**	(7.1)	**49**	(6.8)
	Macao-China	460	(5.4)	493	(0.7)	**33**	(5.4)	**27**	(5.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
StatLink http://dx.doi.org/10.1787/888932436632

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Table VI.6.3 Digital reading performance, by access to a computer at school

		Digital reading performance										Average PISA index of economic, social and cultural status (ESCS) of schools			
		Students in schools with below-average computers-per-student ratio		Students in schools with average or above-average computers-per-student ratio		Difference in digital reading scores (above – below)		Difference in digital reading scores, after accounting for socio-economic background of students (above – below)		Difference in digital reading scores, after accounting for socio-economic background of students and schools (above – below)		Schools with below-average computers-per-student ratio		Schools with average or above-average computers-per-student ratio	
		Mean Score	S.E.	Mean Score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean index	S.E.	Mean index	S.E.
OECD	Australia	534	(4.0)	538	(4.3)	4	(6.4)	4	(5.0)	5	(4.4)	0.34	(0.03)	0.33	(0.02)
	Austria	447	(6.0)	475	(7.7)	**27**	(10.9)	**23**	(9.7)	14	(8.7)	0.02	(0.03)	0.13	(0.03)
	Belgium	506	(3.7)	510	(6.4)	4	(9.1)	7	(6.8)	**11**	(5.4)	0.21	(0.03)	0.14	(0.04)
	Chile	422	(4.9)	459	(7.1)	**37**	(9.1)	13	(7.0)	-5	(6.8)	-0.79	(0.05)	-0.13	(0.09)
	Denmark	492	(3.6)	484	(4.4)	-7	(6.0)	-6	(5.2)	-4	(4.7)	0.32	(0.03)	0.26	(0.04)
	Hungary	477	(6.2)	453	(7.8)	**-24**	(11.1)	-9	(7.9)	6	(6.8)	-0.10	(0.05)	-0.38	(0.06)
	Iceland	517	(1.7)	501	(2.3)	**-16**	(2.7)	**-6**	(2.8)	1	(3.0)	0.80	(0.00)	0.51	(0.00)
	Ireland	513	(3.4)	502	(6.1)	-11	(7.5)	-5	(6.0)	-1	(6.2)	0.10	(0.04)	-0.07	(0.07)
	Japan	528	(3.3)	502	(4.5)	**-27**	(5.7)	**-19**	(5.1)	-3	(5.0)	0.08	(0.02)	-0.19	(0.03)
	Korea	580	(3.0)	535	(7.6)	**-45**	(7.9)	**-34**	(7.6)	-14	(7.0)	0.00	(0.03)	-0.54	(0.07)
	New Zealand	538	(3.1)	536	(5.2)	-2	(6.7)	-2	(5.0)	-3	(4.7)	0.07	(0.03)	0.09	(0.03)
	Norway	503	(4.2)	496	(3.3)	-7	(5.3)	-6	(5.0)	-6	(4.8)	0.48	(0.03)	0.45	(0.03)
	Poland	472	(3.8)	448	(5.6)	**-23**	(6.8)	**-13**	(5.6)	-9	(5.5)	-0.21	(0.03)	-0.41	(0.05)
	Spain	481	(5.1)	467	(6.3)	-14	(8.7)	-7	(7.8)	-4	(7.9)	-0.25	(0.04)	-0.43	(0.04)
	Sweden	509	(3.8)	514	(5.9)	5	(6.7)	7	(5.8)	9	(5.9)	0.34	(0.02)	0.29	(0.04)
	OECD average-15	501	(1.1)	495	(1.5)	**-7**	(2.0)	**-4**	(1.6)	0	(1.5)	0.09	(0.01)	0.00	(0.01)
Partners	Colombia	356	(4.5)	391	(6.6)	**35**	(8.5)	**21**	(6.3)	8	(5.5)	-1.31	(0.06)	-0.81	(0.09)
	Hong Kong-China	522	(4.4)	504	(6.1)	**-18**	(9.1)	**-18**	(8.4)	**-17**	(8.0)	-0.79	(0.06)	-0.82	(0.07)
	Macao-China	491	(1.0)	493	(1.1)	3	(1.5)	**4**	(1.5)	**5**	(1.5)	-0.66	(0.00)	-0.75	(0.00)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average computers-to-student ratio is computed within each country and economy.
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Table VI.6.4 Digital reading performance, by computer use at school

		Digital reading performance										Average PISA index of economic, social and cultural status (ESCS) of schools					
		Students who do not use a computer at school		Students who use a computer at school		Difference in digital reading scores (use – no use)		Difference in digital reading scores, after accounting for socio-economic background of students (use – no use)		Difference in digital reading scores, after accounting for socio-economic background of students and schools (use – no use)		Schools where students do not use a computer at school		Schools where students use a computer at school		Difference in average socio-economic background of schools (no use – use)	
		Mean Score	S.E.	Mean Score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	502	(4.7)	544	(2.8)	**42**	(4.4)	**31**	(4.0)	**26**	(3.9)	0.20	(0.03)	0.36	(0.01)	**-0.15**	(0.02)
	Austria	471	(5.1)	465	(3.9)	-6	(5.4)	-4	(4.5)	5	(4.4)	0.18	(0.04)	0.08	(0.02)	**0.10**	(0.04)
	Belgium	509	(3.4)	518	(2.2)	**9**	(3.8)	**9**	(2.9)	**11**	(3.0)	0.24	(0.03)	0.21	(0.02)	0.03	(0.04)
	Chile	435	(4.6)	437	(3.6)	2	(4.0)	2	(3.2)	3	(3.1)	-0.55	(0.05)	-0.57	(0.04)	0.02	(0.05)
	Denmark	485	(6.2)	491	(2.6)	6	(6.0)	3	(5.8)	4	(5.4)	0.31	(0.04)	0.30	(0.02)	0.01	(0.03)
	Hungary	488	(5.8)	461	(4.1)	**-27**	(4.8)	**-22**	(3.3)	**-14**	(2.8)	-0.11	(0.04)	-0.23	(0.03)	**0.13**	(0.04)
	Iceland	497	(3.9)	519	(1.6)	**22**	(4.4)	**19**	(4.3)	**19**	(4.3)	0.70	(0.01)	0.72	(0.00)	-0.02	(0.01)
	Ireland	514	(3.1)	511	(3.3)	-3	(3.2)	-3	(2.8)	-2	(3.0)	0.07	(0.03)	0.04	(0.03)	0.03	(0.03)
	Japan	513	(2.9)	527	(2.8)	**14**	(3.6)	**13**	(3.1)	**12**	(2.8)	-0.02	(0.03)	0.00	(0.02)	-0.02	(0.03)
	Korea	567	(2.9)	569	(3.8)	2	(3.7)	1	(3.2)	3	(2.7)	-0.14	(0.03)	-0.16	(0.04)	0.02	(0.03)
	New Zealand	525	(4.1)	545	(2.6)	**20**	(4.9)	**12**	(4.3)	**12**	(4.1)	0.05	(0.02)	0.09	(0.02)	**-0.04**	(0.02)
	Norway	478	(6.3)	503	(2.9)	**25**	(6.0)	**20**	(5.7)	**20**	(5.6)	0.45	(0.03)	0.47	(0.02)	-0.02	(0.02)
	Poland	469	(3.9)	461	(3.2)	**-8**	(3.5)	-3	(3.0)	-1	(2.9)	-0.21	(0.03)	-0.32	(0.02)	**0.11**	(0.02)
	Spain	470	(5.1)	481	(3.9)	**11**	(4.7)	**11**	(4.1)	**13**	(4.1)	-0.26	(0.03)	-0.34	(0.03)	**0.08**	(0.03)
	Sweden	487	(6.7)	516	(3.3)	**28**	(6.6)	**20**	(5.9)	**18**	(5.7)	0.26	(0.04)	0.34	(0.02)	**-0.08**	(0.03)
	OECD average-15	494	(1.2)	503	(0.8)	**9**	(1.2)	**7**	(1.1)	**9**	(1.0)	0.08	(0.01)	0.07	(0.01)	**0.01**	(0.01)
Partners	Hong Kong-China	513	(4.5)	516	(2.6)	3	(4.3)	3	(4.1)	0	(4.0)	-0.86	(0.04)	-0.78	(0.04)	**-0.08**	(0.04)
	Macao-China	489	(2.0)	493	(0.8)	4	(2.2)	4	(2.2)	**4**	(2.2)	-0.69	(0.01)	-0.71	(0.00)	0.02	(0.01)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.5a Digital reading performance, by index of computer use at home for leisure

		Association between digital reading score and index of computer use at home for leisure						Association between digital reading score and the index of computer use at home for leisure, by gender													
		Intercept		Index of computer use at home for leisure (a)		Index of computer use at home for leisure (squared) (a*a)		Intercept		Index of computer use at home for leisure (a)		Index of computer use at home for leisure (squared) (a*a)		Female (b)		Index of computer use at home for leisure * Female (a*c)		Index of computer use at home for leisure (squared) * Female (a*a*c)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	546	(2.8)	0	(0.9)	**-5**	(0.5)	533	(3.6)	**5**	(1.4)	**-5**	(0.7)	**24**	(3.6)	**-9**	(2.0)	1	(0.9)
	Austria	472	(3.5)	**-3**	(1.6)	**-6**	(0.9)	462	(4.4)	**6**	(2.1)	**-7**	(1.0)	**18**	(6.0)	**-17**	(4.0)	0	(1.6)
	Belgium	522	(2.0)	-1	(1.1)	**-7**	(0.5)	513	(2.8)	3	(1.6)	**-6**	(0.7)	**17**	(3.4)	**-7**	(2.7)	-1	(1.2)
	Chile	438	(3.5)	**20**	(1.9)	0	(1.0)	428	(4.2)	**21**	(2.6)	-2	(1.5)	**19**	(4.5)	1	(2.8)	4	(2.0)
	Denmark	494	(2.6)	**3**	(1.2)	**-3**	(0.6)	489	(3.1)	**12**	(1.9)	**-4**	(0.8)	**8**	(3.1)	**-17**	(2.8)	-1	(1.2)
	Hungary	479	(4.2)	**6**	(2.2)	**-10**	(1.0)	469	(5.2)	**11**	(2.5)	**-10**	(1.3)	**21**	(5.3)	**-8**	(3.7)	0	(2.2)
	Iceland	518	(1.6)	-2	(1.6)	**-4**	(0.8)	503	(2.4)	3	(2.2)	**-4**	(0.9)	**28**	(2.9)	-8	(4.3)	0	(1.7)
	Ireland	518	(2.8)	3	(1.6)	**-5**	(0.9)	503	(3.9)	**8**	(2.2)	**-5**	(1.0)	**29**	(4.4)	**-11**	(3.8)	-1	(1.6)
	Japan	528	(2.4)	**13**	(0.9)	**-4**	(0.9)	516	(3.1)	**13**	(1.3)	**-4**	(1.0)	**24**	(3.3)	0	(2.0)	-1	(2.1)
	Korea	572	(3.0)	**-6**	(2.0)	**-4**	(0.8)	564	(4.1)	-5	(3.1)	**-4**	(1.2)	**15**	(5.0)	-3	(3.8)	0	(1.7)
	New Zealand	549	(2.5)	3	(1.8)	**-7**	(1.0)	531	(3.6)	**9**	(2.4)	**-7**	(1.3)	**36**	(4.1)	**-9**	(3.3)	1	(1.6)
	Norway	506	(2.8)	**-7**	(1.5)	**-5**	(0.6)	491	(3.2)	-3	(1.7)	**-5**	(0.7)	**29**	(2.5)	-2	(3.0)	1	(1.2)
	Poland	473	(3.1)	**9**	(1.5)	**-8**	(0.8)	457	(3.5)	16	(2.1)	**-9**	(1.2)	**30**	(3.1)	**-6**	(3.0)	**3**	(1.5)
	Spain	478	(4.1)	**4**	(1.8)	**-5**	(0.9)	470	(4.7)	**5**	(1.9)	**-5**	(1.0)	**17**	(4.1)	0	(4.2)	1	(1.9)
	Sweden	517	(3.2)	-2	(1.5)	**-4**	(0.6)	505	(3.5)	**4**	(2.1)	**-5**	(0.8)	**23**	(2.7)	-6	(3.3)	2	(1.5)
	OECD average-15	507	(0.8)	**3**	(0.4)	**-5**	(0.2)	496	(1.0)	**7**	(0.5)	**-6**	(0.3)	**22**	(1.0)	**-7**	(0.9)	1	(0.4)
Partners	Hong Kong-China	519	(2.6)	**8**	(1.5)	**-3**	(0.7)	515	(3.5)	**8**	(1.7)	**-3**	(0.9)	**9**	(4.0)	0	(2.4)	-1	(1.3)
	Macao-China	495	(0.8)	**4**	(0.9)	**-3**	(0.4)	489	(1.2)	**5**	(1.5)	**-3**	(0.6)	**12**	(1.6)	0	(2.1)	0	(0.9)

		Association between digital reading score and the index of computer use at home for leisure, by PISA index of economic, social and cultural status (ESCS)											
		Intercept		Index of computer use at home for leisure (a)		Index of computer use at home for leisure (squared) (a*a)		ESCS (b)		Index of computer use at home for leisure * ESCS (a*b)		Index of computer use at home for leisure (squared) * ESCS (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	530	(2.4)	**-3**	(1.0)	**-3**	(0.5)	**42**	(1.9)	-3	(1.3)	-1	(0.5)
	Austria	467	(3.6)	**-6**	(1.7)	**-5**	(1.0)	**43**	(2.8)	-1	(1.9)	-1	(0.8)
	Belgium	512	(1.9)	-2	(1.0)	**-5**	(0.6)	**41**	(1.7)	-2	(1.1)	-1	(0.5)
	Chile	457	(3.1)	**6**	(1.7)	**-2**	(1.1)	**39**	(1.7)	0	(1.5)	**-4**	(0.9)
	Denmark	485	(2.5)	2	(1.3)	**-3**	(0.6)	**31**	(1.7)	-2	(1.3)	-1	(0.5)
	Hungary	486	(3.3)	**-5**	(2.2)	**-5**	(1.1)	**52**	(3.1)	**-5**	(2.0)	-1	(1.0)
	Iceland	499	(2.1)	-3	(1.8)	**-5**	(0.8)	**26**	(1.8)	-1	(1.7)	**1**	(0.6)
	Ireland	515	(2.4)	1	(1.5)	**-5**	(0.9)	**33**	(3.0)	0	(1.9)	-1	(1.0)
	Japan	527	(2.3)	**10**	(1.0)	**-3**	(0.8)	**22**	(2.4)	**4**	(1.7)	-1	(1.7)
	Korea	574	(2.7)	**-6**	(1.7)	**-2**	(0.8)	**25**	(2.3)	-3	(1.6)	1	(0.6)
	New Zealand	543	(2.3)	-1	(1.7)	**-5**	(0.9)	**46**	(2.2)	-2	(2.1)	-1	(0.9)
	Norway	492	(2.9)	**-6**	(1.5)	**-4**	(0.7)	**28**	(1.9)	**-5**	(1.8)	-1	(0.7)
	Poland	484	(2.3)	1	(1.8)	**-7**	(0.9)	**47**	(1.8)	-3	(1.9)	**-3**	(0.8)
	Spain	486	(3.9)	2	(1.8)	**-5**	(1.1)	**31**	(2.3)	1	(1.5)	**-2**	(0.7)
	Sweden	505	(3.1)	**-3**	(1.6)	**-3**	(0.7)	**36**	(2.3)	1	(1.4)	-1	(0.5)
	OECD average-15	504	(0.7)	**-1**	(0.4)	**-4**	(0.2)	**36**	(0.6)	**-1**	(0.4)	**-1**	(0.2)
Partners	Hong Kong-China	533	(2.9)	**7**	(1.9)	**-3**	(0.9)	**18**	(1.9)	0	(1.3)	0	(0.6)
	Macao-China	502	(1.2)	2	(1.3)	**-2**	(0.5)	**10**	(1.3)	-1	(1.1)	1	(0.5)

Notes: Values that are statistically signficant are indicated in bold (see Annex 3). Three quadratic regression analyses are conducted with digital reading scores as a dependent variable. The index of computer use is standardised to have zero as an average and one as a standard deviation within each country and economy.

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Table VI.6.5b Digital reading performance, by computer use at home for playing one-player games

		Computer use at home for playing one-player games							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	540	(2.8)	547	(3.2)	542	(3.2)	527	(4.3)
	Austria	469	(4.8)	474	(4.3)	464	(4.0)	452	(5.7)
	Belgium	515	(2.0)	522	(2.7)	520	(3.0)	502	(3.6)
	Chile	425	(3.9)	432	(4.2)	452	(3.9)	449	(5.3)
	Denmark	486	(3.3)	497	(3.6)	491	(3.3)	492	(3.5)
	Hungary	467	(6.1)	481	(5.0)	476	(5.1)	454	(5.2)
	Iceland	513	(2.6)	522	(3.6)	517	(3.1)	505	(3.2)
	Ireland	513	(3.2)	524	(3.4)	505	(4.7)	503	(6.0)
	Japan	519	(2.1)	528	(3.0)	534	(3.6)	530	(4.5)
	Korea	577	(3.4)	577	(3.9)	565	(3.6)	535	(5.1)
	New Zealand	548	(3.0)	547	(3.2)	540	(3.1)	525	(5.9)
	Norway	505	(3.9)	509	(3.6)	505	(2.9)	483	(3.7)
	Poland	466	(3.9)	468	(3.7)	472	(3.8)	455	(3.8)
	Spain	480	(4.1)	482	(4.6)	481	(4.6)	456	(5.4)
	Sweden	517	(3.9)	523	(3.6)	511	(4.3)	500	(4.4)
	OECD average-15	503	(1.0)	509	(1.0)	505	(1.0)	491	(1.2)
Partners	Hong Kong-China	507	(3.5)	516	(3.0)	521	(3.1)	518	(4.2)
	Macao-China	487	(2.1)	493	(1.5)	495	(1.7)	493	(2.2)

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Table VI.6.5c Digital reading performance, by computer use at home for playing collaborative online games

		Computer use at home for playing collaborative online games							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	546	(2.6)	539	(3.9)	530	(3.4)	533	(4.2)
	Austria	476	(3.9)	461	(4.3)	455	(5.1)	453	(6.5)
	Belgium	524	(2.0)	515	(3.4)	504	(3.6)	503	(3.9)
	Chile	436	(3.5)	430	(5.0)	447	(4.4)	447	(6.1)
	Denmark	495	(3.5)	489	(3.8)	482	(3.8)	494	(3.0)
	Hungary	466	(5.6)	477	(4.8)	467	(5.4)	469	(4.9)
	Iceland	522	(2.0)	511	(4.1)	510	(4.1)	499	(3.4)
	Ireland	519	(2.7)	513	(5.8)	492	(5.6)	501	(6.2)
	Japan	524	(2.0)	525	(5.1)	533	(5.1)	524	(6.1)
	Korea	579	(3.4)	573	(3.8)	567	(3.9)	543	(4.6)
	New Zealand	555	(2.6)	535	(3.5)	525	(3.8)	530	(5.8)
	Norway	516	(3.4)	501	(3.5)	493	(4.3)	483	(3.6)
	Poland	464	(3.8)	469	(4.1)	460	(5.0)	469	(3.7)
	Spain	482	(3.8)	477	(4.6)	472	(5.5)	467	(7.1)
	Sweden	521	(4.0)	516	(4.2)	507	(4.7)	505	(3.9)
	OECD average-15	508	(0.9)	502	(1.1)	496	(1.2)	495	(1.3)
Partners	Hong Kong-China	521	(3.4)	518	(3.7)	513	(3.5)	509	(3.5)
	Macao-China	497	(1.4)	496	(2.3)	490	(2.3)	487	(1.6)

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Table VI.6.5d **Digital reading performance, by computer use at home for sending e-mail**

		Computer use at home for sending e-mail							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	502	(3.7)	531	(3.3)	543	(2.6)	551	(3.9)
	Austria	421	(5.9)	466	(4.9)	472	(4.2)	473	(4.4)
	Belgium	454	(4.6)	500	(3.6)	522	(2.3)	528	(2.3)
	Chile	404	(4.1)	422	(5.2)	446	(4.9)	460	(3.7)
	Denmark	455	(5.8)	486	(4.3)	492	(3.0)	498	(3.0)
	Hungary	411	(8.0)	482	(5.8)	485	(4.5)	470	(4.6)
	Iceland	487	(4.6)	506	(3.6)	515	(2.7)	530	(2.6)
	Ireland	487	(3.4)	526	(3.7)	521	(4.3)	520	(4.4)
	Japan	517	(2.1)	542	(3.6)	546	(4.8)	531	(3.8)
	Korea	566	(3.2)	571	(3.8)	570	(3.8)	562	(5.0)
	New Zealand	490	(4.6)	539	(3.9)	545	(3.0)	558	(3.4)
	Norway	476	(5.1)	501	(3.3)	506	(3.4)	503	(3.6)
	Poland	422	(4.1)	480	(3.5)	481	(3.8)	469	(4.1)
	Spain	448	(5.3)	482	(5.0)	486	(4.5)	482	(4.2)
	Sweden	481	(5.6)	506	(4.2)	518	(3.4)	520	(4.1)
	OECD average-15	468	(1.3)	503	(1.1)	510	(1.0)	510	(1.0)
Partners	Hong Kong-China	481	(4.4)	510	(3.1)	519	(3.2)	531	(3.9)
	Macao-China	471	(1.9)	495	(1.7)	499	(1.8)	500	(2.3)

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[Part 1/1]
Table VI.6.5e **Digital reading performance, by computer use at home for chatting on line**

		Computer use at home for chatting on line							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	535	(3.7)	537	(4.5)	542	(3.4)	542	(2.9)
	Austria	454	(6.3)	474	(6.2)	475	(4.4)	465	(4.0)
	Belgium	503	(5.0)	515	(5.0)	520	(3.0)	516	(2.2)
	Chile	404	(4.2)	403	(5.7)	434	(4.5)	461	(3.6)
	Denmark	483	(6.6)	497	(6.1)	489	(3.8)	492	(2.7)
	Hungary	415	(7.9)	449	(10.5)	488	(5.8)	480	(3.8)
	Iceland	512	(9.3)	521	(8.1)	514	(4.3)	514	(1.6)
	Ireland	501	(4.0)	516	(5.2)	516	(3.7)	518	(3.4)
	Japan	523	(2.1)	532	(4.9)	535	(5.8)	533	(6.6)
	Korea	580	(3.8)	580	(4.2)	572	(3.7)	552	(3.7)
	New Zealand	524	(3.8)	542	(5.0)	544	(3.7)	551	(3.1)
	Norway	503	(7.7)	513	(5.7)	505	(4.9)	500	(3.0)
	Poland	412	(4.7)	438	(7.0)	471	(4.8)	479	(3.0)
	Spain	456	(5.6)	468	(7.0)	480	(4.7)	482	(4.1)
	Sweden	501	(8.0)	521	(7.8)	519	(4.1)	512	(3.4)
	OECD average-15	487	(1.5)	500	(1.7)	507	(1.1)	506	(0.9)
Partners	Hong Kong-China	493	(5.6)	509	(4.8)	517	(4.0)	518	(2.6)
	Macao-China	477	(4.3)	484	(3.7)	489	(2.1)	495	(0.9)

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Table VI.6.5f **Digital reading performance, by computer use at home for browsing the Internet for fun**

		Computer use at home for browsing the Internet for fun							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	510	(4.8)	540	(3.5)	544	(3.0)	543	(3.2)
	Austria	420	(8.8)	466	(6.7)	473	(4.4)	467	(3.7)
	Belgium	460	(7.0)	518	(4.4)	524	(2.8)	515	(2.2)
	Chile	407	(4.4)	410	(5.1)	442	(4.3)	459	(3.7)
	Denmark	428	(9.5)	487	(5.7)	494	(3.6)	492	(2.7)
	Hungary	386	(9.4)	429	(11.7)	475	(5.9)	484	(4.0)
	Iceland	475	(12.3)	512	(8.8)	515	(3.2)	515	(1.6)
	Ireland	469	(6.2)	515	(4.1)	513	(3.4)	519	(3.6)
	Japan	491	(3.3)	517	(2.7)	534	(2.6)	540	(2.9)
	Korea	536	(7.8)	562	(3.6)	575	(3.3)	569	(3.7)
	New Zealand	505	(6.1)	544	(4.6)	544	(3.0)	546	(3.4)
	Norway	441	(13.1)	506	(7.0)	511	(4.5)	500	(2.8)
	Poland	405	(5.1)	456	(5.3)	469	(4.2)	478	(3.1)
	Spain	433	(6.2)	464	(6.1)	483	(4.3)	484	(4.0)
	Sweden	467	(12.8)	481	(7.8)	515	(4.1)	515	(3.4)
	OECD average-15	456	(2.2)	494	(1.6)	507	(1.0)	508	(0.8)
Partners	Hong Kong-China	471	(7.9)	506	(4.5)	516	(3.2)	521	(2.9)
	Macao-China	449	(5.6)	488	(2.2)	493	(1.4)	496	(1.1)

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Table VI.6.5g **Digital reading performance, by computer use at home for downloading music, films, games or software from the Internet**

		Computer use at home for downloading music, films, games or software from the Internet							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	535	(3.8)	553	(3.4)	545	(2.8)	533	(3.2)
	Austria	474	(4.6)	478	(4.2)	472	(4.6)	450	(4.1)
	Belgium	511	(3.6)	535	(2.8)	526	(2.8)	501	(2.4)
	Chile	411	(3.9)	414	(5.1)	442	(5.0)	456	(3.6)
	Denmark	495	(3.8)	509	(3.4)	493	(3.2)	479	(3.2)
	Hungary	450	(7.0)	481	(6.4)	477	(5.9)	467	(4.2)
	Iceland	522	(3.0)	525	(3.5)	521	(3.3)	499	(2.6)
	Ireland	503	(3.9)	527	(4.3)	515	(3.7)	509	(4.2)
	Japan	517	(2.4)	525	(3.2)	533	(2.6)	532	(3.8)
	Korea	546	(6.8)	572	(3.6)	575	(3.5)	559	(3.8)
	New Zealand	535	(3.9)	554	(3.8)	549	(2.8)	531	(3.9)
	Norway	499	(5.0)	514	(4.2)	514	(3.5)	491	(3.3)
	Poland	434	(4.8)	472	(4.1)	472	(4.0)	470	(3.4)
	Spain	453	(5.1)	480	(5.1)	488	(4.4)	478	(4.4)
	Sweden	514	(4.7)	522	(4.2)	516	(3.8)	506	(4.3)
	OECD average-15	493	(1.2)	511	(1.1)	509	(1.0)	497	(1.0)
Partners	Hong Kong-China	502	(5.5)	519	(3.7)	519	(2.9)	514	(3.3)
	Macao-China	475	(5.3)	495	(2.0)	496	(1.3)	489	(1.4)

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[Part 1/1]
Table VI.6.5h **Digital reading performance, by computer use at home for publishing and maintaining a personal page, weblog or blog**

		Computer use at home for publishing and maintaining a personal page, weblog or blog							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	548	(2.9)	530	(4.6)	535	(3.3)	534	(3.0)
	Austria	475	(3.7)	463	(5.4)	459	(5.4)	447	(6.7)
	Belgium	523	(2.6)	520	(3.9)	520	(2.4)	503	(2.6)
	Chile	429	(3.7)	433	(5.6)	446	(4.6)	455	(4.2)
	Denmark	494	(2.8)	481	(4.1)	487	(4.6)	494	(5.0)
	Hungary	481	(4.4)	461	(6.4)	447	(6.8)	444	(5.6)
	Iceland	521	(1.7)	496	(5.6)	503	(5.5)	480	(6.5)
	Ireland	514	(2.9)	507	(4.8)	510	(5.0)	516	(4.8)
	Japan	521	(2.2)	519	(5.0)	536	(4.7)	542	(4.0)
	Korea	568	(3.7)	575	(3.4)	575	(3.9)	558	(3.7)
	New Zealand	546	(2.5)	525	(4.5)	540	(3.5)	546	(5.3)
	Norway	509	(3.3)	491	(4.7)	490	(4.3)	489	(4.3)
	Poland	468	(3.1)	454	(4.7)	462	(5.1)	464	(5.4)
	Spain	475	(4.2)	469	(6.0)	484	(5.2)	483	(4.7)
	Sweden	519	(3.1)	498	(6.1)	509	(5.1)	511	(4.4)
	OECD average-15	506	(0.8)	495	(1.3)	500	(1.2)	498	(1.2)
Partners	Hong Kong-China	514	(3.2)	518	(3.2)	520	(3.4)	513	(3.3)
	Macao-China	488	(1.4)	499	(2.0)	496	(1.9)	490	(2.0)

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Table VI.6.5i **Digital reading performance, by computer use at home for participating in online forums, virtual communities or spaces**

		Computer use at home for participating in online forums, virtual communities or spaces							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	535	(3.4)	537	(3.6)	544	(3.6)	544	(3.0)
	Austria	465	(4.2)	465	(5.0)	466	(5.3)	469	(5.4)
	Belgium	515	(2.2)	514	(3.4)	520	(3.9)	516	(3.2)
	Chile	432	(3.6)	437	(5.6)	450	(5.1)	460	(5.3)
	Denmark	489	(2.9)	475	(3.9)	502	(4.6)	506	(3.6)
	Hungary	429	(6.8)	473	(6.6)	492	(5.5)	480	(3.9)
	Iceland	508	(4.5)	497	(5.3)	514	(3.7)	518	(1.8)
	Ireland	504	(4.1)	517	(5.5)	516	(3.9)	514	(3.1)
	Japan	524	(2.2)	526	(4.3)	531	(5.3)	521	(5.1)
	Korea	566	(4.1)	577	(3.6)	576	(3.3)	555	(4.2)
	New Zealand	535	(3.0)	539	(4.4)	549	(3.8)	550	(4.1)
	Norway	491	(4.6)	486	(5.7)	501	(4.3)	505	(2.9)
	Poland	438	(4.3)	463	(4.9)	474	(4.0)	474	(3.2)
	Spain	474	(4.1)	473	(6.2)	482	(4.8)	489	(5.4)
	Sweden	517	(3.3)	500	(4.9)	510	(5.7)	509	(5.3)
	OECD average-15	495	(1.0)	499	(1.3)	509	(1.2)	507	(1.1)
Partners	Hong Kong-China	500	(3.6)	506	(3.4)	519	(3.0)	531	(3.3)
	Macao-China	486	(1.4)	497	(1.7)	494	(2.0)	497	(2.2)

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Table VI.6.6a Digital reading performance, by index of computer use at home for schoolwork

		Association between digital reading score and the index of computer use at home for schoolwork						Association between digital reading score and the index of computer use at home for schoolwork, by gender											
		Intercept		Index of computer use at home for schoolwork (a)		Index of computer use at home for schoolwork (squared) (a*a)		Intercept		Index of computer use at home for schoolwork (a)		Index of computer use at home for schoolwork (squared) (a*a)		Female (b)		Index of computer use at home for schoolwork * Female (a*b)		Index of computer use at home for schoolwork (squared) * Female (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	551	(2.7)	**13**	(2.1)	**-10**	(1.0)	540	(3.6)	**12**	(2.5)	**-9**	(1.1)	**21**	(3.3)	2	(2.6)	0	(1.5)
	Austria	477	(3.7)	**5**	(2.4)	**-11**	(1.2)	467	(4.9)	4	(2.8)	**-9**	(1.4)	**18**	(6.7)	2	(4.1)	-2	(2.6)
	Belgium	528	(1.9)	**3**	(1.4)	**-13**	(0.8)	520	(2.7)	0	(1.7)	**-12**	(0.9)	**16**	(3.3)	**6**	(2.6)	-2	(1.3)
	Chile	447	(3.5)	**10**	(1.9)	**-9**	(1.4)	437	(4.4)	**10**	(2.8)	**-9**	(1.8)	**20**	(5.3)	0	(3.3)	-1	(2.7)
	Denmark	497	(2.6)	0	(1.9)	**-6**	(0.9)	493	(3.1)	-1	(2.4)	**-5**	(1.1)	**7**	(3.1)	2	(2.7)	-2	(1.7)
	Hungary	484	(4.1)	0	(2.1)	**-15**	(1.4)	475	(5.1)	0	(2.4)	**-14**	(1.7)	**19**	(5.3)	-1	(4.4)	-3	(2.7)
	Iceland	524	(1.7)	**9**	(1.5)	**-9**	(0.9)	510	(2.6)	**7**	(2.2)	**-8**	(1.1)	**26**	(3.2)	2	(3.7)	0	(1.9)
	Ireland	525	(2.7)	**6**	(1.8)	**-13**	(1.3)	511	(3.7)	**6**	(2.6)	**-11**	(1.5)	**28**	(4.2)	-2	(3.8)	-2	(2.5)
	Japan	536	(2.6)	**15**	(1.6)	**-11**	(1.2)	526	(3.1)	**14**	(2.2)	**-12**	(1.3)	**18**	(3.7)	1	(2.6)	2	(2.7)
	Korea	575	(2.9)	**5**	(1.7)	**-7**	(1.0)	569	(3.7)	3	(2.4)	**-7**	(1.1)	**12**	(4.9)	0	(2.8)	3	(1.7)
	New Zealand	556	(2.3)	4	(2.1)	**-14**	(1.7)	539	(3.1)	2	(2.6)	**-14**	(1.6)	**33**	(4.2)	3	(3.8)	2	(2.9)
	Norway	511	(2.6)	**7**	(2.0)	**-9**	(0.8)	497	(3.0)	**4**	(2.1)	**-10**	(1.0)	**26**	(2.6)	4	(2.9)	**4**	(1.6)
	Poland	477	(3.0)	0	(1.6)	**-12**	(1.1)	464	(3.5)	-1	(2.1)	**-12**	(1.5)	**25**	(3.4)	5	(2.8)	1	(2.2)
	Spain	487	(4.1)	1	(2.3)	**-13**	(1.6)	479	(5.1)	1	(3.0)	**-12**	(2.1)	**15**	(4.7)	0	(4.2)	-2	(3.4)
	Sweden	524	(3.3)	0	(1.5)	**-11**	(0.7)	513	(3.5)	-1	(1.8)	**-11**	(1.0)	**21**	(2.7)	2	(3.2)	1	(2.1)
	OECD average-15	513	(0.8)	**5**	(0.5)	**-11**	(0.3)	503	(1.0)	**4**	(0.6)	**-10**	(0.4)	**20**	(1.1)	2	(0.9)	0	(0.6)
Partners	Hong Kong-China	520	(2.6)	**15**	(1.5)	**-4**	(0.8)	519	(3.4)	**12**	(2.0)	**-5**	(1.0)	1	(3.8)	**7**	(3.2)	**3**	(1.5)
	Macao-China	497	(0.9)	**6**	(0.9)	**-4**	(0.6)	493	(1.4)	**3**	(1.4)	**-5**	(0.8)	**7**	(2.3)	**6**	(1.9)	3	(1.6)

		Association between digital reading score and the index of computer use at home for schoolwork, by PISA index of economic, social and cultural status (ESCS)											
		Intercept		Index of computer use at home for schoolwork (a)		Index of computer use at home for schoolwork (squared) (a*a)		ESCS (b)		Index of computer use at home for schoolwork * ESCS (a*b)		Index of computer use at home for schoolwork (squared) * ESCS (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	537	(2.4)	3	(2.5)	**-9**	(1.3)	**39**	(1.7)	**7**	(1.9)	0	(0.9)
	Austria	472	(3.7)	0	(2.4)	**-10**	(1.2)	**40**	(3.0)	2	(1.8)	1	(1.0)
	Belgium	518	(1.8)	-1	(1.2)	**-10**	(0.7)	**40**	(1.6)	-1	(1.2)	-1	(0.7)
	Chile	463	(3.0)	-2	(2.0)	**-9**	(1.4)	**41**	(2.0)	**5**	(1.3)	**-4**	(1.1)
	Denmark	487	(2.5)	**-5**	(1.6)	**-6**	(0.8)	**30**	(1.9)	2	(1.8)	1	(0.9)
	Hungary	490	(3.4)	**-10**	(1.9)	**-11**	(1.2)	**52**	(3.3)	-1	(2.0)	1	(1.1)
	Iceland	505	(2.3)	**5**	(2.1)	**-9**	(1.4)	**26**	(1.9)	1	(1.8)	1	(1.0)
	Ireland	522	(2.5)	1	(1.6)	**-11**	(1.3)	**32**	(2.9)	-4	(1.9)	0	(1.5)
	Japan	535	(2.5)	**12**	(1.5)	**-11**	(1.0)	**19**	(2.1)	1	(1.6)	**2**	(1.2)
	Korea	579	(2.6)	0	(1.5)	**-7**	(0.9)	**22**	(2.2)	3	(1.6)	**3**	(1.0)
	New Zealand	550	(2.1)	**-5**	(2.1)	**-11**	(1.4)	**43**	(2.5)	**5**	(2.2)	2	(1.8)
	Norway	498	(2.7)	3	(2.0)	**-8**	(0.9)	**25**	(2.3)	3	(2.2)	-1	(0.9)
	Poland	487	(2.4)	**-11**	(1.8)	**-9**	(1.1)	**45**	(2.1)	-1	(1.8)	1	(1.0)
	Spain	493	(4.1)	-3	(2.0)	**-11**	(1.6)	**29**	(2.5)	1	(2.3)	-1	(1.0)
	Sweden	512	(3.2)	**-6**	(1.5)	**-10**	(0.8)	**35**	(2.6)	**4**	(1.8)	0	(1.1)
	OECD average-15	510	(0.7)	**-1**	(0.5)	**-9**	(0.3)	**35**	(0.6)	**2**	(0.5)	0	(0.3)
Partners	Hong Kong-China	534	(2.9)	**11**	(2.0)	**-5**	(1.0)	**17**	(2.0)	-1	(1.5)	**-1**	(0.6)
	Macao-China	504	(1.4)	**3**	(1.1)	**-4**	(0.7)	**11**	(1.6)	**-2**	(1.0)	-1	(0.9)

Notes: Values that are statistically signficant are indicated in bold (see Annex 3). Three quadratic regression analyses are conducted with digital reading scores as a dependent variable. The index of computer use is standardised to have zero as an average and one as a standard deviation within each country and economy.
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Table VI.6.6b Digital reading performance, by computer use at home for browsing the Internet for schoolwork

		Computer use at home for browsing the Internet for schoolwork							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	464	(3.8)	524	(2.8)	549	(2.6)	569	(4.3)
	Austria	413	(6.6)	472	(3.7)	483	(4.5)	469	(6.3)
	Belgium	456	(4.3)	528	(2.0)	532	(2.4)	490	(4.2)
	Chile	406	(4.1)	436	(4.5)	463	(3.8)	454	(5.3)
	Denmark	443	(5.1)	489	(3.3)	498	(2.9)	494	(4.6)
	Hungary	410	(7.1)	487	(4.8)	486	(4.7)	457	(5.7)
	Iceland	476	(3.9)	526	(2.3)	524	(3.0)	495	(5.8)
	Ireland	484	(3.6)	528	(3.2)	526	(3.9)	502	(6.3)
	Japan	512	(2.2)	545	(3.3)	549	(3.9)	503	(10.2)
	Korea	535	(4.8)	573	(3.0)	577	(3.5)	574	(5.0)
	New Zealand	494	(4.9)	542	(2.8)	558	(2.6)	555	(6.4)
	Norway	432	(7.0)	496	(3.8)	512	(3.1)	511	(4.7)
	Poland	413	(4.4)	468	(3.7)	481	(3.2)	474	(4.3)
	Spain	436	(5.0)	489	(4.1)	497	(4.4)	472	(5.3)
	Sweden	462	(4.6)	520	(3.5)	526	(3.9)	509	(5.8)
	OECD average-15	456	(1.3)	508	(0.9)	517	(0.9)	502	(1.5)
Partners	Hong Kong-China	465	(4.8)	510	(3.0)	535	(2.8)	544	(3.7)
	Macao-China	467	(2.3)	494	(1.1)	505	(1.5)	502	(3.9)

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Table VI.6.6c Digital reading performance, by computer use at home for sending e-mail to communicate with other students about schoolwork

		Computer use at home for sending e-mail to communicate with other students about schoolwork							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	531	(2.9)	550	(3.0)	548	(3.9)	543	(6.3)
	Austria	462	(4.1)	475	(3.8)	469	(5.1)	457	(5.9)
	Belgium	505	(2.5)	535	(2.6)	524	(2.8)	485	(3.8)
	Chile	415	(3.6)	435	(6.2)	456	(4.5)	455	(4.0)
	Denmark	494	(3.3)	498	(3.4)	481	(4.1)	462	(5.9)
	Hungary	460	(5.9)	489	(4.5)	477	(5.1)	447	(5.0)
	Iceland	514	(2.2)	519	(2.8)	513	(3.9)	501	(6.5)
	Ireland	514	(2.9)	521	(4.5)	507	(5.8)	488	(6.9)
	Japan	521	(2.3)	529	(4.0)	541	(4.1)	522	(4.0)
	Korea	572	(3.2)	571	(3.7)	558	(3.8)	551	(5.0)
	New Zealand	544	(2.8)	553	(3.2)	530	(4.1)	526	(6.1)
	Norway	508	(2.9)	499	(3.8)	481	(5.6)	466	(7.6)
	Poland	466	(3.4)	472	(3.8)	463	(4.5)	451	(5.1)
	Spain	475	(3.8)	486	(5.0)	485	(4.8)	467	(4.9)
	Sweden	521	(3.1)	516	(4.4)	500	(4.8)	475	(6.9)
	OECD average-15	500	(0.9)	510	(1.0)	502	(1.2)	486	(1.5)
Partners	Hong Kong-China	505	(3.3)	512	(3.5)	524	(3.3)	534	(3.6)
	Macao-China	492	(1.5)	491	(2.2)	495	(1.9)	498	(3.3)

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Table VI.6.6d Digital reading performance, by computer use at home for sending e-mail to communicate with teachers about schoolwork

		Computer use at home for sending e-mail to communicate with teachers about schoolwork							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	534	(3.2)	559	(3.0)	543	(5.1)	521	(8.7)
	Austria	472	(3.5)	472	(5.3)	435	(8.1)	406	(15.0)
	Belgium	518	(2.1)	533	(3.6)	479	(4.9)	427	(7.6)
	Chile	436	(3.5)	456	(5.4)	437	(6.3)	415	(8.9)
	Denmark	492	(3.0)	496	(3.4)	483	(4.8)	451	(9.4)
	Hungary	474	(4.2)	481	(5.5)	444	(7.3)	410	(8.0)
	Iceland	509	(2.4)	523	(2.3)	518	(5.0)	492	(9.5)
	Ireland	518	(2.8)	492	(7.0)	454	(9.8)	467	(14.2)
	Japan	526	(2.2)	496	(8.6)	500	(9.4)	444	(17.1)
	Korea	569	(3.1)	570	(3.8)	561	(5.6)	552	(8.9)
	New Zealand	545	(2.3)	556	(3.8)	505	(6.3)	493	(11.2)
	Norway	501	(2.9)	513	(4.3)	489	(6.7)	458	(11.1)
	Poland	470	(3.1)	469	(5.3)	420	(6.9)	409	(9.6)
	Spain	479	(4.0)	493	(4.6)	461	(6.3)	427	(9.4)
	Sweden	516	(3.3)	522	(4.0)	492	(6.0)	457	(8.7)
	OECD average-15	504	(0.8)	509	(1.3)	481	(1.7)	455	(2.8)
Partners	Hong Kong-China	508	(2.8)	525	(3.1)	523	(4.4)	506	(9.6)
	Macao-China	489	(1.0)	499	(1.8)	500	(2.7)	468	(6.9)

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Table VI.6.6e Digital reading performance, by computer use at home for downloading, uploading or browsing material from the school's website

		Computer use at home for downloading, uploading or browsing material from the school's website							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	537	(3.0)	554	(3.3)	548	(5.3)	516	(8.9)
	Austria	464	(3.9)	472	(5.3)	471	(6.7)	450	(8.1)
	Belgium	514	(2.4)	533	(2.7)	511	(4.9)	448	(8.7)
	Chile	439	(3.8)	442	(5.4)	434	(4.9)	425	(6.1)
	Denmark	492	(3.0)	492	(3.3)	488	(4.5)	483	(6.9)
	Hungary	468	(4.2)	484	(5.4)	459	(7.7)	430	(12.2)
	Iceland	509	(2.1)	521	(2.9)	521	(3.6)	510	(6.2)
	Ireland	520	(2.8)	502	(5.6)	465	(8.3)	454	(9.1)
	Japan	525	(2.0)	529	(5.3)	519	(7.8)	484	(11.0)
	Korea	560	(3.6)	577	(3.0)	571	(5.0)	566	(7.4)
	New Zealand	545	(2.5)	551	(3.4)	526	(5.3)	500	(13.1)
	Norway	488	(3.9)	508	(3.2)	515	(3.5)	487	(7.0)
	Poland	473	(3.4)	467	(4.1)	457	(4.4)	437	(5.5)
	Spain	484	(3.9)	484	(5.4)	459	(6.7)	431	(7.4)
	Sweden	517	(3.4)	514	(3.8)	506	(6.5)	481	(8.4)
	OECD average-15	502	(0.8)	509	(1.1)	497	(1.5)	473	(2.2)
Partners	Hong Kong-China	500	(3.3)	523	(2.6)	533	(3.5)	517	(6.2)
	Macao-China	489	(1.0)	498	(1.7)	496	(2.2)	480	(5.3)

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Table VI.6.6f **Digital reading performance, by computer use at home for checking the school's website for announcements**

		Computer use at home for checking the school's website for announcements							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	542	(2.6)	546	(4.6)	539	(6.6)	519	(10.3)
	Austria	463	(4.2)	464	(4.7)	478	(6.2)	471	(7.9)
	Belgium	519	(2.3)	520	(3.2)	507	(5.5)	465	(8.8)
	Chile	438	(3.5)	448	(5.5)	426	(7.3)	417	(8.9)
	Denmark	492	(2.9)	487	(3.8)	488	(4.6)	497	(6.0)
	Hungary	471	(4.4)	478	(4.5)	455	(8.4)	453	(13.5)
	Iceland	516	(1.9)	513	(3.5)	513	(4.7)	507	(7.0)
	Ireland	515	(2.9)	518	(6.0)	466	(10.3)	449	(12.9)
	Japan	523	(2.0)	539	(5.2)	523	(9.7)	471	(18.1)
	Korea	566	(3.2)	574	(3.5)	567	(5.0)	552	(11.7)
	New Zealand	548	(2.4)	537	(4.2)	514	(6.2)	507	(11.2)
	Norway	497	(3.6)	506	(3.2)	506	(4.1)	499	(10.3)
	Poland	473	(3.3)	458	(4.9)	445	(4.5)	423	(7.0)
	Spain	484	(4.0)	478	(5.2)	457	(6.7)	418	(10.1)
	Sweden	519	(3.1)	501	(5.5)	488	(9.5)	470	(9.6)
	OECD average-15	504	(0.8)	504	(1.2)	491	(1.8)	475	(2.7)
Partners	Hong Kong-China	512	(3.0)	523	(3.2)	518	(5.5)	520	(8.6)
	Macao-China	491	(1.0)	496	(2.0)	498	(2.9)	485	(7.5)

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Table VI.6.7a Digital reading performance, by index of computer use at school

		Association between digital reading score and the index of computer use at school						Association between digital reading score and the index of computer use at school, by gender											
		Intercept		Index of computer use at school (a)		Index of computer use at school (squared) (a*a)		Intercept		Index of computer use at school (a)		Index of computer use at school (squared) (a*a)		Female (b)		Index of computer use at school * Female (a*b)		Index of computer use at school (squared) * Female (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	547	(2.7)	3	(1.8)	**-6**	(0.6)	534	(3.6)	**5**	(1.9)	**-5**	(0.6)	**25**	(3.5)	**-5**	(2.6)	-1	(1.1)
	Austria	472	(3.8)	**-9**	(3.0)	**-6**	(1.5)	462	(4.5)	-4	(3.3)	**-5**	(1.6)	**21**	(5.9)	**-13**	(3.6)	-3	(1.9)
	Belgium	527	(2.2)	**-10**	(1.9)	**-11**	(1.3)	518	(3.1)	**-8**	(2.5)	**-10**	(1.5)	**18**	(3.9)	-5	(2.6)	-3	(2.2)
	Chile	444	(3.4)	**-17**	(2.5)	**-6**	(1.4)	433	(4.3)	**-17**	(3.0)	**-4**	(1.8)	**21**	(4.3)	-1	(3.3)	**-5**	(2.2)
	Denmark	493	(2.6)	**-14**	(2.1)	**-3**	(1.0)	491	(3.1)	**-9**	(2.7)	**-3**	(1.3)	4	(3.1)	**-11**	(3.3)	-1	(1.8)
	Hungary	474	(4.2)	**-27**	(3.0)	**-5**	(1.8)	466	(5.3)	**-21**	(3.4)	**-4**	(1.9)	**19**	(5.4)	**-16**	(4.7)	-6	(3.2)
	Iceland	518	(2.9)	**-4**	(1.9)	**-5**	(1.2)	502	(4.0)	**-4**	(2.0)	**-4**	(1.2)	**31**	(4.8)	-1	(3.7)	-3	(3.5)
	Ireland	520	(1.7)	1	(1.6)	**-5**	(0.9)	505	(2.4)	1	(2.6)	**-4**	(1.2)	**28**	(3.2)	-3	(4.0)	0	(2.0)
	Japan	530	(2.6)	**6**	(1.9)	**-6**	(1.1)	519	(3.4)	**6**	(2.7)	**-5**	(1.2)	**22**	(4.1)	-1	(3.5)	0	(2.6)
	Korea	572	(2.7)	**-4**	(1.9)	-3	(1.8)	563	(3.4)	-5	(2.9)	-2	(2.8)	**18**	(4.9)	2	(3.4)	-2	(3.3)
	New Zealand	505	(2.9)	**-9**	(1.7)	**-4**	(0.7)	490	(3.4)	**-6**	(1.8)	**-4**	(0.7)	**30**	(3.0)	-4	(2.5)	0	(1.4)
	Norway	551	(2.2)	**-12**	(1.7)	**-9**	(0.9)	534	(3.4)	**-11**	(2.2)	**-9**	(1.2)	**32**	(3.9)	-4	(3.5)	3	(1.7)
	Poland	469	(2.9)	**-21**	(1.7)	**-4**	(1.2)	458	(3.4)	**-17**	(2.1)	**-5**	(1.5)	**21**	(3.9)	**-6**	(2.8)	2	(3.0)
	Spain	482	(3.8)	**-9**	(2.5)	**-9**	(1.4)	475	(4.6)	**-6**	(3.1)	**-9**	(2.0)	**13**	(4.5)	-6	(4.8)	1	(3.4)
	Sweden	518	(3.3)	**-9**	(1.8)	**-5**	(0.7)	507	(3.6)	**-7**	(2.1)	**-5**	(0.8)	**23**	(2.8)	-2	(3.7)	-1	(2.0)
	OECD average-15	508	(0.8)	**-9**	(0.5)	**-6**	(0.3)	497	(1.0)	**-7**	(0.7)	**-5**	(0.4)	**22**	(1.1)	**-5**	(0.9)	-1	(0.6)
Partners	Hong Kong-China	518	(2.6)	**-12**	(1.9)	**-2**	(0.8)	515	(3.4)	**-11**	(2.4)	-2	(1.0)	6	(4.3)	-2	(3.2)	1	(1.6)
	Macao-China	495	(0.9)	0	(1.2)	**-2**	(0.7)	490	(1.4)	-1	(1.6)	**-3**	(0.8)	**9**	(2.2)	3	(1.7)	2	(1.4)

		Association between digital reading score and the index of computer use at school, by PISA index of economic, social and cultural status (ESCS)											
		Intercept		Index of computer use at school (a)		Index of computer use at school (squared) (a*a)		ESCS (b)		Index of computer use at school * ESCS (a*b)		Index of computer use at school (squared) * ESCS (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	533	(2.3)	-3	(2.0)	**-6**	(0.7)	**41**	(1.8)	1	(1.6)	1	(0.7)
	Austria	469	(3.8)	**-9**	(2.3)	**-7**	(1.3)	**43**	(2.8)	-2	(2.3)	0	(1.3)
	Belgium	517	(2.1)	**-8**	(1.7)	**-10**	(1.2)	**41**	(1.9)	**-3**	(1.3)	-1	(1.1)
	Chile	464	(3.0)	**-15**	(2.4)	**-7**	(1.4)	**36**	(1.8)	-3	(1.4)	-1	(1.1)
	Denmark	485	(2.4)	**-15**	(1.7)	**-3**	(0.7)	**29**	(1.8)	0	(1.5)	**2**	(0.7)
	Hungary	486	(3.4)	**-20**	(2.5)	**-6**	(1.7)	**52**	(2.9)	-2	(1.9)	-1	(1.3)
	Iceland	516	(2.6)	**-4**	(1.7)	**-5**	(1.2)	**34**	(2.9)	-1	(2.1)	-1	(1.4)
	Ireland	500	(2.3)	-1	(2.1)	**-6**	(1.3)	**28**	(2.0)	0	(1.8)	0	(0.9)
	Japan	530	(2.4)	**5**	(1.7)	**-6**	(0.9)	**22**	(2.1)	-3	(1.9)	**2**	(0.8)
	Korea	577	(2.5)	-3	(1.9)	**-5**	(1.5)	**24**	(2.6)	2	(2.1)	2	(2.0)
	New Zealand	492	(3.0)	**-9**	(1.6)	**-3**	(0.7)	**28**	(2.2)	-3	(1.7)	0	(0.7)
	Norway	547	(2.1)	**-11**	(1.6)	**-8**	(0.9)	**44**	(2.3)	0	(2.1)	1	(1.1)
	Poland	485	(2.4)	**-14**	(1.5)	**-7**	(1.1)	**45**	(2.0)	2	(1.5)	0	(1.2)
	Spain	492	(3.8)	**-9**	(2.4)	**-9**	(1.5)	**30**	(2.2)	-4	(2.2)	0	(1.0)
	Sweden	506	(3.2)	**-10**	(1.8)	**-4**	(0.8)	**37**	(2.4)	1	(1.7)	-1	(0.7)
	OECD average-15	507	(0.7)	**-8**	(0.5)	**-6**	(0.3)	**36**	(0.6)	**-1**	(0.5)	0	(0.3)
Partners	Hong Kong-China	534	(2.8)	**-12**	(1.8)	**-3**	(0.7)	**19**	(2.0)	1	(1.2)	1	(0.6)
	Macao-China	503	(1.2)	-1	(1.5)	**-3**	(0.8)	**12**	(1.1)	-1	(1.1)	-1	(0.7)

Notes: Values that are statistically signficant are indicated in bold (see Annex 3). Three quadratic regression analyses are conducted with digital reading scores as a dependent variable. The index of computer use is standardised to have zero as an average and one as a standard deviation within each country and economy.

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Table VI.6.7b Digital reading performance, by computer use at school for chatting on line

		Computer use at school for chatting on line							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	548	(2.9)	518	(4.0)	514	(5.2)	481	(9.0)
	Austria	473	(4.5)	468	(5.1)	461	(5.9)	436	(11.7)
	Belgium	522	(1.9)	481	(5.5)	471	(5.2)	410	(9.1)
	Chile	444	(3.7)	421	(5.1)	417	(6.5)	388	(8.3)
	Denmark	507	(3.1)	491	(3.8)	473	(3.8)	465	(4.9)
	Hungary	484	(4.2)	454	(7.7)	444	(6.5)	419	(10.8)
	Iceland	521	(1.9)	509	(3.3)	501	(4.0)	475	(10.6)
	Ireland	516	(2.8)	506	(6.2)	499	(8.5)	471	(8.8)
	Japan	526	(2.2)	463	(12.0)	485	(13.5)	0	(0.0)
	Korea	572	(2.9)	540	(6.2)	533	(6.3)	518	(22.0)
	New Zealand	552	(2.0)	508	(5.5)	494	(6.4)	478	(8.8)
	Norway	515	(2.8)	498	(4.1)	476	(4.0)	444	(6.4)
	Poland	470	(3.1)	438	(4.9)	419	(8.8)	402	(15.2)
	Spain	487	(3.8)	446	(5.5)	464	(6.5)	414	(14.9)
	Sweden	524	(3.3)	495	(4.1)	489	(6.0)	445	(9.2)
	OECD average-15	511	(0.8)	482	(1.5)	476	(1.8)	416	(2.9)
Partners	Hong Kong-China	524	(2.4)	496	(6.0)	486	(6.4)	477	(6.9)
	Macao-China	497	(0.8)	477	(2.6)	475	(2.9)	469	(6.4)

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Table VI.6.7c Digital reading performance, by computer use at school for sending e-mail

		Computer use at school for sending e-mail							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	529	(3.2)	551	(3.2)	552	(3.1)	549	(9.1)
	Austria	462	(4.5)	479	(5.3)	474	(5.2)	450	(8.8)
	Belgium	516	(2.2)	532	(3.8)	496	(4.8)	435	(9.0)
	Chile	439	(4.0)	444	(4.7)	427	(5.9)	406	(9.4)
	Denmark	496	(3.0)	500	(3.5)	482	(3.9)	459	(5.4)
	Hungary	486	(4.7)	471	(5.3)	442	(6.9)	404	(11.1)
	Iceland	508	(2.3)	525	(2.6)	520	(4.0)	507	(11.3)
	Ireland	511	(2.8)	527	(5.1)	519	(6.5)	486	(12.7)
	Japan	525	(2.1)	516	(16.9)	525	(18.3)	473	(14.3)
	Korea	570	(2.8)	562	(7.1)	550	(13.1)	529	(26.5)
	New Zealand	541	(2.4)	552	(3.0)	538	(4.8)	524	(7.6)
	Norway	508	(3.0)	508	(3.6)	485	(3.7)	460	(7.9)
	Poland	470	(3.0)	459	(4.8)	434	(8.7)	409	(12.8)
	Spain	481	(3.9)	479	(5.1)	473	(7.1)	436	(12.8)
	Sweden	510	(3.7)	521	(3.8)	514	(4.9)	475	(8.8)
	OECD average-15	503	(0.8)	508	(1.6)	496	(2.0)	467	(3.1)
Partners	Hong Kong-China	520	(2.7)	516	(3.4)	509	(5.7)	487	(7.1)
	Macao-China	490	(1.0)	501	(2.1)	490	(3.2)	477	(8.7)

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Table VI.6.7d **Digital reading performance, by computer use at school for browsing the Internet for schoolwork**

		Computer use at school for browsing the Internet for schoolwork							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	502	(4.5)	537	(3.5)	550	(2.6)	547	(4.7)
	Austria	459	(4.4)	482	(4.2)	466	(4.5)	444	(10.0)
	Belgium	521	(2.5)	528	(2.5)	487	(4.0)	431	(7.2)
	Chile	447	(5.8)	446	(4.1)	431	(3.9)	413	(5.2)
	Denmark	440	(8.0)	496	(4.1)	496	(2.8)	484	(4.0)
	Hungary	488	(5.5)	476	(5.5)	454	(4.7)	429	(8.1)
	Iceland	492	(3.8)	523	(2.4)	517	(2.4)	505	(8.3)
	Ireland	506	(3.4)	521	(3.4)	516	(4.6)	488	(10.6)
	Japan	521	(2.2)	533	(3.9)	532	(4.3)	498	(12.7)
	Korea	570	(2.7)	565	(4.0)	566	(7.7)	557	(11.2)
	New Zealand	524	(3.9)	556	(2.9)	543	(2.9)	529	(6.0)
	Norway	458	(6.9)	504	(3.6)	508	(3.3)	495	(3.3)
	Poland	475	(3.9)	469	(3.2)	451	(4.0)	424	(7.9)
	Spain	475	(5.4)	485	(4.8)	483	(4.5)	457	(5.5)
	Sweden	472	(8.8)	519	(4.3)	519	(3.4)	501	(5.5)
	OECD average-15	490	(1.3)	509	(1.0)	501	(1.1)	480	(2.0)
Partners	Hong Kong-China	519	(3.0)	518	(2.9)	511	(4.3)	501	(7.0)
	Macao-China	487	(1.2)	495	(1.6)	500	(2.2)	486	(5.5)

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Table VI.6.7e **Digital reading performance, by computer use at school for downloading, uploading or browsing material from the school's website**

		Computer use at school for downloading, uploading or browsing material from the school's website							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	534	(2.8)	552	(3.8)	552	(4.0)	545	(8.5)
	Austria	469	(3.8)	468	(5.9)	461	(5.9)	442	(14.9)
	Belgium	517	(2.3)	529	(3.6)	506	(5.0)	429	(9.3)
	Chile	446	(3.9)	428	(4.7)	421	(5.1)	404	(8.5)
	Denmark	495	(2.8)	490	(4.1)	485	(4.6)	466	(7.4)
	Hungary	477	(4.0)	465	(6.5)	447	(8.1)	410	(14.7)
	Iceland	516	(1.9)	517	(3.3)	507	(5.5)	483	(16.2)
	Ireland	518	(2.9)	500	(6.3)	492	(7.1)	445	(17.4)
	Japan	525	(2.1)	527	(5.8)	521	(9.6)	c	c
	Korea	570	(2.7)	565	(4.0)	566	(11.4)	549	(17.8)
	New Zealand	546	(2.2)	543	(4.5)	534	(5.0)	518	(14.5)
	Norway	501	(3.6)	507	(3.5)	504	(3.5)	474	(6.7)
	Poland	475	(3.2)	448	(3.7)	423	(5.9)	402	(11.2)
	Spain	483	(3.9)	473	(5.1)	468	(6.9)	437	(10.1)
	Sweden	520	(3.3)	500	(5.3)	501	(4.4)	459	(12.6)
	OECD average-15	506	(0.8)	501	(1.2)	493	(1.7)	431	(3.2)
Partners	Hong Kong-China	515	(3.1)	520	(3.1)	516	(4.3)	485	(7.3)
	Macao-China	487	(1.0)	499	(2.2)	509	(2.6)	469	(8.1)

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Table VI.6.7f Digital reading performance, by computer use at school for posting work on the school's website

		Computer use at school for posting work on the school's website							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	545	(2.7)	530	(5.4)	512	(8.5)	504	(13.3)
	Austria	475	(3.4)	444	(6.9)	437	(9.2)	423	(17.7)
	Belgium	518	(2.4)	525	(3.9)	499	(5.4)	436	(10.6)
	Chile	446	(3.5)	408	(5.7)	394	(8.7)	376	(11.8)
	Denmark	501	(2.7)	458	(4.8)	439	(6.3)	424	(12.4)
	Hungary	480	(4.0)	458	(6.6)	439	(8.0)	405	(14.7)
	Iceland	518	(1.4)	487	(6.6)	461	(12.6)	448	(22.4)
	Ireland	517	(2.8)	473	(9.1)	455	(12.9)	420	(16.8)
	Japan	525	(2.2)	526	(7.3)	521	(7.3)	c	c
	Korea	570	(2.8)	554	(8.7)	529	(14.8)	c	c
	New Zealand	550	(2.0)	509	(6.8)	475	(13.4)	438	(15.9)
	Norway	495	(4.8)	511	(3.6)	504	(3.5)	479	(5.3)
	Poland	472	(3.0)	420	(6.0)	403	(7.9)	384	(15.2)
	Spain	485	(3.8)	459	(6.7)	455	(7.7)	418	(12.2)
	Sweden	521	(3.2)	477	(5.5)	456	(9.1)	421	(15.2)
	OECD average-15	508	(0.8)	483	(1.7)	465	(2.5)	372	(3.5)
Partners	Hong Kong-China	522	(3.5)	519	(2.9)	503	(4.2)	480	(7.9)
	Macao-China	488	(1.1)	492	(1.9)	502	(2.1)	475	(6.6)

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Table VI.6.7g Digital reading performance, by computer use at school for playing simulations at school

		Computer use at school for playing simulations at school							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	553	(3.0)	528	(3.3)	511	(4.1)	479	(4.9)
	Austria	476	(3.5)	443	(6.2)	430	(6.8)	415	(11.3)
	Belgium	525	(2.0)	493	(4.7)	465	(4.8)	424	(8.0)
	Chile	447	(3.4)	407	(5.9)	388	(7.0)	370	(10.8)
	Denmark	500	(3.0)	479	(3.1)	467	(4.8)	447	(7.5)
	Hungary	481	(4.1)	448	(7.8)	419	(7.7)	398	(14.7)
	Iceland	519	(1.5)	496	(5.6)	478	(8.5)	464	(16.9)
	Ireland	518	(2.8)	500	(6.1)	485	(7.1)	448	(13.8)
	Japan	527	(2.1)	493	(7.4)	507	(7.6)	c	c
	Korea	571	(2.8)	536	(8.3)	527	(10.9)	c	c
	New Zealand	552	(2.1)	523	(4.6)	497	(6.4)	432	(12.7)
	Norway	514	(3.0)	488	(4.2)	464	(5.1)	437	(6.2)
	Poland	474	(3.0)	436	(5.6)	412	(7.0)	397	(13.5)
	Spain	487	(3.4)	456	(7.2)	434	(9.3)	416	(12.8)
	Sweden	519	(3.2)	500	(5.3)	464	(7.6)	426	(13.9)
	OECD average-15	511	(0.8)	482	(1.5)	463	(1.9)	370	(2.8)
Partners	Hong Kong-China	523	(2.4)	492	(5.5)	480	(7.4)	479	(8.6)
	Macao-China	496	(0.8)	477	(3.3)	473	(4.2)	474	(8.0)

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Table VI.6.7h Digital reading performance, by computer use at school for practicing and drilling

		Computer use at school for practicing and drilling							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	545	(2.7)	540	(3.7)	525	(5.7)	501	(17.3)
	Austria	474	(3.5)	466	(5.6)	429	(7.3)	417	(15.8)
	Belgium	518	(2.2)	531	(2.8)	489	(4.2)	426	(6.7)
	Chile	444	(3.7)	434	(4.7)	424	(5.4)	394	(8.9)
	Denmark	500	(2.8)	492	(3.5)	462	(4.7)	454	(8.7)
	Hungary	483	(4.1)	457	(5.7)	419	(8.0)	389	(15.0)
	Iceland	514	(1.8)	522	(3.0)	508	(4.2)	486	(13.6)
	Ireland	514	(2.9)	518	(4.7)	500	(8.4)	443	(13.2)
	Japan	525	(2.2)	493	(8.4)	518	(12.6)	c	c
	Korea	570	(3.0)	561	(5.6)	560	(4.4)	560	(10.0)
	New Zealand	547	(2.1)	539	(5.3)	536	(6.8)	460	(12.7)
	Norway	508	(3.7)	509	(2.8)	484	(3.8)	465	(7.1)
	Poland	475	(3.2)	451	(4.1)	428	(6.4)	407	(10.3)
	Spain	482	(4.3)	488	(4.3)	465	(5.4)	441	(8.4)
	Sweden	522	(3.3)	510	(4.0)	479	(5.7)	443	(13.2)
	OECD average-15	508	(0.8)	501	(1.2)	482	(1.7)	419	(3.0)
Partners	Hong Kong-China	524	(2.7)	511	(4.0)	490	(5.0)	466	(11.4)
	Macao-China	496	(0.9)	488	(2.1)	479	(3.0)	466	(7.2)

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Table VI.6.7i Digital reading performance, by computer use at school for doing individual homework on a school computer

		Computer use at school for doing individual homework on a school computer							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	523	(3.7)	551	(2.9)	548	(3.1)	542	(5.0)
	Austria	470	(4.0)	474	(4.9)	451	(5.9)	426	(12.4)
	Belgium	523	(2.0)	514	(3.7)	470	(5.0)	415	(8.7)
	Chile	445	(4.7)	444	(4.3)	430	(4.6)	405	(5.7)
	Denmark	495	(4.4)	500	(3.3)	485	(3.2)	485	(4.6)
	Hungary	482	(4.0)	456	(6.7)	419	(8.7)	392	(16.3)
	Iceland	513	(2.0)	521	(2.5)	510	(4.2)	503	(10.9)
	Ireland	514	(2.9)	514	(5.2)	511	(8.3)	460	(13.3)
	Japan	525	(2.2)	518	(8.4)	529	(8.6)	c	c
	Korea	570	(2.7)	559	(7.4)	567	(14.4)	541	(17.7)
	New Zealand	544	(3.0)	554	(3.2)	534	(4.1)	507	(8.2)
	Norway	501	(4.7)	507	(3.2)	502	(3.4)	484	(5.1)
	Poland	475	(3.1)	451	(4.4)	426	(5.5)	405	(10.1)
	Spain	487	(3.9)	467	(5.5)	458	(6.6)	442	(9.8)
	Sweden	514	(3.5)	519	(4.3)	509	(5.2)	481	(12.3)
	OECD average-15	505	(0.9)	503	(1.3)	490	(1.7)	433	(2.7)
Partners	Hong Kong-China	522	(2.5)	513	(3.5)	503	(5.6)	485	(7.4)
	Macao-China	491	(1.1)	496	(1.9)	494	(2.3)	477	(7.7)

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Table VI.6.7j **Digital reading performance, by computer use at school for group work and communication with other students**

		Computer use at school for group work and communication with other students							
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	534	(3.1)	552	(3.0)	542	(3.5)	528	(7.0)
	Austria	467	(4.4)	478	(4.1)	459	(5.6)	428	(10.3)
	Belgium	513	(2.3)	534	(2.6)	488	(3.8)	433	(7.9)
	Chile	445	(4.6)	445	(4.4)	429	(4.3)	405	(5.8)
	Denmark	491	(3.9)	500	(3.3)	490	(3.3)	478	(4.5)
	Hungary	483	(4.4)	474	(5.0)	448	(5.6)	432	(8.9)
	Iceland	503	(2.7)	525	(2.0)	516	(3.7)	491	(10.8)
	Ireland	514	(2.8)	514	(4.0)	519	(5.9)	462	(10.1)
	Japan	524	(2.1)	531	(5.1)	523	(5.1)	c	c
	Korea	570	(2.7)	561	(6.0)	560	(12.8)	533	(14.6)
	New Zealand	550	(2.7)	553	(3.1)	513	(4.2)	492	(7.9)
	Norway	488	(4.5)	514	(3.1)	498	(3.7)	477	(4.9)
	Poland	474	(3.2)	453	(3.9)	443	(5.6)	401	(8.4)
	Spain	479	(4.0)	487	(4.7)	474	(5.4)	447	(8.3)
	Sweden	516	(3.6)	520	(3.8)	503	(4.4)	463	(9.1)
	OECD average-15	503	(0.9)	509	(1.0)	494	(1.4)	431	(2.2)
Partners	Hong Kong-China	519	(2.8)	518	(3.1)	502	(5.5)	476	(11.9)
	Macao-China	492	(1.1)	496	(1.5)	487	(2.9)	467	(6.9)

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Table VI.6.8a **Digital reading performance, by time spent using a computer in language-of-instruction lessons**

		Association between digital reading scores and time spent using a computer in language-of-instruction lessons						Association between digital reading scores and time spent using a computer in language-of-instruction lessons, after accounting for socio-economic background (ESCS) of students							
		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		ESCS (b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	548	(3.2)	-23	(12.8)	14	(13.3)	534	(2.8)	**-27**	(11.3)	14	(11.6)	**42**	(1.9)
	Austria	475	(3.9)	**-105**	(28.5)	**72**	(25.0)	470	(4.0)	**-83**	(26.9)	**50**	(22.5)	**42**	(2.7)
	Belgium	521	(2.0)	**50**	(21.3)	**-98**	(20.6)	512	(1.9)	34	(19.3)	**-71**	(20.2)	**40**	(1.7)
	Chile	452	(3.5)	**-105**	(22.2)	**56**	(20.4)	468	(3.0)	**-89**	(17.6)	**42**	(17.0)	**34**	(1.5)
	Denmark	502	(3.9)	**-40**	(14.4)	**23**	(11.2)	491	(3.6)	**-28**	(13.6)	14	(10.8)	**29**	(1.6)
	Hungary	479	(3.9)	**-311**	(41.4)	**218**	(35.5)	487	(3.2)	**-224**	(37.5)	**146**	(32.9)	**52**	(2.7)
	Iceland	516	(1.6)	-9	(20.7)	-4	(22.4)	496	(2.2)	-11	(20.0)	1	(21.8)	**28**	(1.7)
	Ireland	516	(2.8)	**-72**	(33.4)	32	(35.6)	514	(2.6)	**-66**	(32.2)	24	(34.0)	**33**	(2.7)
	Japan	525	(2.2)	**-208**	(72.6)	63	(69.0)	526	(2.1)	**-235**	(72.1)	97	(68.9)	**24**	(2.0)
	Korea	567	(3.2)	-1	(13.9)	7	(11.5)	571	(2.9)	-1	(13.1)	8	(10.8)	**26**	(2.3)
	New Zealand	555	(2.3)	**-117**	(23.5)	**83**	(28.7)	550	(2.1)	**-103**	(18.9)	**72**	(20.5)	**45**	(2.1)
	Norway	506	(3.3)	6	(11.2)	**-19**	(9.2)	493	(3.4)	7	(11.2)	**-21**	(9.2)	**28**	(2.0)
	Poland	467	(3.0)	**-146**	(31.7)	**72**	(29.4)	480	(2.3)	**-116**	(25.9)	44	(23.5)	**46**	(1.6)
	Spain	485	(3.9)	-128	(46.9)	62	(39.7)	493	(3.6)	**-102**	(41.2)	46	(35.4)	**31**	(2.1)
	Sweden	522	(4.0)	**-35**	(17.5)	16	(14.8)	510	(3.7)	-24	(15.0)	7	(13.6)	**34**	(2.4)
	OECD average-15	509	(0.8)	**-83**	(8.2)	**40**	(7.7)	506	(0.8)	**-71**	(7.6)	**32**	(7.2)	**36**	(0.5)
Partners	Hong Kong-China	520	(2.5)	**-94**	(19.3)	**77**	(18.6)	535	(2.7)	**-94**	(17.7)	**76**	(17.4)	**18**	(1.9)
	Macao-China	497	(0.8)	**-68**	(11.6)	**45**	(10.0)	506	(1.2)	**-72**	(11.5)	**46**	(9.9)	**12**	(1.2)

		Association between digital reading scoresand time spent using computer in language-of-instruction lessons, after accounting for socio-economic background (ESCS) of students and schools									
		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		ESCS of students (b)		Average ESCS of schools (c)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	519	(2.9)	**-25**	(11.0)	9	(10.8)	**26**	(1.3)	**62**	(5.2)
	Austria	460	(4.6)	-34	(23.2)	14	(18.6)	**12**	(1.6)	**109**	(9.7)
	Belgium	499	(2.2)	26	(17.5)	**-55**	(17.6)	**16**	(1.3)	**76**	(4.7)
	Chile	479	(3.2)	**-76**	(15.2)	**39**	(15.5)	**10**	(1.5)	**46**	(3.1)
	Denmark	481	(3.9)	-20	(12.9)	7	(10.4)	**21**	(1.6)	**39**	(6.2)
	Hungary	494	(3.0)	**-126**	(32.8)	**83**	(27.9)	**11**	(1.5)	**94**	(4.5)
	Iceland	481	(3.4)	-10	(20.2)	4	(22.1)	**23**	(1.9)	**25**	(4.1)
	Ireland	513	(2.5)	**-70**	(31.5)	28	(32.7)	**26**	(1.9)	**29**	(9.1)
	Japan	526	(2.1)	**-190**	(58.5)	63	(55.5)	**7**	(1.6)	**73**	(6.5)
	Korea	577	(2.7)	-5	(12.7)	12	(10.4)	**10**	(1.2)	**56**	(6.1)
	New Zealand	547	(2.3)	**-91**	(15.9)	**59**	(15.1)	**34**	(1.9)	**47**	(6.7)
	Norway	482	(5.8)	5	(11.1)	**-19**	(9.0)	**24**	(1.9)	**28**	(10.5)
	Poland	487	(2.3)	**-108**	(25.1)	36	(23.0)	**38**	(1.7)	**32**	(5.5)
	Spain	498	(3.6)	**-103**	(40.3)	47	(34.8)	**23**	(1.6)	**23**	(4.6)
	Sweden	496	(4.7)	-23	(14.3)	6	(13.2)	**25**	(1.7)	**50**	(7.9)
	OECD average-15	502	(0.9)	**-57**	(6.8)	**22**	(6.3)	**20**	(0.4)	**53**	(1.7)
Partners	Hong Kong-China	557	(4.6)	**-82**	(16.9)	**66**	(16.7)	**4**	(1.5)	**43**	(5.2)
	Macao-China	516	(1.6)	**-76**	(11.7)	**49**	(10.1)	**7**	(1.4)	**20**	(2.1)

Notes: Values that are statistically signficant are indicated in bold (see Annex 3). Three quadratic regression analyses are conducted with digital reading scores as a dependent variable.
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Table VI.6.8b Print reading performance, by time spent using a computer in language-of-instruction lessons

		Association between print reading scores and time spent using a computer in language-of-instruction lessons						Association between print reading scores and time spent using a computer in language-of-instruction lessons, after accounting for socio-economic background (ESCS)							
		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		ESCS (b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	527	(2.5)	**-28**	(12.1)	17	(14.9)	512	(2.1)	**-32**	(10.5)	18	(13.4)	**45**	(1.8)
	Austria	486	(3.2)	**-120**	(26.5)	**77**	(24.2)	481	(2.8)	**-97**	(23.6)	**54**	(20.3)	**46**	(2.2)
	Belgium	522	(2.1)	38	(22.9)	**-102**	(21.6)	512	(1.9)	22	(20.9)	**-73**	(21.3)	**42**	(1.5)
	Canada	537	(1.5)	**-49**	(9.1)	**21**	(9.1)	522	(1.5)	**-47**	(8.6)	17	(8.7)	**30**	(1.4)
	Chile	465	(3.0)	**-75**	(26.1)	**46**	(23.0)	478	(2.6)	**-61**	(21.3)	34	(19.5)	**29**	(1.5)
	Czech Republic	490	(2.9)	**-116**	(25.5)	**82**	(21.6)	492	(2.6)	**-101**	(24.4)	**71**	(20.3)	**42**	(2.3)
	Denmark	506	(3.5)	**-31**	(14.0)	16	(11.1)	494	(3.1)	-17	(13.0)	5	(10.3)	**34**	(1.5)
	Estonia	506	(2.6)	**-102**	(27.0)	43	(26.1)	502	(2.4)	**-94**	(25.5)	37	(24.6)	**28**	(2.2)
	Finland	539	(2.3)	10	(18.2)	-37	(20.5)	529	(2.3)	-3	(16.8)	-25	(19.5)	**30**	(1.6)
	Germany	515	(2.7)	**-109**	(24.9)	45	(29.7)	506	(2.1)	**-95**	(21.8)	35	(25.1)	**41**	(1.8)
	Greece	496	(4.2)	**-208**	(24.8)	**120**	(21.0)	495	(3.7)	**-188**	(23.1)	**107**	(19.7)	**32**	(2.4)
	Hungary	504	(2.9)	**-327**	(32.2)	**231**	(27.9)	512	(2.3)	**-253**	(29.2)	**169**	(26.5)	**45**	(2.2)
	Iceland	505	(1.6)	11	(21.1)	-34	(24.0)	486	(2.3)	8	(21.1)	-29	(24.5)	**26**	(1.8)
	Ireland	505	(2.8)	**-70**	(31.5)	19	(33.1)	503	(2.5)	**-66**	(30.2)	12	(31.3)	**39**	(2.0)
	Israel	497	(3.3)	**-280**	(27.2)	**167**	(24.6)	496	(2.8)	**-230**	(25.9)	**122**	(23.5)	**42**	(2.5)
	Italy	494	(1.7)	**-91**	(16.8)	**38**	(14.5)	497	(1.5)	**-79**	(15.1)	**31**	(13.4)	**31**	(1.2)
	Japan	526	(3.1)	**-263**	(99.4)	112	(94.2)	527	(2.7)	**-316**	(99.2)	175	(94.5)	**38**	(2.9)
	Korea	539	(3.8)	-5	(14.3)	11	(11.5)	544	(3.3)	-6	(13.6)	11	(10.9)	**32**	(2.5)
	Netherlands	521	(5.7)	**-51**	(23.7)	10	(20.3)	511	(5.1)	**-55**	(21.5)	16	(17.9)	**35**	(2.0)
	New Zealand	539	(2.6)	**-123**	(25.4)	**81**	(32.9)	534	(2.3)	**-108**	(20.0)	**70**	(23.0)	**50**	(2.1)
	Norway	510	(3.2)	14	(11.9)	**-29**	(9.8)	493	(3.2)	16	(11.1)	**-33**	(9.1)	**36**	(2.1)
	Poland	505	(2.5)	**-154**	(31.6)	**66**	(30.8)	516	(2.1)	**-130**	(27.1)	43	(25.8)	**38**	(1.8)
	Portugal	498	(3.0)	**-94**	(25.1)	27	(20.7)	506	(2.3)	**-90**	(20.9)	27	(17.7)	**29**	(1.6)
	Slovak Republic	485	(2.4)	**-187**	(27.5)	**114**	(24.5)	488	(2.1)	**-157**	(26.6)	**86**	(24.3)	**39**	(2.3)
	Slovenia	490	(1.3)	-43	(24.3)	2	(21.5)	487	(1.3)	**-53**	(23.2)	10	(20.9)	**37**	(1.6)
	Spain	489	(2.0)	**-92**	(23.8)	**42**	(20.2)	497	(1.8)	**-64**	(22.2)	24	(19.1)	**28**	(1.5)
	Sweden	512	(3.6)	**-49**	(18.3)	23	(15.0)	497	(3.0)	**-36**	(15.5)	13	(13.8)	**41**	(2.1)
	Switzerland	510	(2.8)	**-47**	(16.4)	-5	(15.3)	506	(2.4)	**-36**	(15.1)	-6	(14.8)	**39**	(2.1)
	Turkey	471	(4.0)	-30	(15.8)	14	(13.8)	505	(3.8)	**-36**	(13.5)	15	(12.1)	**29**	(1.5)
	OECD average-29	507	(0.6)	**-92**	(5.4)	**42**	(5.1)	504	(0.5)	**-83**	(5.1)	**36**	(4.9)	**36**	(0.4)
Partners	Bulgaria	451	(6.7)	**-161**	(24.9)	**95**	(21.9)	454	(5.2)	**-118**	(20.7)	**62**	(18.7)	**49**	(3.0)
	Croatia	480	(2.8)	**-106**	(36.6)	46	(30.2)	486	(2.5)	**-120**	(34.7)	**61**	(28.4)	**31**	(2.1)
	Hong Kong-China	539	(2.2)	**-91**	(17.8)	**71**	(16.4)	553	(2.4)	**-91**	(17.0)	**70**	(15.4)	**17**	(2.1)
	Jordan	419	(3.3)	4	(15.3)	**-33**	(14.1)	431	(3.4)	15	(13.9)	**-42**	(13.1)	**23**	(2.1)
	Latvia	490	(3.1)	**-86**	(23.0)	32	(20.5)	494	(2.6)	**-77**	(23.1)	23	(20.8)	**28**	(2.5)
	Liechtenstein	502	(4.8)	15	(40.1)	-30	(33.9)	499	(4.8)	8	(39.7)	-18	(34.0)	**26**	(5.0)
	Lithuania	474	(2.4)	**-84**	(21.5)	29	(19.0)	475	(2.2)	**-66**	(21.4)	16	(18.1)	**32**	(1.8)
	Macao-China	491	(1.1)	**-65**	(10.8)	**48**	(9.2)	500	(1.3)	**-70**	(10.6)	**50**	(9.1)	**12**	(1.2)
	Panama	402	(6.9)	**-129**	(31.2)	**64**	(31.9)	427	(5.5)	**-114**	(25.7)	41	(29.4)	**36**	(3.3)
	Qatar	386	(1.1)	9	(16.7)	**-40**	(14.5)	373	(1.2)	-4	(16.4)	**-30**	(14.4)	**26**	(1.2)
	Russian Federation	468	(3.3)	**-39**	(14.9)	12	(13.3)	477	(3.0)	**-45**	(13.9)	13	(12.2)	**38**	(2.6)
	Serbia	446	(2.4)	**-110**	(37.9)	56	(33.3)	444	(2.2)	**-103**	(35.6)	51	(31.1)	**26**	(1.5)
	Singapore	534	(1.3)	**-88**	(15.5)	**66**	(16.3)	554	(1.6)	**-89**	(14.2)	**62**	(14.5)	**47**	(1.9)
	Thailand	431	(2.4)	**-136**	(16.1)	**86**	(14.2)	457	(3.4)	**-121**	(14.3)	**77**	(13.4)	**21**	(1.8)
	Trinidad and Tobago	440	(1.4)	**-200**	(24.8)	**108**	(23.2)	461	(1.8)	**-204**	(26.2)	**113**	(24.3)	**36**	(1.8)
	Uruguay	438	(2.3)	**-168**	(31.5)	**89**	(28.3)	461	(2.3)	**-138**	(27.4)	**67**	(25.3)	**35**	(1.5)

Note: Values that are statistically signficant are indicated in bold (see Annex 3).
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[Part 2/2]
Table VI.6.8b Print reading performance, by time spent using a computer in language-of-instruction lessons

Association between print reading scores and time spent using computer in language-of-instruction lessons, after accounting for socio-ecomomic background (ESCS) of students and schools

		Intercept		Time spent using a computer in language-of-instruction lessons (hours per week) (a)		Time spent using a computer in language-of-instruction lessons (hours per week) (squared) (a*a)		ESCS of students (b)		Average ESCS of schools (c)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	496	(2.3)	**-30**	(10.0)	12	(12.5)	**28**	(1.4)	**63**	(4.4)
	Austria	469	(2.8)	**-43**	(19.6)	15	(15.8)	**13**	(1.6)	**120**	(7.4)
	Belgium	496	(2.3)	12	(17.8)	**-54**	(17.5)	**13**	(1.5)	**92**	(4.2)
	Canada	504	(2.3)	**-46**	(8.3)	16	(8.5)	**20**	(1.4)	**44**	(3.5)
	Chile	488	(2.6)	**-50**	(18.6)	32	(17.7)	**7**	(1.5)	**42**	(3.0)
	Czech Republic	497	(2.4)	**-49**	(24.2)	27	(19.5)	**13**	(1.8)	**125**	(6.7)
	Denmark	484	(3.1)	-8	(12.2)	-1	(9.7)	**26**	(1.6)	**39**	(4.6)
	Estonia	494	(2.6)	**-71**	(22.9)	16	(22.2)	**16**	(1.7)	**58**	(7.7)
	Finland	525	(3.5)	-5	(16.8)	-24	(19.4)	**28**	(1.8)	13	(7.4)
	Germany	487	(2.3)	**-57**	(20.0)	14	(19.9)	**12**	(1.4)	**108**	(4.8)
	Greece	495	(3.4)	**-173**	(23.5)	**100**	(19.8)	**15**	(1.5)	**55**	(6.8)
	Hungary	518	(2.4)	**-165**	(24.9)	**112**	(22.0)	**8**	(1.5)	**85**	(4.0)
	Iceland	478	(3.6)	9	(21.2)	-28	(24.7)	**24**	(1.9)	**13**	(4.4)
	Ireland	501	(2.5)	**-71**	(29.5)	17	(29.7)	**28**	(2.0)	**42**	(6.3)
	Israel	493	(3.0)	**-194**	(25.1)	**105**	(23.0)	**19**	(2.0)	**88**	(7.7)
	Italy	502	(1.6)	**-54**	(13.9)	22	(12.5)	**5**	(0.7)	**84**	(3.9)
	Japan	527	(2.7)	**-227**	(67.2)	107	(62.5)	**3**	(1.6)	**143**	(7.7)
	Korea	551	(3.0)	-10	(13.4)	16	(10.8)	**12**	(1.4)	**67**	(6.6)
	Netherlands	485	(6.4)	**-56**	(17.6)	**30**	(13.8)	**6**	(1.4)	**110**	(10.3)
	New Zealand	530	(2.5)	**-94**	(15.8)	**55**	(15.8)	**37**	(1.9)	**52**	(6.5)
	Norway	479	(5.3)	14	(10.9)	**-31**	(8.9)	**32**	(2.1)	**33**	(8.8)
	Poland	521	(2.3)	**-124**	(27.2)	37	(25.9)	**32**	(1.8)	**24**	(4.5)
	Portugal	514	(2.0)	**-89**	(18.3)	30	(16.3)	**16**	(1.0)	**39**	(3.4)
	Slovak Republic	493	(2.4)	**-103**	(25.2)	**51**	(21.4)	**14**	(1.6)	**102**	(6.0)
	Slovenia	479	(1.2)	**-41**	(19.6)	10	(17.4)	3	(1.5)	**115**	(2.9)
	Spain	502	(2.3)	**-58**	(22.6)	20	(19.1)	**20**	(1.1)	**23**	(3.6)
	Sweden	484	(3.5)	**-35**	(14.9)	12	(13.3)	**32**	(1.9)	**50**	(6.6)
	Switzerland	498	(3.4)	-7	(17.7)	-22	(15.7)	**21**	(1.3)	**84**	(8.1)
	Turkey	545	(6.1)	**-35**	(11.8)	19	(10.9)	**9**	(1.0)	**55**	(4.4)
	OECD average-29	501	(0.6)	**-64**	(4.2)	**25**	(3.9)	**18**	(0.3)	**68**	(1.1)
Partners	Bulgaria	456	(4.0)	**-69**	(18.1)	28	(16.0)	**12**	(2.1)	**99**	(6.0)
	Croatia	496	(2.9)	**-122**	(36.1)	**70**	(29.4)	**10**	(1.5)	**84**	(6.3)
	Hong Kong-China	573	(6.0)	**-80**	(17.4)	**61**	(15.0)	**4**	(1.4)	**39**	(6.9)
	Jordan	437	(4.7)	24	(13.9)	**-48**	(13.0)	**18**	(1.5)	**18**	(6.3)
	Latvia	497	(2.2)	**-61**	(23.6)	12	(21.0)	**17**	(2.0)	**41**	(6.0)
	Liechtenstein	489	(4.3)	-6	(33.4)	17	(31.2)	2	(4.8)	**131**	(9.0)
	Lithuania	476	(2.4)	**-42**	(20.7)	-1	(17.8)	**17**	(1.7)	**54**	(4.9)
	Macao-China	513	(1.8)	**-74**	(10.8)	**53**	(9.2)	**6**	(1.4)	**24**	(2.3)
	Panama	443	(4.7)	**-74**	(17.7)	19	(19.6)	**9**	(1.9)	**53**	(5.3)
	Qatar	350	(1.4)	-22	(15.7)	-13	(14.0)	**8**	(1.6)	**61**	(2.3)
	Russian Federation	484	(3.1)	**-37**	(13.4)	6	(11.7)	**22**	(2.1)	**52**	(7.4)
	Serbia	439	(2.2)	**-82**	(33.1)	41	(29.3)	**7**	(1.3)	**75**	(4.7)
	Singapore	589	(2.0)	**-84**	(13.3)	**55**	(13.3)	**25**	(1.9)	**104**	(3.8)
	Thailand	477	(4.6)	**-107**	(13.5)	**68**	(12.7)	**5**	(0.9)	**32**	(3.1)
	Trinidad and Tobago	515	(1.8)	**-149**	(22.0)	**89**	(20.6)	1	(2.1)	**138**	(3.8)
	Uruguay	479	(2.5)	**-119**	(26.9)	**60**	(24.3)	**15**	(1.3)	**47**	(2.7)

Note: Values that are statistically signficant are indicated in bold (see Annex 3).
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Table VI.6.8c **Reading performance, by computer use in language-of-instruction lessons**

		Digital reading performance (15 OECD countries)								Print reading performance (29 OECD countries)							
		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	548	(3.2)	544	(3.3)	537	(3.4)	541	(9.8)	526	(2.6)	522	(2.6)	514	(3.0)	520	(12.1)
	Austria	475	(3.9)	453	(7.8)	436	(9.3)	456	(12.6)	485	(3.2)	466	(6.5)	431	(8.7)	460	(12.3)
	Belgium	521	(2.0)	535	(4.9)	484	(8.2)	445	(14.0)	521	(2.2)	533	(4.9)	473	(9.5)	426	(12.8)
	Canada	m	m	m	m	m	m	m	m	537	(1.5)	526	(2.1)	512	(3.5)	508	(7.0)
	Chile	452	(3.5)	420	(6.9)	414	(7.0)	401	(10.4)	465	(3.0)	441	(7.6)	444	(8.1)	437	(11.3)
	Czech Republic	m	m	m	m	m	m	m	m	491	(2.9)	460	(6.5)	457	(8.3)	469	(9.6)
	Denmark	502	(3.9)	492	(3.2)	486	(4.0)	488	(5.8)	506	(3.7)	501	(2.8)	492	(3.3)	494	(5.6)
	Estonia	m	m	m	m	m	m	m	m	507	(2.6)	476	(6.7)	472	(11.0)	427	(14.7)
	Finland	m	m	m	m	m	m	m	m	539	(2.3)	541	(3.6)	521	(8.3)	502	(18.6)
	Germany	m	m	m	m	m	m	m	m	514	(2.7)	494	(5.9)	445	(10.1)	455	(24.2)
	Greece	m	m	m	m	m	m	m	m	497	(4.2)	433	(7.5)	438	(9.2)	412	(8.5)
	Hungary	479	(3.9)	393	(11.4)	402	(17.2)	417	(13.3)	505	(2.9)	415	(10.3)	422	(11.4)	443	(11.6)
	Iceland	517	(1.7)	513	(4.3)	511	(8.2)	496	(16.6)	505	(1.7)	508	(4.1)	489	(9.0)	471	(19.8)
	Ireland	516	(2.8)	492	(8.1)	494	(12.8)	c	c	505	(2.9)	482	(7.3)	475	(13.2)	c	c
	Israel	m	m	m	m	m	m	m	m	498	(3.3)	431	(6.3)	396	(12.1)	404	(15.6)
	Italy	m	m	m	m	m	m	m	m	495	(1.7)	450	(4.8)	468	(5.2)	431	(7.1)
	Japan	525	(2.2)	456	(21.9)	c	c	c	c	526	(3.1)	446	(31.6)	c	c	c	c
	Korea	567	(3.2)	566	(4.4)	573	(5.4)	577	(6.3)	539	(3.9)	540	(4.2)	539	(5.7)	550	(5.6)
	Netherlands	m	m	m	m	m	m	m	m	522	(5.6)	503	(6.9)	498	(7.8)	462	(11.5)
	New Zealand	555	(2.3)	532	(4.1)	511	(7.9)	539	(22.3)	539	(2.6)	515	(4.3)	490	(7.7)	514	(25.6)
	Norway	505	(3.4)	508	(3.6)	497	(4.0)	485	(4.6)	508	(3.4)	513	(3.4)	501	(3.9)	482	(4.6)
	Poland	468	(3.0)	424	(8.7)	421	(10.7)	384	(18.4)	505	(2.5)	455	(7.9)	456	(12.1)	399	(20.5)
	Portugal	m	m	m	m	m	m	m	m	497	(3.0)	477	(7.5)	439	(7.8)	422	(9.4)
	Slovak Republic	m	m	m	m	m	m	m	m	486	(2.4)	432	(6.7)	430	(10.6)	416	(11.2)
	Slovenia	m	m	m	m	m	m	m	m	489	(1.3)	482	(6.0)	450	(8.3)	441	(8.4)
	Spain	485	(3.9)	446	(10.5)	437	(15.4)	413	(13.6)	490	(2.0)	457	(5.9)	458	(9.6)	431	(11.4)
	Sweden	521	(4.0)	517	(3.7)	500	(5.9)	507	(7.7)	511	(3.7)	505	(3.2)	483	(6.1)	493	(6.8)
	Switzerland	m	m	m	m	m	m	m	m	511	(2.8)	496	(3.6)	477	(5.7)	439	(10.1)
	Turkey	m	m	m	m	m	m	m	m	471	(4.0)	465	(3.9)	456	(5.0)	455	(9.4)
	OECD average	509	(0.8)	486	(2.2)	479	(2.5)	473	(3.6)	507	(0.6)	482	(1.5)	469	(1.6)	458	(2.5)
Partners	Bulgaria	m	m	m	m	m	m	m	m	452	(6.6)	401	(10.1)	401	(8.8)	391	(12.0)
	Croatia	m	m	m	m	m	m	m	m	481	(2.8)	440	(9.3)	460	(14.5)	410	(10.8)
	Hong Kong-China	521	(2.6)	497	(5.3)	500	(6.8)	517	(10.6)	540	(2.2)	517	(4.4)	517	(7.2)	532	(10.4)
	Jordan	m	m	m	m	m	m	m	m	420	(3.3)	414	(4.0)	411	(5.9)	369	(9.1)
	Latvia	m	m	m	m	m	m	m	m	490	(3.0)	474	(5.7)	436	(11.3)	436	(9.7)
	Liechtenstein	m	m	m	m	m	m	m	m	500	(5.1)	512	(7.3)	481	(15.5)	c	c
	Lithuania	m	m	m	m	m	m	m	m	475	(2.4)	451	(5.7)	438	(10.1)	406	(16.3)
	Macao-China	497	(0.9)	480	(3.1)	474	(3.9)	481	(3.1)	491	(1.1)	475	(2.7)	472	(4.3)	484	(3.8)
	Panama	m	m	m	m	m	m	m	m	404	(7.0)	362	(6.7)	358	(8.4)	335	(16.9)
	Qatar	m	m	m	m	m	m	m	m	386	(1.1)	382	(4.1)	375	(5.9)	333	(6.2)
	Russian Federation	m	m	m	m	m	m	m	m	469	(3.4)	455	(4.8)	451	(5.8)	436	(6.9)
	Serbia	m	m	m	m	m	m	m	m	446	(2.4)	405	(12.3)	417	(11.3)	389	(12.7)
	Singapore	m	m	m	m	m	m	m	m	533	(1.3)	519	(3.6)	499	(5.7)	531	(10.6)
	Thailand	m	m	m	m	m	m	m	m	431	(2.4)	396	(5.8)	382	(4.8)	390	(5.5)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	441	(1.5)	389	(6.7)	363	(10.4)	355	(12.0)
	Uruguay	m	m	m	m	m	m	m	m	438	(2.3)	392	(8.9)	372	(14.4)	362	(12.9)

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Table VI.6.8d Digital reading and mathematics performance, by computer use in mathematics lessons

		Digital reading performance (15 OECD countries)								Mathematics performance (29 OECD countries)							
		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	550	(2.9)	531	(3.6)	521	(6.3)	549	(19.7)	526	(2.4)	506	(3.6)	493	(4.2)	549	(30.8)
	Austria	471	(3.8)	464	(7.9)	418	(12.3)	444	(26.0)	503	(2.9)	504	(8.4)	465	(10.8)	502	(19.8)
	Belgium	523	(1.9)	527	(6.4)	511	(10.6)	440	(15.5)	530	(2.1)	540	(7.0)	529	(14.7)	463	(15.0)
	Canada	m	m	m	m	m	m	m	m	536	(1.4)	513	(3.4)	475	(6.7)	513	(13.2)
	Chile	451	(3.3)	407	(6.8)	394	(8.7)	403	(19.1)	435	(3.0)	404	(8.0)	397	(9.9)	409	(14.1)
	Czech Republic	m	m	m	m	m	m	m	m	502	(2.8)	465	(7.2)	471	(6.7)	495	(17.9)
	Denmark	496	(2.9)	488	(3.6)	480	(6.5)	493	(9.8)	507	(3.1)	506	(2.9)	500	(6.2)	521	(10.5)
	Estonia	m	m	m	m	m	m	m	m	519	(2.4)	484	(6.1)	468	(10.0)	471	(14.0)
	Finland	m	m	m	m	m	m	m	m	545	(2.2)	531	(5.2)	523	(9.5)	c	c
	Germany	m	m	m	m	m	m	m	m	523	(3.1)	536	(7.1)	489	(13.2)	c	c
	Greece	m	m	m	m	m	m	m	m	480	(3.5)	414	(7.3)	413	(7.8)	439	(8.3)
	Hungary	479	(4.0)	384	(12.8)	366	(23.3)	362	(22.0)	499	(3.3)	415	(9.9)	386	(13.1)	421	(18.0)
	Iceland	518	(1.8)	512	(4.3)	490	(8.8)	c	c	512	(1.7)	506	(4.6)	480	(8.8)	c	c
	Ireland	516	(3.0)	492	(7.9)	478	(19.0)	c	c	495	(2.5)	463	(8.5)	452	(15.1)	c	c
	Israel	m	m	m	m	m	m	m	m	473	(3.1)	391	(7.1)	369	(10.4)	371	(10.1)
	Italy	m	m	m	m	m	m	m	m	482	(2.2)	479	(3.7)	512	(3.2)	498	(5.7)
	Japan	525	(2.1)	479	(21.6)	c	c	c	c	534	(3.0)	485	(26.2)	c	c	c	c
	Korea	569	(3.0)	557	(8.2)	546	(10.3)	576	(9.5)	548	(3.9)	532	(11.5)	515	(13.3)	559	(13.5)
	Netherlands	m	m	m	m	m	m	m	m	538	(4.9)	497	(6.5)	482	(10.1)	480	(15.7)
	New Zealand	548	(2.1)	527	(7.0)	519	(16.6)	c	c	528	(2.1)	507	(7.5)	492	(16.2)		
	Norway	509	(3.0)	499	(3.5)	488	(5.0)	451	(12.3)	502	(2.7)	502	(3.2)	492	(6.5)	468	(10.7)
	Poland	467	(3.0)	444	(9.2)	426	(14.1)	438	(25.5)	497	(2.8)	478	(10.2)	457	(13.7)	460	(25.2)
	Portugal	m	m	m	m	m	m	m	m	491	(3.3)	479	(6.2)	446	(9.4)	458	(11.9)
	Slovak Republic	m	m	m	m	m	m	m	m	504	(3.0)	472	(9.2)	450	(9.0)	451	(14.6)
	Slovenia	m	m	m	m	m	m	m	m	508	(1.5)	481	(4.8)	455	(9.5)	469	(10.8)
	Spain	487	(3.8)	433	(8.7)	395	(11.3)	403	(14.8)	492	(2.1)	463	(6.3)	439	(8.1)	462	(13.4)
	Sweden	521	(3.2)	483	(6.4)	422	(12.8)	454	(21.3)	503	(2.8)	482	(7.3)	428	(11.5)	478	(20.6)
	Switzerland	m	m	m	m	m	m	m	m	540	(3.4)	522	(5.4)	501	(9.7)	510	(28.7)
	Turkey	m	m	m	m	m	m	m	m	455	(5.0)	425	(5.8)	436	(6.5)	445	(7.4)
	OECD average	509	(0.8)	482	(2.3)	461	(3.4)	456	(5.6)	507	(0.5)	482	(1.6)	465	(1.9)	474	(3.4)
Partners	Bulgaria	m	m	m	m	m	m	m	m	448	(5.8)	401	(7.6)	381	(9.9)	373	(10.9)
	Croatia	m	m	m	m	m	m	m	m	462	(3.0)	455	(11.6)	483	(27.5)	c	c
	Hong Kong-China	519	(2.5)	505	(5.8)	491	(7.8)	513	(11.2)	558	(2.8)	547	(5.9)	540	(10.1)	560	(10.6)
	Jordan	m	m	m	m	m	m	m	m	403	(4.0)	383	(4.4)	377	(5.5)	360	(9.1)
	Latvia	m	m	m	m	m	m	m	m	487	(3.1)	462	(7.1)	448	(11.4)	460	(11.2)
	Liechtenstein	m	m	m	m	m	m	m	m	537	(4.7)	544	(13.3)	c	c	c	c
	Lithuania	m	m	m	m	m	m	m	m	483	(2.5)	454	(7.0)	428	(10.7)	c	c
	Macao-China	493	(0.8)	484	(3.3)	486	(5.0)	495	(5.7)	526	(1.1)	525	(4.4)	519	(6.6)	546	(8.1)
	Panama	m	m	m	m	m	m	m	m	385	(5.6)	351	(5.8)	353	(7.4)	336	(7.2)
	Qatar	m	m	m	m	m	m	m	m	383	(1.1)	360	(3.1)	353	(3.5)	346	(6.1)
	Russian Federation	m	m	m	m	m	m	m	m	475	(3.4)	468	(4.8)	458	(5.4)	456	(8.4)
	Serbia	m	m	m	m	m	m	m	m	447	(2.9)	410	(12.9)	419	(16.4)	356	(22.2)
	Singapore	m	m	m	m	m	m	m	m	568	(1.7)	556	(4.6)	519	(8.0)	564	(15.7)
	Thailand	m	m	m	m	m	m	m	m	425	(3.1)	393	(5.3)	405	(6.8)	402	(9.6)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	432	(1.5)	400	(7.7)	357	(7.3)	367	(7.1)
	Uruguay	m	m	m	m	m	m	m	m	436	(2.6)	418	(12.7)	394	(11.4)	387	(14.9)

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Table VI.6.8e **Digital reading and science performance, by computer use in science lessons**

		Digital reading performance (15 OECD countries)								Science performance (29 OECD countries)							
		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week		No time		0-30 minutes a week		31-60 minutes a week		More than 60 minutes a week	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	541	(3.3)	551	(2.9)	552	(4.5)	570	(8.3)	531	(2.8)	541	(2.7)	540	(3.4)	571	(14.0)
	Austria	467	(4.0)	482	(6.9)	455	(9.3)	490	(14.0)	500	(3.5)	522	(6.3)	492	(9.1)	533	(11.8)
	Belgium	525	(2.2)	542	(4.8)	510	(8.9)	465	(17.5)	526	(2.2)	552	(5.3)	520	(8.7)	484	(18.4)
	Canada	m	m	m	m	m	m	m	m	537	(1.6)	534	(2.0)	518	(3.9)	534	(7.1)
	Chile	448	(3.4)	435	(6.5)	432	(7.9)	455	(9.7)	461	(2.9)	451	(6.0)	444	(7.6)	459	(8.9)
	Czech Republic	m	m	m	m	m	m	m	m	511	(2.9)	506	(5.9)	489	(5.8)	509	(9.7)
	Denmark	493	(3.0)	496	(3.2)	481	(4.3)	496	(8.2)	500	(2.8)	512	(3.0)	497	(4.8)	520	(10.1)
	Estonia	m	m	m	m	m	m	m	m	533	(2.8)	518	(4.8)	508	(7.2)	510	(20.4)
	Finland	m	m	m	m	m	m	m	m	559	(2.3)	556	(3.4)	526	(8.0)	519	(19.9)
	Germany	m	m	m	m	m	m	m	m	530	(3.3)	551	(5.0)	521	(8.0)	530	(16.4)
	Greece	m	m	m	m	m	m	m	m	484	(3.8)	427	(7.8)	417	(7.9)	438	(8.0)
	Hungary	476	(4.0)	432	(11.5)	409	(20.0)	404	(27.2)	509	(2.9)	469	(9.6)	438	(16.8)	440	(20.2)
	Iceland	517	(1.8)	515	(3.3)	513	(4.7)	513	(9.1)	497	(1.9)	504	(4.0)	503	(5.9)	515	(10.0)
	Ireland	517	(3.1)	515	(6.3)	500	(10.9)	501	(15.1)	520	(3.3)	512	(5.5)	496	(11.9)	509	(16.2)
	Israel	m	m	m	m	m	m	m	m	475	(2.9)	475	(6.1)	456	(7.4)	477	(10.9)
	Italy	m	m	m	m	m	m	m	m	495	(2.0)	480	(3.9)	472	(5.7)	453	(8.3)
	Japan	525	(2.2)	484	(25.0)	508	(25.6)	c	c	545	(3.0)	458	(32.1)	477	(31.0)	c	c
	Korea	567	(3.3)	565	(5.0)	574	(4.1)	576	(6.0)	538	(3.9)	533	(5.2)	540	(4.6)	553	(6.5)
	Netherlands	m	m	m	m	m	m	m	m	524	(5.3)	548	(8.2)	549	(10.6)	522	(18.7)
	New Zealand	551	(2.4)	530	(5.3)	518	(8.5)	556	(34.5)	546	(2.5)	524	(6.6)	508	(12.0)	538	(34.1)
	Norway	506	(3.3)	505	(3.8)	490	(4.8)	472	(6.8)	504	(3.1)	508	(3.8)	491	(4.4)	485	(8.5)
	Poland	467	(3.0)	457	(8.5)	408	(14.5)	410	(21.8)	511	(2.4)	503	(6.4)	467	(11.5)	455	(20.3)
	Portugal	m	m	m	m	m	m	m	m	492	(3.3)	505	(5.5)	497	(8.7)	525	(8.7)
	Slovak Republic	m	m	m	m	m	m	m	m	494	(3.0)	490	(5.4)	483	(7.8)	505	(16.6)
	Slovenia	m	m	m	m	m	m	m	m	514	(1.5)	528	(5.2)	507	(7.3)	523	(10.0)
	Spain	483	(4.1)	469	(7.5)	442	(8.9)	462	(14.5)	494	(2.1)	489	(4.8)	474	(5.1)	493	(10.1)
	Sweden	519	(3.8)	518	(4.4)	503	(5.2)	487	(11.0)	503	(3.0)	503	(4.0)	492	(5.6)	489	(13.0)
	Switzerland	m	m	m	m	m	m	m	m	524	(3.1)	521	(4.6)	494	(6.5)	471	(9.9)
	Turkey	m	m	m	m	m	m	m	m	461	(3.7)	444	(6.0)	445	(7.0)	460	(7.5)
	OECD average	507	(0.8)	500	(2.3)	486	(2.9)	490	(4.4)	511	(0.6)	506	(1.5)	492	(1.8)	501	(2.8)
Partners	Bulgaria	m	m	m	m	m	m	m	m	459	(5.5)	437	(8.6)	408	(10.8)	387	(11.1)
	Croatia	m	m	m	m	m	m	m	m	487	(2.8)	513	(5.9)	496	(9.6)	507	(16.5)
	Hong Kong-China	517	(2.7)	510	(6.1)	496	(6.4)	527	(8.9)	552	(2.8)	556	(6.1)	554	(7.1)	586	(9.6)
	Jordan	m	m	m	m	m	m	m	m	431	(3.4)	424	(4.5)	411	(5.8)	409	(9.3)
	Latvia	m	m	m	m	m	m	m	m	499	(3.1)	486	(6.2)	473	(8.3)	482	(10.2)
	Liechtenstein	m	m	m	m	m	m	m	m	520	(4.8)	534	(10.1)	c	c	c	c
	Lithuania	m	m	m	m	m	m	m	m	496	(2.7)	496	(5.1)	470	(9.2)	467	(11.1)
	Macao-China	491	(1.0)	480	(3.5)	474	(3.7)	495	(3.1)	510	(1.4)	498	(4.0)	497	(4.4)	526	(3.5)
	Panama	m	m	m	m	m	m	m	m	401	(5.6)	371	(7.2)	377	(8.2)	356	(16.3)
	Qatar	m	m	m	m	m	m	m	m	392	(1.3)	396	(3.9)	367	(4.7)	373	(4.8)
	Russian Federation	m	m	m	m	m	m	m	m	484	(3.7)	478	(4.5)	479	(4.9)	482	(5.9)
	Serbia	m	m	m	m	m	m	m	m	446	(2.3)	454	(6.6)	465	(8.3)	444	(13.6)
	Singapore	m	m	m	m	m	m	m	m	549	(1.6)	544	(5.2)	526	(9.0)	568	(8.6)
	Thailand	m	m	m	m	m	m	m	m	432	(2.8)	417	(5.7)	419	(5.8)	417	(8.1)
	Trinidad and Tobago	m	m	m	m	m	m	m	m	432	(1.8)	398	(7.2)	387	(8.1)	372	(7.1)
	Uruguay	m	m	m	m	m	m	m	m	439	(2.5)	430	(7.8)	419	(9.0)	383	(9.0)

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Table VI.6.9a Digital reading performance by computer use at home for playing collaborative online games, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	546	(2.6)	**-7**	(2.7)	**-17**	(3.0)	**-14**	(3.6)	535	(1.8)	**6**	(1.4)	**4**	(1.5)	**7**	(1.9)
	Austria	476	(3.9)	**-15**	(4.5)	**-21**	(5.2)	**-24**	(5.3)	457	(3.3)	**8**	(2.5)	**8**	(3.2)	**11**	(2.9)
	Belgium	524	(2.0)	**-9**	(3.2)	**-19**	(3.8)	**-20**	(3.7)	506	(1.6)	**3**	(1.5)	**3**	(1.7)	**6**	(2.0)
	Chile	436	(3.5)	-5	(4.0)	**11**	(3.4)	**11**	(5.6)	430	(2.6)	5	(2.6)	**11**	(2.7)	**13**	(2.8)
	Denmark	495	(3.5)	-6	(4.2)	**-13**	(3.9)	-1	(3.9)	481	(2.4)	**6**	(2.2)	**10**	(2.3)	**21**	(2.2)
	Hungary	466	(5.6)	**11**	(5.4)	2	(5.5)	3	(5.4)	462	(2.9)	5	(3.1)	**9**	(3.0)	**16**	(2.7)
	Iceland	522	(2.0)	**-11**	(4.7)	**-12**	(4.7)	**-22**	(4.1)	508	(1.1)	4	(2.6)	**8**	(2.5)	**12**	(2.5)
	Ireland	519	(2.7)	-6	(5.5)	**-27**	(5.3)	**-19**	(6.0)	507	(2.4)	4	(3.5)	4	(3.2)	6	(3.7)
	Japan	524	(2.0)	1	(4.3)	9	(4.9)	0	(5.8)	519	(1.9)	**8**	(2.9)	**18**	(3.9)	**23**	(3.4)
	Korea	579	(3.4)	-6	(3.2)	**-12**	(3.9)	**-36**	(5.1)	564	(2.1)	**4**	(1.9)	**7**	(2.3)	**6**	(2.7)
	New Zealand	555	(2.6)	**-20**	(3.5)	**-30**	(3.8)	**-25**	(5.7)	535	(1.7)	4	(2.0)	**6**	(2.1)	**12**	(2.9)
	Norway	516	(3.4)	**-15**	(3.9)	**-23**	(4.4)	**-33**	(3.5)	498	(2.3)	2	(2.3)	3	(2.3)	**5**	(2.0)
	Poland	464	(3.8)	4	(4.2)	-5	(5.1)	5	(3.9)	455	(2.4)	**9**	(2.3)	**14**	(2.3)	**23**	(2.5)
	Spain	482	(3.8)	-5	(3.9)	**-10**	(5.2)	**-15**	(6.3)	475	(2.9)	**5**	(2.6)	4	(3.6)	**10**	(2.8)
	Sweden	521	(4.0)	-5	(4.1)	**-13**	(4.3)	**-16**	(3.8)	504	(2.5)	**6**	(2.3)	**9**	(2.0)	**15**	(1.8)
	OECD average-15	508	(0.9)	**-6**	(1.1)	**-12**	(1.2)	**-14**	(1.3)	496	(0.6)	**5**	(0.6)	**8**	(0.7)	**12**	(0.7)
Partners	Hong Kong-China	521	(3.4)	-2	(4.0)	-8	(4.2)	**-11**	(3.5)	509	(2.7)	2	(3.2)	**8**	(2.4)	**15**	(2.2)
	Macao-China	497	(1.4)	0	(3.0)	**-6**	(2.9)	**-10**	(2.0)	485	(1.0)	**5**	(2.3)	**7**	(1.9)	**14**	(1.6)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.9b Digital reading performance by computer use at home for browsing the Internet for fun, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	510	(4.8)	**30**	(5.3)	**34**	(4.9)	**33**	(4.9)	528	(3.2)	4	(2.9)	**9**	(2.9)	**13**	(2.9)
	Austria	420	(8.8)	**47**	(10.4)	**54**	(7.7)	**47**	(7.8)	443	(5.2)	**16**	(5.3)	**18**	(4.1)	**21**	(4.4)
	Belgium	460	(7.0)	**58**	(8.1)	**64**	(7.0)	**55**	(6.9)	487	(3.6)	**13**	(4.1)	**19**	(3.3)	**25**	(3.3)
	Chile	407	(4.4)	4	(5.0)	**35**	(4.2)	**52**	(4.5)	422	(2.7)	2	(2.7)	**13**	(2.5)	**21**	(2.6)
	Denmark	428	(9.5)	**59**	(10.4)	**66**	(9.9)	**64**	(9.5)	462	(5.7)	12	(6.8)	**23**	(5.1)	**31**	(5.2)
	Hungary	386	(9.4)	**43**	(12.5)	**89**	(10.0)	**97**	(9.2)	448	(4.4)	**13**	(6.1)	**20**	(5.5)	**25**	(4.4)
	Iceland	475	(12.3)	**37**	(16.6)	**40**	(13.4)	**40**	(12.5)	490	(6.2)	16	(8.5)	**19**	(6.6)	**24**	(6.4)
	Ireland	469	(6.2)	**46**	(6.5)	**44**	(6.3)	**50**	(6.1)	491	(3.9)	**12**	(4.4)	**14**	(4.1)	**23**	(3.7)
	Japan	491	(3.3)	**25**	(3.6)	**43**	(3.5)	**49**	(3.6)	504	(2.5)	**11**	(2.3)	**22**	(2.5)	**33**	(2.6)
	Korea	536	(7.8)	**26**	(7.5)	**39**	(7.2)	**33**	(7.4)	554	(4.0)	**9**	(3.9)	**15**	(3.6)	**20**	(4.2)
	New Zealand	505	(6.1)	**40**	(6.8)	**39**	(6.6)	**41**	(6.5)	522	(3.5)	**8**	(4.0)	**14**	(3.2)	**24**	(3.0)
	Norway	441	(13.1)	**64**	(14.0)	**69**	(12.6)	**58**	(12.9)	484	(8.5)	7	(9.8)	**16**	(7.7)	**17**	(8.1)
	Poland	405	(5.1)	**51**	(6.3)	**64**	(5.3)	**74**	(4.7)	438	(3.6)	**17**	(3.8)	**27**	(3.1)	**33**	(3.5)
	Spain	433	(6.2)	**31**	(8.2)	**49**	(6.5)	**51**	(6.2)	462	(4.6)	**10**	(5.0)	**15**	(4.4)	**19**	(4.2)
	Sweden	467	(12.8)	13	(14.0)	**48**	(12.9)	**48**	(12.6)	498	(7.0)	-2	(7.8)	7	(7.0)	**15**	(6.9)
	OECD average-15	456	(2.2)	**38**	(2.5)	**52**	(2.2)	**53**	(2.1)	482	(1.2)	**10**	(1.4)	**17**	(1.2)	**23**	(1.2)
Partners	Hong Kong-China	471	(7.9)	**35**	(9.0)	**45**	(8.3)	**50**	(7.9)	489	(5.8)	**15**	(6.8)	**25**	(6.1)	**31**	(5.5)
	Macao-China	449	(5.6)	**39**	(6.1)	**44**	(6.0)	**47**	(5.8)	470	(4.8)	**14**	(4.9)	**20**	(4.9)	**28**	(5.2)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.9c Digital reading performance by computer use at home for browsing the Internet for schoolwork, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	464	(3.8)	**60**	(4.1)	**85**	(3.8)	**105**	(5.1)	529	(2.5)	**8**	(2.4)	**10**	(2.6)	**12**	(2.8)
	Austria	413	(6.6)	**59**	(6.5)	**70**	(6.4)	**56**	(7.6)	458	(3.8)	3	(3.1)	**7**	(2.9)	4	(3.7)
	Belgium	456	(4.3)	**72**	(4.3)	**77**	(4.8)	**34**	(5.5)	498	(2.7)	**12**	(2.4)	**14**	(2.7)	**11**	(3.0)
	Chile	406	(4.1)	**31**	(4.8)	**57**	(4.3)	**48**	(5.2)	426	(2.7)	**10**	(3.1)	**15**	(2.3)	**15**	(2.9)
	Denmark	443	(5.1)	**46**	(5.2)	**55**	(5.2)	**51**	(6.2)	489	(3.5)	0	(3.4)	1	(3.3)	1	(4.8)
	Hungary	410	(7.1)	**77**	(6.6)	**76**	(7.2)	**47**	(8.3)	457	(3.7)	**13**	(2.6)	**14**	(3.1)	**14**	(4.1)
	Iceland	476	(3.9)	**50**	(4.4)	**48**	(5.2)	**18**	(7.1)	504	(2.5)	**10**	(2.6)	**11**	(3.4)	**17**	(4.4)
	Ireland	484	(3.6)	**44**	(3.8)	**42**	(4.1)	**18**	(6.9)	502	(2.9)	**7**	(2.8)	**12**	(2.6)	**12**	(3.9)
	Japan	512	(2.2)	**33**	(3.3)	**37**	(4.3)	-8	(10.0)	518	(1.9)	**10**	(2.2)	**15**	(2.8)	1	(6.7)
	Korea	535	(4.8)	**38**	(4.1)	**42**	(5.0)	**38**	(5.3)	563	(2.4)	**5**	(2.2)	**7**	(2.3)	5	(3.1)
	New Zealand	494	(4.9)	**48**	(5.5)	**64**	(5.0)	**61**	(6.9)	529	(2.7)	**10**	(2.6)	**11**	(2.7)	**15**	(3.8)
	Norway	432	(7.0)	**64**	(6.1)	**80**	(6.9)	**78**	(7.8)	490	(4.4)	**9**	(4.1)	**12**	(4.2)	**16**	(4.7)
	Poland	413	(4.4)	**54**	(5.1)	**67**	(4.5)	**61**	(5.5)	447	(3.0)	**17**	(3.1)	**22**	(2.7)	**22**	(3.0)
	Spain	436	(5.0)	**52**	(5.1)	**60**	(5.0)	**36**	(5.4)	470	(3.7)	**7**	(3.2)	**11**	(3.1)	**10**	(3.4)
	Sweden	462	(4.6)	**57**	(4.5)	**64**	(4.8)	**47**	(6.0)	509	(2.9)	3	(2.5)	2	(3.0)	-4	(3.6)
	OECD average-15	456	(1.3)	**52**	(1.3)	**62**	(1.3)	**46**	(1.7)	492	(0.8)	**8**	(0.7)	**11**	(0.8)	**10**	(1.0)
Partners	Hong Kong-China	465	(4.8)	**45**	(5.0)	**71**	(5.0)	**80**	(5.9)	504	(3.3)	**8**	(3.2)	**16**	(3.5)	**22**	(5.5)
	Macao-China	467	(2.3)	**27**	(2.7)	**38**	(2.9)	**35**	(4.9)	488	(1.9)	3	(2.2)	**7**	(2.4)	5	(3.3)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.9d Digital reading performance by computer use at home for sending e-mail to communicate with other students about schoolwork, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	531	(2.9)	**19**	(3.1)	17	(4.0)	12	(6.4)	536	(2.1)	3	(1.6)	2	(1.8)	3	(2.8)
	Austria	462	(4.1)	**13**	(3.7)	7	(4.4)	-5	(5.4)	460	(3.2)	**4**	(1.8)	1	(2.3)	4	(2.7)
	Belgium	505	(2.5)	**30**	(2.8)	**19**	(3.4)	**-19**	(3.7)	505	(1.9)	**6**	(1.4)	**6**	(1.7)	3	(2.0)
	Chile	415	(3.6)	**20**	(5.3)	**41**	(4.5)	**40**	(4.2)	426	(2.4)	**10**	(2.8)	**13**	(2.3)	**17**	(2.5)
	Denmark	494	(3.3)	4	(4.0)	**-13**	(4.5)	**-32**	(6.3)	491	(2.3)	-2	(2.4)	-4	(2.4)	-6	(4.0)
	Hungary	460	(5.9)	**29**	(5.6)	**17**	(5.0)	-12	(6.3)	463	(3.0)	**9**	(2.7)	**9**	(2.2)	4	(2.6)
	Iceland	514	(2.2)	5	(3.6)	0	(4.4)	-12	(7.1)	509	(1.1)	**4**	(2.1)	**8**	(2.7)	**19**	(4.5)
	Ireland	514	(2.9)	8	(4.4)	-6	(5.3)	**-26**	(6.4)	505	(2.5)	**9**	(2.7)	**8**	(3.6)	**10**	(3.5)
	Japan	521	(2.3)	**8**	(3.6)	19	(3.8)	1	(4.3)	521	(2.0)	3	(2.4)	4	(2.7)	-3	(3.3)
	Korea	572	(3.2)	-1	(2.6)	-14	(3.4)	**-21**	(4.6)	567	(1.8)	2	(1.6)	2	(1.9)	**7**	(2.9)
	New Zealand	544	(2.8)	**9**	(3.9)	-14	(4.3)	**-18**	(6.1)	536	(2.0)	**5**	(2.0)	**5**	(2.4)	7	(3.8)
	Norway	508	(2.9)	**-9**	(3.2)	-27	(4.9)	**-43**	(7.5)	500	(2.1)	0	(2.2)	-1	(2.8)	5	(5.1)
	Poland	466	(3.4)	6	(3.4)	-3	(4.6)	**-14**	(4.6)	461	(2.2)	4	(2.3)	**7**	(2.4)	**5**	(2.4)
	Spain	475	(3.8)	**11**	(4.1)	**10**	(4.2)	-8	(4.5)	474	(3.0)	**5**	(2.3)	3	(2.7)	**6**	(2.9)
	Sweden	521	(3.1)	-5	(3.7)	**-21**	(4.1)	**-46**	(6.3)	513	(2.2)	-3	(2.0)	**-6**	(2.1)	**-14**	(3.2)
	OECD average-15	500	(0.9)	**10**	(1.0)	2	(1.1)	**-14**	(1.5)	498	(0.6)	**4**	(0.6)	**4**	(0.6)	**5**	(0.9)
Partners	Hong Kong-China	505	(3.3)	6	(3.7)	**19**	(3.4)	**28**	(4.2)	511	(2.6)	0	(2.5)	**8**	(2.2)	**13**	(2.8)
	Macao-China	492	(1.5)	-1	(3.0)	3	(2.8)	6	(3.7)	491	(1.0)	-1	(2.0)	2	(2.0)	**5**	(2.6)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.10a Digital reading performance by computer use at school for browsing the Internet for schoolwork, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	502	(4.5)	**35**	(4.1)	**48**	(3.8)	**45**	(5.6)	532	(2.8)	**7**	(2.5)	**6**	(2.5)	6	(3.0)
	Austria	459	(4.4)	**22**	(4.7)	7	(4.9)	-16	(9.6)	463	(3.0)	-1	(2.1)	0	(2.7)	-5	(4.5)
	Belgium	521	(2.5)	**7**	(3.0)	**-34**	(4.4)	**-90**	(7.8)	508	(1.8)	2	(1.7)	0	(2.0)	-3	(4.4)
	Chile	447	(5.8)	-1	(5.5)	**-16**	(5.8)	**-35**	(6.7)	438	(3.3)	-3	(3.4)	-6	(3.8)	-5	(3.6)
	Denmark	440	(8.0)	**56**	(7.8)	**56**	(8.1)	**44**	(8.6)	488	(4.1)	2	(4.3)	2	(4.2)	0	(4.8)
	Hungary	488	(5.5)	**-12**	(5.4)	**-34**	(5.5)	**-59**	(9.4)	469	(3.1)	-1	(2.6)	-1	(3.0)	4	(5.1)
	Iceland	492	(3.8)	**32**	(4.6)	**26**	(4.4)	14	(9.6)	512	(2.3)	0	(2.5)	1	(2.7)	6	(5.9)
	Ireland	506	(3.4)	**15**	(3.6)	**10**	(4.7)	-18	(10.8)	506	(2.5)	1	(2.2)	5	(3.1)	4	(4.7)
	Japan	521	(2.2)	**13**	(3.7)	**11**	(4.2)	-23	(12.9)	521	(1.9)	2	(2.4)	5	(2.9)	-5	(9.2)
	Korea	570	(2.7)	-6	(3.1)	-4	(7.1)	-13	(10.4)	568	(1.7)	**-4**	(1.9)	2	(3.8)	-5	(4.8)
	New Zealand	524	(3.9)	**33**	(4.5)	**19**	(4.5)	5	(6.6)	537	(2.7)	2	(2.6)	2	(2.7)	5	(4.2)
	Norway	458	(6.9)	**45**	(6.2)	**50**	(6.5)	**37**	(7.5)	500	(3.9)	-1	(4.1)	1	(4.2)	2	(4.6)
	Poland	475	(3.9)	**-7**	(3.4)	**-25**	(4.3)	**-51**	(8.3)	469	(2.2)	**-7**	(2.2)	-10	(2.7)	-8	(4.2)
	Spain	475	(5.4)	**11**	(5.2)	8	(6.0)	**-18**	(6.7)	479	(3.4)	-1	(3.1)	-1	(3.6)	-6	(4.3)
	Sweden	472	(8.8)	**47**	(8.4)	**48**	(8.6)	**29**	(10.1)	507	(4.4)	2	(4.0)	6	(4.4)	1	(5.2)
	OECD average-15	490	(1.3)	**19**	(1.3)	**11**	(1.5)	**-10**	(2.3)	500	(0.8)	0	(0.7)	1	(0.9)	-1	(1.3)
Partners	Hong Kong-China	519	(3.0)	-1	(3.4)	-8	(4.6)	**-18**	(6.8)	518	(2.6)	-4	(2.3)	-5	(3.3)	3	(6.3)
	Macao-China	487	(1.2)	**8**	(2.2)	**13**	(2.7)	-2	(5.8)	490	(0.9)	1	(1.4)	**7**	(2.1)	1	(4.8)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.10b Digital reading performance by computer use at school for practicing and drilling, before and after accounting for print reading performance

		Digital reading performance, before accounting for print reading performance								Digital reading performance, after accounting for print reading performance							
				Difference in digital reading scores between the following and "never or hardly ever"								Difference in digital reading scores between the following and "never or hardly ever"					
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day	
		Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.	Mean score	S.E.	Score dif.	S.E.	Score dif.	S.E.	Score dif.	S.E.
OECD	Australia	545	(2.7)	-6	(3.0)	**-21**	(5.2)	**-44**	(17.2)	539	(1.9)	-3	(1.8)	**-8**	(2.5)	**-14**	(4.4)
	Austria	474	(3.5)	-8	(4.5)	**-45**	(7.0)	**-57**	(15.7)	463	(2.9)	-3	(2.3)	-4	(2.9)	-2	(6.3)
	Belgium	518	(2.2)	**13**	(3.1)	**-29**	(4.4)	**-92**	(6.7)	507	(1.7)	**5**	(1.7)	-1	(2.2)	-5	(4.1)
	Chile	444	(3.7)	**-10**	(4.2)	**-20**	(5.5)	**-50**	(9.2)	435	(2.5)	-3	(2.5)	-2	(3.3)	-5	(5.6)
	Denmark	500	(2.8)	**-8**	(3.0)	**-38**	(4.6)	**-45**	(9.2)	491	(2.1)	-3	(2.2)	**-9**	(2.5)	-8	(4.8)
	Hungary	483	(4.1)	**-26**	(4.9)	**-63**	(7.9)	**-93**	(14.6)	469	(2.8)	3	(3.0)	-5	(3.3)	5	(9.4)
	Iceland	514	(1.8)	**8**	(3.5)	-6	(4.4)	**-28**	(14.0)	512	(1.1)	0	(2.5)	0	(2.9)	2	(8.8)
	Ireland	514	(2.9)	3	(4.9)	-15	(7.8)	**-71**	(13.1)	508	(2.5)	1	(2.8)	-2	(3.6)	-13	(8.6)
	Japan	525	(2.2)	**-32**	(8.4)	-7	(12.3)	c	c	522	(2.0)	-3	(5.4)	-8	(7.2)	c	c
	Korea	570	(3.0)	-9	(4.8)	**-10**	(4.7)	-9	(8.7)	568	(1.8)	-3	(2.9)	-4	(2.7)	-6	(4.7)
	New Zealand	547	(2.1)	-8	(5.3)	-11	(7.0)	**-87**	(12.5)	539	(1.7)	-2	(2.3)	0	(3.8)	-4	(6.4)
	Norway	508	(3.7)	0	(3.1)	**-24**	(3.7)	**-44**	(7.1)	501	(2.3)	0	(1.9)	-2	(2.0)	-2	(4.9)
	Poland	475	(3.2)	**-24**	(4.1)	**-47**	(6.2)	**-68**	(10.0)	466	(2.1)	**-6**	(2.6)	**-8**	(3.6)	**-13**	(6.2)
	Spain	482	(4.3)	6	(4.9)	**-17**	(5.1)	**-41**	(8.1)	480	(2.8)	-2	(3.0)	-5	(2.5)	-9	(5.0)
	Sweden	522	(3.3)	**-12**	(3.6)	**-43**	(5.0)	**-79**	(12.6)	513	(2.2)	-3	(2.3)	**-11**	(2.9)	**-17**	(6.0)
	OECD average-15	508	(0.8)	**-7**	(1.2)	**-26**	(1.7)	**-58**	(3.1)	501	(0.6)	-1	(0.7)	**-5**	(0.9)	**-7**	(1.7)
Partners	Hong Kong-China	524	(2.7)	**-13**	(4.0)	**-34**	(5.3)	**-58**	(11.6)	518	(2.3)	-5	(2.9)	**-11**	(3.3)	-15	(6.9)
	Macao-China	496	(0.9)	**-8**	(2.4)	**-17**	(3.2)	**-30**	(7.2)	493	(0.6)	**-3**	(1.7)	**-5**	(2.0)	-11	(4.9)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.11a **Index of the number of relevant pages visited, by computer use at home for playing collaborative online games**

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-4.7	(0.5)	-3.6	(0.6)	-5.3	(0.8)	-4.4	(0.9)	-0.3	(1.0)	4.5	(0.2)	4.6	(0.4)	4.4	(0.4)	4.5	(0.4)	0.0	(0.5)
	Austria	-6.4	(0.6)	-6.3	(0.8)	-7.0	(1.2)	-7.8	(0.8)	1.4	(1.1)	6.4	(0.4)	6.1	(0.8)	7.2	(0.7)	6.9	(0.6)	-0.5	(0.7)
	Belgium	-5.8	(0.4)	-5.7	(0.7)	-5.3	(0.7)	-5.2	(0.6)	-0.6	(0.7)	5.2	(0.2)	5.7	(0.4)	4.9	(0.4)	5.2	(0.4)	0.0	(0.4)
	Chile	-6.0	(0.5)	-7.9	(0.8)	-5.9	(1.2)	-3.1	(1.5)	-2.9	(1.5)	5.3	(0.4)	6.6	(0.7)	7.6	(0.8)	8.7	(1.1)	**-3.5**	(1.2)
	Denmark	-4.9	(0.9)	-3.5	(1.0)	-5.9	(0.9)	-3.7	(0.9)	-1.2	(1.2)	4.4	(0.5)	4.4	(0.5)	3.3	(0.8)	4.7	(0.7)	-0.3	(0.8)
	Hungary	-9.4	(1.0)	-8.3	(1.0)	-8.1	(1.2)	-6.0	(0.9)	**-3.4**	(1.2)	7.2	(0.5)	7.0	(0.6)	6.9	(0.6)	7.0	(0.8)	0.1	(0.8)
	Iceland	-4.1	(0.6)	-6.8	(1.2)	-4.8	(1.1)	-5.3	(1.1)	1.2	(1.2)	4.6	(0.3)	4.6	(0.6)	4.2	(0.6)	4.5	(0.9)	0.1	(0.9)
	Ireland	-4.2	(0.6)	-4.2	(1.1)	-6.0	(1.1)	-6.2	(1.4)	2.1	(1.5)	4.9	(0.2)	3.9	(0.8)	4.8	(0.8)	4.1	(1.2)	0.8	(1.2)
	Japan	-3.1	(0.6)	-4.2	(1.4)	c	c	c	c	c	c	2.7	(0.4)	3.7	(0.5)	4.2	(1.2)	c	c	c	c
	Korea	-3.1	(0.7)	-2.6	(0.8)	-2.4	(0.5)	-3.1	(0.6)	-0.1	(0.7)	2.6	(0.3)	2.6	(0.5)	2.6	(0.4)	2.7	(0.5)	-0.2	(0.5)
	New Zealand	-4.3	(0.5)	-3.5	(0.8)	-4.8	(0.7)	-5.6	(1.2)	1.3	(1.3)	4.3	(0.2)	4.5	(0.4)	4.2	(0.5)	5.1	(0.6)	-0.8	(0.6)
	Norway	-4.7	(0.5)	-4.8	(0.9)	-5.4	(0.9)	-4.0	(0.7)	-0.7	(0.8)	4.9	(0.3)	3.9	(0.6)	4.2	(0.6)	4.1	(0.5)	0.8	(0.6)
	Poland	-8.0	(0.6)	-6.8	(1.0)	-7.1	(0.9)	-3.4	(0.8)	**-4.5**	(0.9)	5.4	(0.5)	5.9	(0.6)	7.4	(0.7)	6.8	(0.6)	**-1.4**	(0.6)
	Spain	-6.0	(0.6)	-5.6	(0.9)	-4.6	(1.1)	-6.5	(1.1)	0.5	(1.3)	5.2	(0.4)	6.1	(0.6)	6.0	(0.8)	6.6	(0.6)	-1.4	(0.7)
	Sweden	-5.8	(0.6)	-3.8	(0.8)	-5.3	(1.0)	-4.2	(0.6)	**-1.6**	(0.8)	4.7	(0.3)	5.2	(0.5)	5.2	(0.4)	5.1	(0.3)	-0.4	(0.4)
	OECD average-15	-5.4	(0.2)	-5.2	(0.2)	-5.6	(0.3)	-4.9	(0.3)	**-0.6**	(0.3)	4.8	(0.1)	5.0	(0.2)	5.1	(0.2)	5.4	(0.2)	**-0.5**	(0.2)
Partners	Hong Kong-China	-5.9	(1.0)	-4.5	(1.2)	-1.6	(0.7)	-3.5	(0.7)	**-2.4**	(1.2)	3.1	(0.4)	3.4	(0.6)	3.5	(0.6)	3.8	(0.5)	-0.7	(0.6)
	Macao-China	-3.8	(0.6)	-4.5	(0.8)	-2.4	(0.5)	-3.0	(0.4)	-0.8	(0.7)	2.9	(0.4)	3.0	(0.5)	3.4	(0.5)	3.7	(0.4)	-0.8	(0.5)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.

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Table VI.6.11b **Index of the number of relevant pages visited, by computer use at home for browsing the Internet for fun**

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-8.4	(1.2)	-4.4	(0.9)	-4.5	(0.7)	-4.0	(0.5)	**-4.4**	(1.3)	4.2	(0.7)	4.2	(0.4)	4.6	(0.3)	4.6	(0.2)	-0.3	(0.8)
	Austria	-10.9	(1.6)	-8.7	(1.6)	-6.4	(0.7)	-6.3	(0.6)	**-4.6**	(1.6)	4.8	(1.6)	6.6	(1.0)	6.7	(0.5)	6.6	(0.4)	-1.8	(1.7)
	Belgium	-11.4	(1.8)	-7.9	(1.2)	-4.4	(0.5)	-5.5	(0.4)	**-5.9**	(1.8)	5.6	(0.8)	5.1	(0.5)	4.9	(0.3)	5.4	(0.2)	0.2	(0.9)
	Chile	-9.4	(0.7)	-7.7	(1.0)	-5.6	(0.9)	-3.0	(0.8)	**-6.4**	(1.0)	3.7	(0.8)	3.4	(1.0)	6.8	(0.7)	7.3	(0.5)	**-3.6**	(0.9)
	Denmark	c	c	-8.3	(2.6)	-3.8	(1.0)	-4.2	(0.6)	c	c	c	c	c	c	4.6	(0.6)	4.3	(0.4)	c	c
	Hungary	-12.1	(1.2)	-13.3	(1.3)	-7.7	(1.0)	-5.6	(0.8)	**-6.6**	(1.2)	4.9	(1.2)	6.5	(1.1)	6.6	(0.7)	7.4	(0.5)	**-2.6**	(1.2)
	Iceland	c	c	c	c	-4.8	(0.9)	-4.7	(0.6)	c	c	c	c	c	c	4.3	(0.5)	4.6	(0.3)	c	c
	Ireland	-9.9	(1.5)	-4.9	(1.0)	-4.3	(0.7)	-4.1	(0.7)	**-5.8**	(1.4)	1.5	(1.1)	4.7	(0.5)	4.7	(0.4)	5.1	(0.3)	**-3.6**	(1.2)
	Japan	-5.2	(1.0)	-3.2	(0.8)	-2.5	(0.7)	-2.4	(1.0)	**-2.8**	(1.2)	2.1	(0.8)	1.9	(0.6)	3.4	(0.4)	3.7	(0.5)	**-1.7**	(0.8)
	Korea	-7.3	(2.2)	-2.6	(0.7)	-2.2	(0.5)	-2.7	(0.6)	**-4.6**	(2.3)	1.3	(0.9)	2.7	(0.5)	2.7	(0.3)	2.6	(0.3)	-1.3	(1.0)
	New Zealand	-8.4	(1.4)	-5.5	(0.9)	-4.6	(0.6)	-3.2	(0.6)	**-5.2**	(1.5)	4.3	(0.6)	4.0	(0.5)	4.2	(0.3)	4.8	(0.2)	-0.6	(0.6)
	Norway	c	c	c	c	-5.0	(0.8)	-4.3	(0.5)	c	c	c	c	3.0	(0.9)	4.5	(0.5)	4.6	(0.3)	c	c
	Poland	-10.8	(0.8)	-8.5	(1.4)	-6.0	(0.9)	-4.7	(0.6)	**-6.1**	(1.0)	3.1	(1.4)	5.8	(0.8)	6.2	(0.6)	6.5	(0.4)	**-3.4**	(1.4)
	Spain	-9.7	(1.2)	-7.0	(1.4)	-6.6	(0.8)	-4.5	(0.6)	**-5.2**	(1.2)	2.6	(1.9)	4.5	(1.0)	5.6	(0.5)	5.9	(0.4)	-3.4	(1.8)
	Sweden	c	c	-8.9	(1.4)	-4.7	(0.8)	-4.5	(0.5)	c	c	c	c	3.7	(1.1)	4.3	(0.5)	5.3	(0.2)	c	c
	OECD average-15	-9.4	(0.4)	-7.0	(0.4)	-4.9	(0.2)	-4.2	(0.2)	**-5.2**	(0.4)	3.5	(0.3)	4.3	(0.2)	4.9	(0.1)	5.2	(0.1)	**-2.0**	(0.4)
Partners	Hong Kong-China	c	c	-5.4	(1.2)	-3.6	(0.7)	-3.7	(0.7)	c	c	c	c	2.5	(0.8)	3.1	(0.5)	3.9	(0.4)	c	c
	Macao-China	-7.9	(1.4)	-3.6	(0.7)	-3.4	(0.5)	-2.9	(0.4)	**-5.0**	(1.4)	c	c	3.5	(0.6)	2.8	(0.4)	3.6	(0.3)	c	c

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.

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Table VI.6.11c Index of the number of relevant pages visited, by computer use at home for browsing the Internet for schoolwork

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-9.3	(1.1)	-5.1	(0.6)	-2.9	(0.4)	-3.7	(0.8)	**-5.6**	(1.4)	4.2	(0.9)	3.9	(0.4)	4.5	(0.2)	4.9	(0.3)	-0.7	(1.0)
	Austria	-8.7	(0.8)	-6.8	(0.7)	-4.9	(0.7)	-6.7	(1.6)	-2.0	(1.8)	5.2	(0.9)	6.4	(0.5)	6.8	(0.5)	8.0	(0.6)	**-2.9**	(1.1)
	Belgium	-8.9	(0.7)	-4.2	(0.5)	-4.2	(0.5)	-7.5	(0.8)	-1.4	(1.0)	3.9	(0.7)	5.3	(0.2)	5.5	(0.2)	4.7	(0.5)	-0.8	(1.0)
	Chile	-9.0	(0.6)	-5.6	(0.7)	-3.1	(0.9)	-3.1	(1.3)	**-5.8**	(1.5)	2.6	(0.8)	5.9	(0.7)	7.7	(0.5)	8.1	(0.7)	**-5.4**	(1.1)
	Denmark	-6.4	(1.8)	-4.0	(0.8)	-4.6	(0.8)	-4.0	(1.0)	-2.4	(2.1)	c	c	4.1	(0.5)	4.3	(0.4)	5.1	(0.8)	-3.1	(2.2)
	Hungary	-10.7	(0.8)	-8.9	(1.2)	-5.5	(1.0)	-6.7	(1.3)	**-3.9**	(1.3)	5.1	(0.9)	7.6	(0.6)	7.1	(0.5)	6.9	(1.0)	-1.8	(1.3)
	Iceland	-7.7	(0.9)	-3.4	(0.5)	-3.9	(1.3)	-6.4	(1.6)	-1.3	(1.9)	4.1	(0.8)	4.8	(0.4)	4.4	(0.5)	c	c	c	c
	Ireland	-7.0	(0.7)	-4.2	(0.7)	-2.5	(0.9)	-4.2	(1.6)	-2.8	(1.6)	3.7	(0.6)	4.9	(0.3)	5.1	(0.5)	4.7	(1.2)	-1.0	(1.5)
	Japan	-3.8	(0.6)	-1.9	(1.1)	c	c	c	c	c	c	2.4	(0.5)	3.6	(0.3)	3.1	(0.8)	c	c	c	c
	Korea	-4.7	(0.9)	-2.5	(0.4)	-1.6	(0.6)	-2.5	(1.3)	-2.3	(1.7)	2.3	(0.6)	2.6	(0.3)	2.7	(0.4)	2.5	(0.5)	-0.3	(0.7)
	New Zealand	-7.7	(0.8)	-3.4	(0.6)	-3.2	(0.6)	-3.1	(1.0)	**-4.6**	(1.2)	3.7	(0.5)	4.1	(0.4)	4.6	(0.2)	5.2	(0.4)	**-1.5**	(0.7)
	Norway	-9.7	(1.3)	-4.5	(0.5)	-3.5	(0.6)	-4.9	(1.1)	**-4.8**	(1.6)	c	c	4.0	(0.5)	4.8	(0.3)	4.6	(0.7)	c	c
	Poland	-10.0	(0.8)	-6.6	(0.8)	-4.2	(0.8)	-5.3	(0.9)	**-4.6**	(1.1)	2.7	(1.0)	6.8	(0.5)	5.8	(0.5)	7.5	(0.5)	**-4.8**	(1.1)
	Spain	-7.7	(0.9)	-6.1	(0.7)	-4.0	(0.8)	-5.6	(0.9)	-2.1	(1.1)	3.8	(0.9)	5.2	(0.5)	6.3	(0.5)	6.0	(0.6)	**-2.2**	(1.0)
	Sweden	-7.5	(0.8)	-4.2	(0.6)	-3.8	(0.5)	-5.9	(1.5)	-1.7	(1.7)	3.6	(1.0)	5.2	(0.3)	5.2	(0.3)	4.1	(0.7)	-0.5	(1.2)
	OECD average-15	-7.9	(0.2)	-4.8	(0.2)	-3.7	(0.2)	-5.0	(0.3)	**-3.2**	(0.4)	3.6	(0.2)	4.9	(0.1)	5.2	(0.1)	5.6	(0.2)	**-2.1**	(0.3)
Partners	Hong Kong-China	-5.1	(0.8)	-4.6	(0.7)	-2.2	(0.7)	c	c	c	c	1.8	(1.1)	2.8	(0.4)	3.9	(0.4)	4.3	(0.7)	**-2.5**	(1.3)
	Macao-China	-4.1	(0.6)	-3.2	(0.4)	-2.9	(0.5)	-3.5	(1.0)	-0.5	(1.2)	2.9	(0.6)	2.8	(0.3)	3.9	(0.3)	4.1	(0.8)	-1.2	(0.9)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.
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Table VI.6.11d Index of the number of relevant pages visited, by computer use at home for sending e-mail to communicate with other students about schoolwork

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-4.7	(0.5)	-4.0	(0.7)	-4.1	(0.7)	-5.5	(0.9)	0.9	(0.8)	4.1	(0.2)	4.6	(0.3)	4.9	(0.3)	4.5	(0.4)	-0.4	(0.5)
	Austria	-7.0	(0.7)	-6.4	(0.7)	-6.8	(0.9)	-7.1	(1.1)	**1.1**	(0.2)	6.1	(0.4)	6.9	(0.6)	6.5	(0.8)	7.2	(0.8)	-1.0	(0.9)
	Belgium	-6.1	(0.5)	-4.6	(0.6)	-4.7	(0.8)	-7.1	(0.7)	0.7	(1.0)	4.7	(0.3)	5.9	(0.2)	5.2	(0.3)	5.0	(0.6)	-0.3	(0.6)
	Chile	-8.9	(0.7)	-6.7	(1.0)	-4.5	(0.8)	-1.7	(0.9)	0.9	-(7.2)	4.6	(0.6)	5.8	(1.0)	7.7	(0.7)	6.8	(0.6)	**-2.2**	(0.8)
	Denmark	-3.9	(0.8)	-3.8	(1.0)	-5.5	(0.8)	-7.3	(1.7)	1.7	(3.4)	4.2	(0.5)	4.5	(0.6)	4.4	(0.7)	c	c	c	c
	Hungary	-10.3	(0.8)	-7.9	(1.2)	-6.0	(1.0)	-7.0	(1.2)	1.2	-(3.3)	7.2	(0.6)	7.5	(0.6)	6.9	(0.6)	6.1	(0.7)	1.0	(0.8)
	Iceland	-5.3	(0.7)	-3.8	(0.8)	-4.2	(1.2)	-7.5	(1.6)	1.6	(2.2)	4.4	(0.3)	5.1	(0.4)	3.5	(0.8)	c	c	c	c
	Ireland	-5.2	(0.6)	-3.8	(1.2)	-5.2	(1.2)	-4.4	(1.4)	1.4	-(0.8)	4.5	(0.3)	5.1	(0.5)	4.7	(0.7)	c	c	c	c
	Japan	-3.4	(0.7)	-2.2	(1.6)	-3.3	(1.2)	c	c	c	c	3.0	(0.4)	2.4	(0.8)	3.6	(0.6)	2.8	(0.8)	0.2	(0.7)
	Korea	-2.9	(0.6)	-2.4	(0.7)	-2.7	(0.8)	-3.1	(1.1)	**1.1**	(0.2)	2.5	(0.3)	3.1	(0.4)	2.5	(0.6)	1.9	(0.9)	0.6	(0.9)
	New Zealand	-4.4	(0.6)	-3.9	(0.7)	-4.5	(0.8)	-4.1	(0.9)	**0.9**	-(0.3)	4.2	(0.3)	4.9	(0.3)	4.5	(0.5)	3.6	(0.8)	0.6	(0.9)
	Norway	-4.0	(0.5)	-4.3	(0.7)	-6.7	(0.9)	-6.9	(1.6)	1.6	(2.9)	4.5	(0.3)	4.4	(0.4)	4.6	(0.7)	c	c	c	c
	Poland	-7.1	(0.7)	-6.2	(1.0)	-6.2	(0.8)	-5.0	(1.1)	1.1	-(2.2)	6.2	(0.4)	6.6	(0.6)	5.4	(0.5)	5.2	(1.1)	1.0	(1.1)
	Spain	-6.3	(0.8)	-5.7	(0.9)	-6.1	(1.0)	-5.0	(0.8)	0.8	-(1.3)	5.4	(0.5)	5.8	(0.7)	5.6	(0.5)	5.5	(0.7)	0.0	(0.7)
	Sweden	-4.4	(0.5)	-4.9	(0.7)	-4.6	(0.7)	-8.2	(1.4)	1.4	(3.8)	5.1	(0.3)	5.3	(0.3)	4.3	(0.6)	3.6	(1.1)	1.5	(1.1)
	OECD average-15	-5.6	(0.2)	-4.7	(0.2)	-5.0	(0.2)	-5.7	(0.3)	1.2	(0.8)	4.7	(0.1)	5.2	(0.1)	5.0	(0.2)	4.7	(0.2)	0.1	(0.3)
Partners	Hong Kong-China	-4.7	(0.8)	-3.7	(1.0)	-3.9	(0.7)	-1.9	(1.0)	1.0	-(2.9)	2.9	(0.5)	3.4	(0.5)	3.4	(0.5)	4.4	(0.8)	-1.5	(1.0)
	Macao-China	-3.5	(0.4)	-3.2	(0.5)	-3.5	(0.6)	-2.5	(1.0)	1.0	-(1.0)	3.4	(0.3)	2.9	(0.4)	3.0	(0.5)	3.8	(0.8)	-0.4	(0.9)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.
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Table VI.6.11e **Index of the number of relevant pages visited, by computer use at school for browsing the Internet for schoolwork**

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-8.2	(0.8)	-5.4	(0.7)	-3.0	(0.4)	-4.1	(0.9)	**-4.1**	(1.2)	2.9	(0.9)	4.5	(0.4)	4.7	(0.2)	4.6	(0.3)	-1.8	(0.9)
	Austria	-6.5	(0.9)	-6.3	(0.8)	-7.0	(0.8)	-7.5	(1.1)	1.1	(1.5)	6.3	(0.5)	6.3	(0.5)	7.2	(0.5)	5.6	(1.1)	0.7	(1.2)
	Belgium	-6.2	(0.5)	-4.1	(0.6)	-5.5	(0.7)	-7.1	(0.9)	1.0	(0.9)	5.4	(0.2)	5.3	(0.2)	4.3	(0.5)	c	c	c	c
	Chile	-5.7	(0.9)	-7.0	(0.9)	-5.5	(0.7)	-6.7	(1.3)	1.0	(1.7)	7.2	(0.7)	6.1	(0.6)	5.6	(0.7)	6.0	(1.0)	1.3	(1.1)
	Denmark	-8.4	(1.7)	-4.7	(1.1)	-3.8	(0.6)	-5.0	(1.1)	-3.5	(1.9)	c	c	4.0	(0.7)	4.4	(0.4)	4.6	(0.8)	c	c
	Hungary	-9.2	(1.1)	-7.8	(1.0)	-6.9	(0.9)	-8.7	(1.4)	-0.5	(1.7)	8.0	(0.5)	6.9	(0.6)	6.1	(0.6)	4.8	(1.8)	3.2	(1.8)
	Iceland	-6.9	(1.1)	-4.4	(0.7)	-4.3	(0.7)	c	c	c	c	4.6	(0.9)	4.8	(0.4)	4.3	(0.5)	c	c	c	c
	Ireland	-6.0	(0.7)	-4.6	(0.7)	-2.8	(0.9)	-7.6	(2.1)	1.6	(2.2)	4.0	(0.5)	5.1	(0.4)	4.8	(0.6)	c	c	c	c
	Japan	-3.6	(0.6)	-2.2	(1.0)	-2.4	(1.2)	c	c	c	c	2.7	(0.4)	3.4	(0.6)	3.2	(0.6)	c	c	c	c
	Korea	-2.4	(0.4)	-3.3	(0.8)	-1.3	(0.6)	c	c	c	c	2.6	(0.2)	2.8	(0.4)	2.3	(0.5)	c	c	c	c
	New Zealand	-6.8	(0.8)	-4.0	(0.7)	-3.1	(0.5)	-5.1	(1.0)	-1.7	(1.2)	4.7	(0.5)	4.5	(0.3)	4.3	(0.3)	4.2	(0.5)	0.5	(0.7)
	Norway	-6.6	(1.3)	-5.1	(0.7)	-4.7	(0.5)	-2.7	(0.8)	**-3.9**	(1.4)	c	c	4.2	(0.5)	4.6	(0.3)	4.8	(0.5)	c	c
	Poland	-6.3	(0.7)	-6.2	(0.8)	-6.8	(0.7)	-7.5	(1.6)	1.2	(1.7)	6.4	(0.5)	6.1	(0.5)	5.0	(0.7)	7.6	(1.5)	-1.2	(1.5)
	Spain	-6.6	(0.9)	-5.9	(0.9)	-5.1	(0.9)	-5.5	(0.9)	-1.1	(1.3)	5.8	(0.5)	5.8	(0.5)	5.2	(0.5)	5.5	(0.8)	0.3	(0.9)
	Sweden	-10.0	(1.1)	-4.6	(0.6)	-3.2	(0.5)	-6.5	(0.9)	**-3.6**	(1.4)	4.3	(1.4)	5.0	(0.3)	5.0	(0.3)	4.9	(0.5)	-0.5	(1.6)
	OECD average-15	-6.6	(0.2)	-5.0	(0.2)	-4.4	(0.2)	-6.2	(0.4)	**-1.0**	(0.4)	5.0	(0.2)	5.0	(0.1)	4.7	(0.1)	5.3	(0.3)	0.3	(0.4)
Partners	Hong Kong-China	-4.3	(0.8)	-3.2	(0.7)	-4.0	(0.8)	-5.0	(1.5)	0.7	(1.8)	4.0	(0.4)	2.8	(0.4)	3.5	(0.6)	c	c	c	c
	Macao-China	-3.4	(0.4)	-3.5	(0.5)	-2.9	(0.6)	-3.4	(1.3)	-0.1	(1.3)	3.2	(0.4)	2.0	(0.4)	4.7	(0.3)	4.9	(1.0)	-1.7	(1.1)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.
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Table VI.6.11f **Index of the number of relevant pages visited, by computer use at school for practicing and drilling**

		Students with below-average scores in print reading										Students with average or above-average scores in print reading									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (Never or hardly ever-every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-4.1	(0.4)	-4.5	(0.7)	-5.2	(1.2)	-9.9	(1.9)	**5.7**	(1.9)	4.5	(0.2)	4.8	(0.3)	4.3	(0.5)	c	c	c	c
	Austria	-5.9	(0.5)	-7.5	(1.0)	-8.3	(1.1)	-10.8	(1.4)	**4.8**	(1.5)	6.5	(0.4)	7.0	(0.9)	5.4	(1.0)	7.6	(1.2)	-1.1	(1.2)
	Belgium	-5.9	(0.4)	-4.0	(0.6)	-5.3	(0.9)	-7.9	(1.2)	2.0	(1.1)	5.1	(0.2)	5.6	(0.3)	5.0	(0.7)	c	c	c	c
	Chile	-5.8	(0.6)	-6.2	(1.3)	-7.2	(1.1)	-6.9	(2.1)	1.1	(2.2)	6.4	(0.5)	5.6	(0.8)	7.1	(1.0)	c	c	c	c
	Denmark	-3.7	(0.8)	-3.6	(0.8)	-7.5	(1.7)	-8.7	(2.0)	**5.0**	(1.9)	4.4	(0.4)	4.2	(0.7)	4.4	(1.1)	c	c	c	c
	Hungary	-7.3	(0.7)	-7.4	(1.3)	-10.4	(1.3)	-10.3	(2.0)	3.0	(2.0)	7.2	(0.5)	6.7	(0.8)	6.2	(0.9)	c	c	c	c
	Iceland	-5.3	(0.7)	-4.3	(0.7)	-3.3	(0.9)	c	c	c	c	4.4	(0.4)	5.0	(0.5)	3.6	(0.5)	c	c	c	c
	Ireland	-4.4	(0.5)	-4.3	(1.1)	-6.9	(1.9)	c	c	c	c	4.5	(0.3)	5.5	(0.6)	5.0	(1.2)	c	c	c	c
	Japan	-3.2	(0.6)	c	c	c	c	c	c	c	c	3.0	(0.4)	c	c	c	c	c	c	c	c
	Korea	-2.5	(0.4)	-2.7	(1.0)	-2.6	(1.3)	c	c	c	c	2.8	(0.2)	2.2	(0.7)	0.4	(0.7)	c	c	c	c
	New Zealand	-3.7	(0.4)	-5.6	(0.9)	-5.3	(1.3)	c	c	c	c	4.4	(0.2)	4.5	(0.4)	4.2	(0.8)	c	c	c	c
	Norway	-5.0	(0.6)	-3.5	(0.6)	-5.0	(0.7)	-6.2	(1.5)	1.1	(1.6)	4.6	(0.3)	4.5	(0.4)	4.4	(0.5)	c	c	c	c
	Poland	-5.5	(0.6)	-7.2	(0.9)	-9.1	(1.2)	-10.5	(1.6)	**5.0**	(1.7)	6.2	(0.4)	5.8	(0.7)	4.7	(1.4)	c	c	c	c
	Spain	-5.9	(0.6)	-5.2	(1.1)	-6.1	(0.9)	-7.2	(1.5)	1.4	(1.6)	5.4	(0.4)	5.9	(0.4)	5.9	(0.8)	4.6	(1.7)	0.7	(1.6)
	Sweden	-4.5	(0.5)	-5.6	(0.8)	-4.9	(1.2)	c	c	c	c	5.0	(0.2)	5.3	(0.4)	4.0	(0.9)	c	c	c	c
	OECD average-15	-4.9	(0.1)	-5.1	(0.3)	-6.2	(0.3)	-8.7	(0.6)	**3.2**	(0.6)	5.0	(0.1)	5.2	(0.2)	4.6	(0.2)	6.1	(1.0)	-0.2	(1.0)
Partners	Hong Kong-China	-3.4	(0.5)	-3.9	(0.7)	-5.1	(1.1)	c	c	c	c	3.7	(0.4)	2.6	(0.5)	3.4	(1.1)	c	c	c	c
	Macao-China	-3.3	(0.3)	-3.3	(0.6)	-3.4	(0.8)	c	c	c	c	3.4	(0.3)	2.6	(0.5)	2.9	(0.8)	c	c	c	c

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Average print reading score is computed within each country and economy.
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Table VI.6.12a Digital reading performance, by index of self-condicence in ICT high-level tasks

		Association between digital reading score and the index of self-confidence in ICT high-level tasks						Association between digital reading score and the index of self-confidence in ICT high-level tasks, by gender											
		Intercept		Index of self-confidence in ICT high-level tasks (a)		Index of self-confidence in ICT high-level tasks (squared) (a*a)		Intercept		Index of self-confidence in ICT high-level tasks (a)		Index of self-confidence in ICT high-level tasks (squared) (a*a)		Female (b)		Index of self-confidence in ICT high-level tasks * Female (a*c)		Index of self-confidence in ICT high-level tasks (squared) * Female (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	552	(2.8)	**14**	(1.1)	**-10**	(0.8)	537	(3.7)	**19**	(1.5)	**-7**	(0.9)	**28**	(3.8)	**-9**	(2.2)	**-4**	(1.6)
	Austria	474	(3.9)	**11**	(2.2)	**-8**	(1.4)	460	(4.7)	**13**	(2.6)	**-4**	(1.5)	**27**	(6.3)	-2	(3.8)	**-7**	(2.7)
	Belgium	527	(2.0)	**8**	(1.3)	**-11**	(0.8)	516	(2.9)	**13**	(1.7)	**-10**	(1.0)	**19**	(3.7)	**-9**	(2.3)	-2	(1.6)
	Chile	446	(3.6)	**10**	(1.6)	**-8**	(0.8)	438	(4.6)	**11**	(2.1)	**-8**	(1.1)	**16**	(4.4)	-1	(2.6)	0	(1.5)
	Denmark	501	(2.6)	**6**	(1.4)	**-9**	(0.8)	496	(3.1)	**11**	(2.0)	**-9**	(1.1)	7	(3.7)	**-12**	(3.0)	-1	(2.2)
	Hungary	479	(4.3)	**19**	(2.3)	**-9**	(1.3)	468	(5.4)	**19**	(2.6)	**-9**	(2.0)	**22**	(5.5)	3	(3.1)	1	(2.9)
	Iceland	526	(1.7)	-3	(1.8)	**-12**	(1.1)	513	(2.5)	-2	(2.3)	**-11**	(1.4)	**24**	(3.2)	4	(3.5)	2	(2.2)
	Ireland	521	(3.1)	**9**	(1.5)	**-8**	(1.1)	505	(4.2)	**10**	(2.1)	**-7**	(1.4)	**32**	(4.6)	1	(2.8)	-2	(2.1)
	Japan	532	(2.3)	**16**	(1.1)	**-7**	(0.6)	521	(3.1)	**15**	(1.3)	**-7**	(0.9)	**21**	(3.9)	3	(2.2)	1	(1.8)
	Korea	572	(3.1)	**13**	(1.2)	**-3**	(0.6)	564	(4.3)	**12**	(1.7)	**-3**	(0.8)	**16**	(5.1)	2	(2.2)	-1	(1.5)
	New Zealand	552	(2.3)	**14**	(1.6)	**-10**	(1.0)	532	(3.3)	**19**	(2.1)	**-7**	(1.1)	**37**	(3.9)	**-11**	(3.0)	**-5**	(1.8)
	Norway	513	(2.8)	-1	(1.7)	**-11**	(1.0)	497	(3.2)	3	(2.2)	**-9**	(1.0)	**31**	(3.1)	-3	(3.2)	-3	(1.9)
	Poland	475	(3.2)	**20**	(1.5)	**-9**	(1.2)	456	(3.6)	**24**	(1.9)	**-7**	(1.6)	**35**	(3.6)	-5	(2.9)	-4	(2.6)
	Spain	485	(4.0)	**10**	(2.1)	**-10**	(1.4)	475	(4.7)	**15**	(2.7)	**-9**	(1.7)	**18**	(4.9)	**-9**	(3.2)	-3	(2.8)
	Sweden	525	(3.2)	1	(1.7)	**-12**	(1.0)	512	(3.6)	**5**	(2.3)	**-10**	(1.1)	**24**	(2.9)	-5	(2.9)	-3	(1.6)
	OECD average-15	512	(0.8)	**10**	(0.4)	**-9**	(0.3)	499	(1.0)	**13**	(0.5)	**-8**	(0.3)	**24**	(1.1)	**-3**	(0.7)	**-2**	(0.5)
Partners	Hong Kong-China	522	(2.5)	**18**	(1.3)	**-6**	(0.9)	518	(3.3)	**15**	(1.8)	**-5**	(1.0)	**10**	(4.2)	**7**	(2.6)	**-5**	(1.8)
	Macao-China	495	(0.9)	**16**	(1.0)	**-3**	(0.6)	489	(1.3)	**14**	(1.3)	**-2**	(0.8)	**11**	(2.0)	3	(1.9)	-1	(1.3)

		Association between digital reading score and the index of self-confidence in ICT high-level tasks, by PISA index of economic, social and cultural status (ESCS)											
		Intercept		Index of self-confidence in ICT high-level tasks (a)		Index of self-confidence in ICT high-level tasks (squared) (a*a)		ESCS (b)		Index of self-confidence in ICT high-level tasks * ESCS (a*b)		Index of self-confidence in ICT high-level tasks (squared) * ESCS (a*a*b)	
		Intercept	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	538	(2.5)	**10**	(1.1)	**-8**	(0.7)	**41**	(2.0)	0	(1.3)	**-2**	(0.8)
	Austria	471	(3.9)	**7**	(2.0)	**-8**	(1.1)	**41**	(3.4)	-3	(2.1)	0	(1.0)
	Belgium	517	(1.9)	**4**	(1.3)	**-10**	(0.6)	**40**	(1.8)	0	(1.3)	0	(0.6)
	Chile	465	(2.9)	**6**	(1.9)	**-9**	(1.1)	**37**	(1.7)	**2**	(1.0)	**-2**	(0.7)
	Denmark	492	(2.4)	**3**	(1.4)	**-8**	(0.7)	**30**	(1.8)	-2	(1.4)	0	(0.9)
	Hungary	489	(3.7)	**8**	(2.1)	**-9**	(1.7)	**53**	(3.1)	**-5**	(1.6)	**-3**	(1.1)
	Iceland	505	(2.2)	**-5**	(2.2)	**-10**	(1.3)	**29**	(2.1)	-1	(1.9)	-1	(1.2)
	Ireland	518	(2.7)	**7**	(1.5)	**-8**	(1.1)	**33**	(2.8)	2	(1.8)	**-2**	(1.2)
	Japan	531	(2.3)	**14**	(1.1)	**-7**	(0.6)	**22**	(2.3)	1	(1.3)	0	(1.0)
	Korea	575	(2.8)	**9**	(1.2)	**-3**	(0.6)	**24**	(2.4)	-2	(1.5)	0	(0.9)
	New Zealand	548	(2.1)	**10**	(1.4)	**-8**	(1.0)	**45**	(2.2)	3	(1.8)	-1	(1.1)
	Norway	499	(2.8)	-3	(1.8)	**-9**	(1.1)	**30**	(2.4)	0	(1.9)	**-3**	(1.0)
	Poland	486	(2.5)	**11**	(1.5)	**-8**	(1.1)	**43**	(1.9)	**-3**	(1.5)	-1	(1.0)
	Spain	494	(3.9)	**6**	(2.0)	**-10**	(1.3)	**31**	(2.3)	-3	(1.9)	**-2**	(0.9)
	Sweden	513	(3.1)	-3	(1.7)	**-11**	(0.9)	**37**	(2.5)	**4**	(1.3)	**-2**	(1.0)
	OECD average-15	509	(0.7)	**6**	(0.4)	**-8**	(0.3)	**36**	(0.6)	0	(0.4)	**-1**	(0.3)
Partners	Hong Kong-China	535	(3.0)	**13**	(1.7)	**-6**	(1.1)	**16**	(2.0)	**-3**	(1.3)	0	(0.7)
	Macao-China	501	(1.5)	**16**	(1.4)	**-2**	(0.9)	**8**	(1.5)	1	(1.2)	0	(0.7)

Notes: Values that are statistically signficant are indicated in bold (see Annex 3). Three quadratic regression analyses are conducted with digital reading scores as dependent variable. The index of computer use is standardised to have zero as an average and one as a standard deviation within each country and economy.
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Table VI.6.12b **Digital reading performance, by students' self-confidence in editing digital photographs or other graphic images**

		Edit digital photographs or other graphic images							
		I can do this very well by myself		I can do this with help from someone		I know what this means but I cannot do it		I don't know what this means	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	551	(3.0)	541	(3.0)	520	(3.8)	444	(6.2)
	Austria	471	(3.6)	466	(5.1)	437	(7.8)	365	(20.7)
	Belgium	519	(2.2)	519	(2.7)	498	(4.5)	418	(10.5)
	Chile	444	(3.7)	439	(4.4)	428	(4.6)	374	(6.8)
	Denmark	494	(2.9)	493	(3.2)	488	(4.3)	420	(11.0)
	Hungary	481	(3.8)	457	(5.7)	439	(9.1)	371	(14.7)
	Iceland	516	(1.7)	519	(3.2)	505	(4.4)	480	(8.5)
	Ireland	516	(3.3)	517	(3.2)	504	(4.5)	437	(8.9)
	Japan	540	(3.1)	527	(2.4)	506	(2.6)	459	(6.8)
	Korea	577	(2.8)	556	(4.9)	549	(4.8)	524	(7.4)
	New Zealand	554	(2.9)	540	(3.2)	528	(3.8)	469	(6.8)
	Norway	503	(3.0)	506	(3.7)	502	(4.1)	449	(11.6)
	Poland	478	(3.2)	451	(3.9)	420	(5.9)	366	(10.8)
	Spain	486	(3.9)	477	(5.1)	452	(5.9)	389	(10.3)
	Sweden	513	(3.5)	520	(3.9)	506	(5.1)	437	(12.1)
	OECD average-15	510	(0.8)	502	(1.0)	485	(1.4)	427	(2.8)
Partners	Hong Kong-China	526	(2.7)	506	(3.3)	495	(5.9)	452	(9.3)
	Macao-China	506	(1.2)	486	(1.5)	472	(2.3)	440	(8.0)

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Table VI.6.12c **Digital reading performance, by students' self-confidence in creating a database**

		Create a database							
		I can do this very well by myself		I can do this with help from someone		I know what this means but I cannot do it		I don't know what this means	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	541	(3.1)	542	(3.4)	539	(3.3)	550	(3.5)
	Austria	471	(5.4)	465	(4.1)	462	(4.1)	468	(6.5)
	Belgium	511	(2.9)	523	(2.4)	513	(2.7)	512	(4.2)
	Chile	422	(5.0)	438	(4.2)	451	(4.0)	445	(4.2)
	Denmark	470	(3.9)	484	(3.0)	498	(3.3)	506	(3.3)
	Hungary	472	(4.5)	470	(5.0)	474	(5.2)	459	(8.2)
	Iceland	487	(2.9)	517	(3.0)	524	(3.6)	535	(3.1)
	Ireland	510	(3.9)	513	(3.6)	514	(5.0)	517	(4.2)
	Japan	526	(3.2)	531	(2.9)	519	(2.5)	520	(2.8)
	Korea	574	(3.4)	566	(3.9)	569	(3.7)	568	(3.4)
	New Zealand	534	(3.6)	536	(2.8)	544	(3.1)	560	(3.5)
	Norway	474	(4.2)	496	(3.8)	507	(3.8)	526	(3.1)
	Poland	471	(3.4)	466	(3.7)	457	(4.4)	465	(5.2)
	Spain	473	(4.2)	481	(3.9)	485	(4.5)	477	(6.9)
	Sweden	483	(4.8)	512	(4.0)	521	(3.6)	531	(4.2)
	OECD average-15	495	(1.0)	503	(0.9)	505	(1.0)	509	(1.2)
Partners	Hong Kong-China	521	(2.8)	515	(3.0)	512	(4.0)	512	(4.3)
	Macao-China	497	(1.9)	493	(1.5)	483	(2.0)	500	(2.3)

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Table VI.6.12d Digital reading performance, by students' self-confidence in using a spreadsheet to plot a graph

		Use a spreadsheet to plot a graph							
		I can do this very well by myself		I can do this with help from someone		I know what this means but I cannot do it		I don't know what this means	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	561	(3.3)	533	(2.9)	501	(3.6)	476	(5.2)
	Austria	479	(3.8)	452	(5.4)	418	(7.1)	398	(10.6)
	Belgium	520	(2.8)	515	(2.5)	503	(3.3)	521	(3.6)
	Chile	445	(3.9)	436	(4.3)	435	(4.2)	418	(6.0)
	Denmark	503	(2.9)	487	(3.1)	472	(4.3)	426	(8.3)
	Hungary	486	(3.9)	454	(6.0)	428	(8.3)	369	(14.4)
	Iceland	509	(2.7)	526	(2.3)	512	(3.4)	503	(5.1)
	Ireland	522	(3.2)	512	(3.6)	507	(5.0)	487	(4.7)
	Japan	540	(2.6)	531	(2.4)	505	(3.2)	474	(4.4)
	Korea	583	(3.5)	566	(3.6)	564	(3.7)	544	(3.9)
	New Zealand	561	(2.8)	541	(3.2)	504	(4.3)	480	(7.2)
	Norway	513	(2.9)	494	(3.6)	477	(5.1)	428	(8.7)
	Poland	481	(3.0)	449	(3.9)	419	(5.9)	386	(10.6)
	Spain	490	(3.7)	476	(4.0)	451	(5.7)	422	(10.9)
	Sweden	511	(4.3)	525	(3.6)	512	(4.4)	492	(5.0)
	OECD average-15	514	(0.9)	500	(1.0)	481	(1.3)	455	(2.0)
Partners	Hong Kong-China	532	(2.6)	508	(3.0)	476	(5.7)	441	(8.9)
	Macao-China	511	(1.6)	490	(1.6)	478	(1.8)	481	(2.9)

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Table VI.6.12e Digital reading performance, by students' self-confidence in creating a presentation

		Create a presentation							
		I can do this very well by myself		I can do this with help from someone		I know what this means but I cannot do it		I don't know what this means	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	552	(2.7)	466	(5.0)	433	(6.2)	430	(9.2)
	Austria	478	(3.3)	413	(7.7)	391	(10.4)	362	(12.3)
	Belgium	529	(2.0)	496	(3.4)	461	(5.0)	435	(7.5)
	Chile	455	(3.2)	396	(5.0)	369	(6.4)	348	(8.1)
	Denmark	502	(2.5)	453	(5.2)	435	(6.7)	406	(10.9)
	Hungary	494	(3.7)	440	(7.3)	417	(8.1)	362	(10.6)
	Iceland	525	(1.5)	484	(4.1)	463	(7.3)	446	(11.5)
	Ireland	527	(3.2)	504	(4.1)	494	(4.8)	463	(5.7)
	Japan	545	(2.9)	529	(2.5)	508	(2.7)	489	(3.3)
	Korea	584	(2.8)	547	(4.1)	535	(5.1)	515	(6.9)
	New Zealand	559	(2.1)	497	(4.7)	451	(5.9)	448	(9.0)
	Norway	510	(2.7)	467	(6.3)	445	(9.4)	418	(10.6)
	Poland	482	(3.1)	430	(4.1)	402	(7.2)	357	(10.4)
	Spain	494	(3.6)	445	(4.9)	414	(8.6)	381	(10.8)
	Sweden	523	(3.5)	513	(4.2)	487	(5.8)	467	(7.0)
	OECD average-15	517	(0.8)	472	(1.3)	447	(1.8)	422	(2.4)
Partners	Hong Kong-China	529	(2.4)	469	(4.2)	435	(10.1)	404	(10.8)
	Macao-China	506	(0.8)	468	(2.2)	452	(3.0)	438	(5.3)

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Table VI.6.12f **Digital reading performance, by students' self-confidence in creating a multi-media presentation**

		Create a multi-media presentation							
		I can do this very well by myself		I can do this with help from someone		I know what this means but I cannot do it		I don't know what this means	
		Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.	Mean Score	S.E.
OECD	Australia	551	(3.0)	539	(3.0)	513	(3.8)	446	(7.1)
	Austria	469	(4.5)	474	(3.8)	449	(5.4)	409	(12.6)
	Belgium	519	(2.4)	524	(2.3)	501	(3.8)	426	(6.8)
	Chile	452	(3.7)	434	(3.6)	405	(5.4)	364	(8.0)
	Denmark	497	(2.9)	492	(3.0)	473	(5.0)	424	(9.7)
	Hungary	482	(3.8)	471	(5.3)	455	(6.3)	371	(12.3)
	Iceland	513	(2.2)	526	(2.9)	510	(3.3)	477	(7.1)
	Ireland	522	(3.4)	515	(3.7)	506	(4.4)	465	(6.2)
	Japan	530	(2.9)	534	(2.7)	522	(2.5)	489	(3.7)
	Korea	584	(3.1)	564	(3.7)	560	(3.5)	533	(5.0)
	New Zealand	553	(3.0)	546	(3.0)	520	(4.5)	465	(9.1)
	Norway	501	(3.1)	514	(3.6)	494	(4.9)	457	(8.7)
	Poland	481	(3.5)	458	(3.3)	425	(4.9)	371	(13.0)
	Spain	487	(3.9)	477	(4.2)	453	(5.7)	400	(11.7)
	Sweden	513	(3.7)	525	(3.6)	506	(4.9)	464	(8.4)
	OECD average-15	510	(0.9)	506	(0.9)	486	(1.2)	437	(2.3)
Partners	Hong Kong-China	531	(2.3)	502	(3.4)	479	(6.2)	437	(12.7)
	Macao-China	505	(1.1)	487	(1.3)	475	(2.3)	447	(7.3)

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Table VI.6.13a **Index of self-confidence for high-level ICT tasks, by computer use at home for playing one-player games**

		Play one-player games									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.02	(0.02)	0.13	(0.02)	0.22	(0.02)	0.34	(0.03)	**-0.31**	(0.03)
	Austria	0.22	(0.03)	0.28	(0.03)	0.43	(0.04)	0.47	(0.03)	**-0.25**	(0.04)
	Belgium	-0.06	(0.02)	-0.01	(0.02)	0.07	(0.02)	0.16	(0.03)	**-0.22**	(0.03)
	Chile	-0.22	(0.03)	-0.09	(0.03)	0.04	(0.02)	0.11	(0.04)	**-0.34**	(0.04)
	Denmark	-0.22	(0.02)	-0.12	(0.03)	-0.02	(0.03)	0.18	(0.03)	**-0.39**	(0.03)
	Hungary	-0.09	(0.05)	0.05	(0.04)	0.18	(0.03)	0.30	(0.03)	**-0.39**	(0.06)
	Iceland	-0.27	(0.03)	-0.18	(0.04)	-0.11	(0.03)	0.00	(0.04)	**-0.27**	(0.05)
	Ireland	-0.30	(0.03)	-0.10	(0.04)	0.04	(0.05)	0.17	(0.06)	**-0.46**	(0.07)
	Japan	-0.79	(0.02)	-0.63	(0.02)	-0.41	(0.04)	-0.13	(0.08)	**-0.66**	(0.07)
	Korea	-0.39	(0.03)	-0.28	(0.03)	-0.32	(0.03)	-0.39	(0.04)	0.00	(0.04)
	New Zealand	-0.24	(0.03)	-0.12	(0.03)	-0.02	(0.03)	0.22	(0.04)	**-0.46**	(0.05)
	Norway	-0.14	(0.02)	0.01	(0.03)	0.06	(0.03)	0.24	(0.04)	**-0.38**	(0.04)
	Poland	0.10	(0.03)	0.17	(0.03)	0.28	(0.03)	0.37	(0.03)	**-0.26**	(0.04)
	Spain	0.10	(0.02)	0.20	(0.03)	0.25	(0.03)	0.33	(0.06)	**-0.23**	(0.06)
	Sweden	-0.44	(0.03)	-0.32	(0.03)	-0.15	(0.04)	0.07	(0.03)	**-0.51**	(0.04)
	OECD average-15	-0.18	(0.01)	-0.07	(0.01)	0.04	(0.01)	0.16	(0.01)	**-0.34**	(0.01)
Partners	Hong Kong-China	0.05	(0.03)	0.13	(0.02)	0.21	(0.03)	0.27	(0.03)	**-0.22**	(0.04)
	Macao-China	-0.29	(0.02)	-0.26	(0.02)	-0.16	(0.02)	-0.14	(0.03)	**-0.15**	(0.04)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13b **Index of self-confidence for high-level ICT tasks, by computer use at home for playing collaborative online games**

		Play collaborative online games									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.03	(0.01)	0.18	(0.02)	0.26	(0.02)	0.49	(0.03)	**-0.47**	(0.03)
	Austria	0.20	(0.03)	0.33	(0.03)	0.46	(0.04)	0.60	(0.04)	**-0.41**	(0.04)
	Belgium	-0.12	(0.02)	0.04	(0.02)	0.15	(0.03)	0.30	(0.03)	**-0.41**	(0.04)
	Chile	-0.18	(0.02)	-0.07	(0.04)	0.12	(0.04)	0.22	(0.04)	**-0.40**	(0.05)
	Denmark	-0.26	(0.02)	-0.17	(0.03)	-0.02	(0.03)	0.25	(0.03)	**-0.51**	(0.04)
	Hungary	-0.13	(0.04)	0.08	(0.04)	0.22	(0.03)	0.49	(0.03)	**-0.62**	(0.05)
	Iceland	-0.33	(0.03)	-0.09	(0.04)	0.05	(0.04)	0.16	(0.05)	**-0.49**	(0.05)
	Ireland	-0.26	(0.03)	0.06	(0.05)	0.16	(0.06)	0.28	(0.07)	**-0.54**	(0.07)
	Japan	-0.75	(0.02)	-0.43	(0.05)	-0.08	(0.06)	-0.06	(0.09)	**-0.69**	(0.09)
	Korea	-0.39	(0.03)	-0.26	(0.04)	-0.33	(0.03)	-0.38	(0.04)	-0.01	(0.05)
	New Zealand	-0.19	(0.02)	-0.10	(0.04)	0.06	(0.04)	0.25	(0.04)	**-0.45**	(0.05)
	Norway	-0.18	(0.02)	-0.01	(0.03)	0.13	(0.03)	0.33	(0.03)	**-0.51**	(0.04)
	Poland	0.04	(0.03)	0.27	(0.04)	0.30	(0.04)	0.53	(0.03)	**-0.48**	(0.03)
	Spain	0.07	(0.02)	0.29	(0.03)	0.28	(0.05)	0.49	(0.06)	**-0.42**	(0.06)
	Sweden	-0.47	(0.02)	-0.31	(0.03)	-0.17	(0.04)	0.07	(0.03)	**-0.54**	(0.03)
	OECD average-15	-0.20	(0.01)	-0.01	(0.01)	0.11	(0.01)	0.27	(0.01)	**-0.46**	(0.01)
Partners	Hong Kong-China	0.11	(0.03)	0.19	(0.03)	0.17	(0.03)	0.19	(0.03)	**-0.08**	(0.04)
	Macao-China	-0.27	(0.02)	-0.19	(0.02)	-0.18	(0.03)	-0.19	(0.02)	**-0.08**	(0.03)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13c **Index of self-confidence for high-level ICT tasks, by computer use at home for sending e-mail**

		Send e-mail									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.21	(0.03)	-0.05	(0.02)	0.12	(0.02)	0.31	(0.01)	**-0.52**	(0.04)
	Austria	-0.15	(0.04)	0.08	(0.04)	0.29	(0.03)	0.56	(0.03)	**-0.71**	(0.05)
	Belgium	-0.33	(0.06)	-0.20	(0.03)	-0.01	(0.02)	0.18	(0.02)	**-0.51**	(0.06)
	Chile	-0.28	(0.04)	-0.18	(0.04)	-0.12	(0.03)	0.12	(0.02)	**-0.40**	(0.04)
	Denmark	-0.33	(0.06)	-0.26	(0.03)	-0.09	(0.02)	0.08	(0.02)	**-0.41**	(0.06)
	Hungary	-0.44	(0.07)	0.02	(0.04)	0.17	(0.03)	0.37	(0.03)	**-0.82**	(0.07)
	Iceland	-0.33	(0.06)	-0.26	(0.03)	-0.12	(0.03)	-0.01	(0.04)	**-0.32**	(0.07)
	Ireland	-0.57	(0.05)	-0.27	(0.04)	0.05	(0.04)	0.28	(0.04)	**-0.85**	(0.06)
	Japan	-0.81	(0.02)	-0.51	(0.03)	-0.26	(0.05)	-0.28	(0.04)	**-0.53**	(0.04)
	Korea	-0.54	(0.03)	-0.31	(0.03)	-0.20	(0.03)	-0.09	(0.05)	**-0.44**	(0.06)
	New Zealand	-0.48	(0.05)	-0.30	(0.04)	-0.07	(0.03)	0.17	(0.02)	**-0.65**	(0.05)
	Norway	-0.34	(0.04)	-0.17	(0.03)	0.02	(0.02)	0.19	(0.02)	**-0.53**	(0.05)
	Poland	-0.18	(0.04)	0.21	(0.02)	0.37	(0.03)	0.50	(0.03)	**-0.68**	(0.05)
	Spain	-0.12	(0.05)	0.10	(0.04)	0.15	(0.03)	0.38	(0.03)	**-0.50**	(0.05)
	Sweden	-0.61	(0.05)	-0.42	(0.04)	-0.28	(0.02)	-0.02	(0.02)	**-0.58**	(0.06)
	OECD average-15	-0.38	(0.01)	-0.17	(0.01)	0.00	(0.01)	0.18	(0.01)	**-0.56**	(0.01)
Partners	Hong Kong-China	-0.20	(0.05)	0.03	(0.03)	0.22	(0.02)	0.33	(0.03)	**-0.53**	(0.05)
	Macao-China	-0.54	(0.03)	-0.27	(0.02)	-0.06	(0.02)	0.03	(0.03)	**-0.57**	(0.04)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13d Index of self-confidence for high-level ICT tasks, by computer use at home for chatting on line

		Chat on line									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.10	(0.03)	0.01	(0.03)	0.10	(0.02)	0.23	(0.01)	**-0.33**	(0.03)
	Austria	0.00	(0.04)	0.10	(0.06)	0.29	(0.03)	0.45	(0.03)	**-0.46**	(0.05)
	Belgium	-0.33	(0.04)	-0.19	(0.04)	-0.04	(0.03)	0.11	(0.01)	**-0.44**	(0.04)
	Chile	-0.27	(0.04)	-0.28	(0.05)	-0.13	(0.03)	0.08	(0.02)	**-0.34**	(0.04)
	Denmark	-0.29	(0.05)	-0.16	(0.05)	-0.14	(0.03)	-0.01	(0.02)	**-0.28**	(0.06)
	Hungary	-0.44	(0.06)	-0.07	(0.07)	0.09	(0.04)	0.30	(0.02)	**-0.75**	(0.06)
	Iceland	-0.31	(0.09)	-0.35	(0.08)	-0.14	(0.04)	-0.12	(0.02)	**-0.19**	(0.09)
	Ireland	-0.46	(0.04)	-0.20	(0.05)	-0.09	(0.04)	0.14	(0.04)	**-0.60**	(0.05)
	Japan	-0.76	(0.02)	-0.30	(0.04)	-0.06	(0.06)	0.13	(0.09)	**-0.88**	(0.09)
	Korea	-0.49	(0.03)	-0.33	(0.04)	-0.25	(0.03)	-0.30	(0.03)	**-0.19**	(0.04)
	New Zealand	-0.37	(0.03)	-0.16	(0.04)	-0.07	(0.03)	0.15	(0.02)	**-0.51**	(0.03)
	Norway	-0.32	(0.07)	-0.18	(0.05)	-0.06	(0.04)	0.08	(0.02)	**-0.40**	(0.08)
	Poland	-0.25	(0.05)	0.04	(0.06)	0.20	(0.04)	0.37	(0.02)	**-0.62**	(0.05)
	Spain	-0.11	(0.05)	0.02	(0.05)	0.14	(0.03)	0.28	(0.02)	**-0.39**	(0.06)
	Sweden	-0.59	(0.08)	-0.48	(0.06)	-0.39	(0.04)	-0.16	(0.02)	**-0.43**	(0.08)
	OECD average-15	-0.34	(0.01)	-0.17	(0.01)	-0.04	(0.01)	0.12	(0.01)	**-0.45**	(0.01)
Partners	Hong Kong-China	-0.25	(0.06)	0.02	(0.05)	0.16	(0.03)	0.21	(0.02)	**-0.46**	(0.07)
	Macao-China	-0.49	(0.06)	-0.38	(0.04)	-0.28	(0.03)	-0.16	(0.01)	**-0.33**	(0.06)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13e Index of self-confidence for high-level ICT tasks, by computer use at home for browsing the Internet for fun

		Browse the Internet for fun									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.15	(0.04)	-0.04	(0.03)	0.08	(0.02)	0.28	(0.01)	**-0.43**	(0.04)
	Austria	0.00	(0.07)	0.06	(0.05)	0.20	(0.03)	0.45	(0.02)	**-0.45**	(0.07)
	Belgium	-0.33	(0.08)	-0.24	(0.04)	-0.07	(0.02)	0.12	(0.02)	**-0.45**	(0.08)
	Chile	-0.28	(0.04)	-0.29	(0.04)	-0.12	(0.03)	0.12	(0.02)	**-0.40**	(0.04)
	Denmark	-0.39	(0.13)	-0.34	(0.05)	-0.20	(0.02)	0.03	(0.02)	**-0.42**	(0.13)
	Hungary	-0.51	(0.08)	-0.36	(0.07)	0.03	(0.03)	0.32	(0.02)	**-0.83**	(0.08)
	Iceland	-0.16	(0.15)	-0.38	(0.07)	-0.27	(0.03)	-0.09	(0.02)	-0.07	(0.15)
	Ireland	-0.56	(0.09)	-0.41	(0.05)	-0.18	(0.03)	0.08	(0.03)	**-0.64**	(0.09)
	Japan	-0.95	(0.04)	-0.89	(0.03)	-0.63	(0.02)	-0.29	(0.03)	**-0.66**	(0.04)
	Korea	-0.58	(0.07)	-0.42	(0.03)	-0.33	(0.02)	-0.25	(0.03)	**-0.33**	(0.07)
	New Zealand	-0.35	(0.06)	-0.30	(0.03)	-0.16	(0.02)	0.12	(0.02)	**-0.47**	(0.07)
	Norway	-0.28	(0.17)	-0.34	(0.06)	-0.07	(0.03)	0.08	(0.02)	**-0.36**	(0.18)
	Poland	-0.29	(0.05)	0.10	(0.05)	0.23	(0.03)	0.38	(0.02)	**-0.67**	(0.05)
	Spain	-0.14	(0.07)	0.00	(0.05)	0.13	(0.03)	0.29	(0.02)	**-0.43**	(0.07)
	Sweden	-0.30	(0.16)	-0.54	(0.07)	-0.42	(0.03)	-0.16	(0.02)	-0.13	(0.16)
	OECD average-15	-0.35	(0.02)	-0.29	(0.01)	-0.12	(0.01)	0.10	(0.01)	**-0.45**	(0.03)
Partners	Hong Kong-China	-0.19	(0.10)	0.06	(0.04)	0.13	(0.03)	0.22	(0.02)	**-0.41**	(0.11)
	Macao-China	-0.61	(0.08)	-0.38	(0.03)	-0.25	(0.02)	-0.11	(0.02)	**-0.50**	(0.09)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13f Index of self-confidence for high-level ICT tasks, by computer use at home for downloading music, films, games or software from the Internet

		Download music, films, games or software from the Internet									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.13	(0.02)	0.03	(0.02)	0.14	(0.02)	0.33	(0.02)	**-0.46**	(0.03)
	Austria	0.09	(0.03)	0.24	(0.04)	0.32	(0.03)	0.57	(0.03)	**-0.49**	(0.04)
	Belgium	-0.36	(0.04)	-0.16	(0.02)	0.01	(0.02)	0.23	(0.02)	**-0.60**	(0.04)
	Chile	-0.31	(0.03)	-0.21	(0.03)	-0.13	(0.03)	0.12	(0.02)	**-0.44**	(0.03)
	Denmark	-0.31	(0.03)	-0.17	(0.03)	-0.09	(0.03)	0.16	(0.03)	**-0.47**	(0.04)
	Hungary	-0.32	(0.07)	-0.12	(0.04)	0.06	(0.04)	0.39	(0.02)	**-0.71**	(0.06)
	Iceland	-0.45	(0.04)	-0.32	(0.03)	-0.17	(0.03)	0.11	(0.03)	**-0.56**	(0.05)
	Ireland	-0.48	(0.05)	-0.29	(0.04)	-0.04	(0.04)	0.22	(0.04)	**-0.70**	(0.06)
	Japan	-0.91	(0.02)	-0.67	(0.03)	-0.52	(0.03)	-0.07	(0.04)	**-0.83**	(0.04)
	Korea	-0.77	(0.07)	-0.43	(0.04)	-0.31	(0.03)	-0.24	(0.03)	**-0.53**	(0.07)
	New Zealand	-0.32	(0.03)	-0.21	(0.03)	-0.07	(0.03)	0.18	(0.03)	**-0.50**	(0.05)
	Norway	-0.27	(0.04)	-0.21	(0.03)	-0.04	(0.02)	0.19	(0.02)	**-0.46**	(0.04)
	Poland	-0.11	(0.04)	0.06	(0.04)	0.21	(0.03)	0.43	(0.02)	**-0.54**	(0.04)
	Spain	-0.13	(0.05)	0.01	(0.04)	0.12	(0.03)	0.35	(0.02)	**-0.48**	(0.05)
	Sweden	-0.50	(0.03)	-0.41	(0.03)	-0.29	(0.03)	0.01	(0.03)	**-0.51**	(0.04)
	OECD average-15	-0.35	(0.01)	-0.19	(0.01)	-0.05	(0.01)	0.20	(0.01)	**-0.55**	(0.01)
Partners	Hong Kong-China	-0.09	(0.05)	0.13	(0.03)	0.16	(0.02)	0.27	(0.03)	**-0.36**	(0.05)
	Macao-China	-0.52	(0.06)	-0.33	(0.02)	-0.23	(0.02)	-0.10	(0.02)	**-0.43**	(0.07)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13g Index of self-confidence for high-level ICT tasks, by computer use at home for publishing and maintaining a personal page, weblog or blog

		Publish and maintain a personal website, weblog or blog									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.04	(0.01)	0.18	(0.02)	0.23	(0.02)	0.36	(0.02)	**-0.33**	(0.02)
	Austria	0.22	(0.03)	0.35	(0.03)	0.45	(0.05)	0.62	(0.04)	**-0.40**	(0.05)
	Belgium	-0.13	(0.02)	-0.03	(0.03)	0.05	(0.02)	0.18	(0.02)	**-0.31**	(0.03)
	Chile	-0.24	(0.02)	-0.11	(0.04)	0.08	(0.03)	0.26	(0.03)	**-0.50**	(0.03)
	Denmark	-0.15	(0.02)	0.08	(0.03)	0.05	(0.03)	0.12	(0.04)	**-0.28**	(0.04)
	Hungary	0.01	(0.03)	0.20	(0.05)	0.31	(0.06)	0.48	(0.05)	**-0.47**	(0.05)
	Iceland	-0.22	(0.02)	-0.01	(0.06)	0.05	(0.06)	0.19	(0.08)	**-0.41**	(0.08)
	Ireland	-0.25	(0.03)	-0.02	(0.05)	0.01	(0.06)	0.23	(0.05)	**-0.48**	(0.06)
	Japan	-0.76	(0.02)	-0.52	(0.05)	-0.39	(0.06)	-0.21	(0.04)	**-0.55**	(0.04)
	Korea	-0.54	(0.03)	-0.20	(0.04)	-0.21	(0.03)	-0.21	(0.03)	**-0.33**	(0.04)
	New Zealand	-0.18	(0.02)	0.01	(0.04)	0.10	(0.04)	0.09	(0.04)	**-0.27**	(0.04)
	Norway	-0.06	(0.02)	0.19	(0.04)	0.13	(0.04)	0.15	(0.04)	**-0.21**	(0.04)
	Poland	0.14	(0.02)	0.37	(0.04)	0.36	(0.04)	0.55	(0.04)	**-0.41**	(0.05)
	Spain	0.01	(0.03)	0.18	(0.04)	0.32	(0.03)	0.41	(0.03)	**-0.40**	(0.04)
	Sweden	-0.36	(0.02)	-0.13	(0.05)	-0.17	(0.04)	-0.05	(0.04)	**-0.31**	(0.04)
	OECD average-15	-0.17	(0.01)	0.04	(0.01)	0.09	(0.01)	0.21	(0.01)	**-0.38**	(0.01)
Partners	Hong Kong-China	0.00	(0.03)	0.21	(0.03)	0.24	(0.03)	0.31	(0.03)	**-0.31**	(0.03)
	Macao-China	-0.38	(0.02)	-0.14	(0.02)	-0.15	(0.03)	-0.08	(0.02)	**-0.30**	(0.04)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.13h **Index of self-confidence for high-level ICT tasks, by computer use at home for participating in online forums, virtual communities or spaces**

		Participate in online forums, virtual communities or spaces									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.03	(0.02)	0.12	(0.03)	0.16	(0.02)	0.26	(0.02)	**-0.29**	(0.02)
	Austria	0.21	(0.03)	0.37	(0.04)	0.37	(0.04)	0.52	(0.03)	**-0.31**	(0.04)
	Belgium	-0.12	(0.02)	0.09	(0.03)	0.17	(0.03)	0.34	(0.03)	**-0.45**	(0.03)
	Chile	-0.22	(0.02)	0.03	(0.03)	0.21	(0.03)	0.35	(0.04)	**-0.57**	(0.05)
	Denmark	-0.19	(0.02)	0.10	(0.04)	0.09	(0.04)	0.21	(0.04)	**-0.39**	(0.03)
	Hungary	-0.30	(0.05)	0.04	(0.06)	0.15	(0.03)	0.37	(0.03)	**-0.68**	(0.05)
	Iceland	-0.25	(0.06)	-0.21	(0.06)	-0.14	(0.04)	-0.11	(0.03)	**-0.14**	(0.06)
	Ireland	-0.33	(0.05)	-0.26	(0.06)	-0.17	(0.05)	0.04	(0.03)	**-0.38**	(0.05)
	Japan	-0.76	(0.02)	-0.38	(0.05)	-0.10	(0.07)	-0.01	(0.08)	**-0.75**	(0.07)
	Korea	-0.57	(0.03)	-0.30	(0.03)	-0.26	(0.03)	-0.25	(0.04)	**-0.32**	(0.05)
	New Zealand	-0.25	(0.02)	-0.06	(0.03)	0.06	(0.03)	0.14	(0.03)	**-0.39**	(0.03)
	Norway	-0.08	(0.04)	-0.02	(0.05)	0.00	(0.04)	0.06	(0.02)	**-0.14**	(0.04)
	Poland	-0.08	(0.04)	0.21	(0.04)	0.24	(0.03)	0.38	(0.02)	**-0.46**	(0.04)
	Spain	0.05	(0.02)	0.24	(0.05)	0.33	(0.04)	0.42	(0.04)	**-0.37**	(0.04)
	Sweden	-0.36	(0.02)	-0.08	(0.04)	-0.07	(0.05)	0.16	(0.06)	**-0.52**	(0.06)
	OECD average-15	-0.22	(0.01)	-0.01	(0.01)	0.07	(0.01)	0.19	(0.01)	**-0.41**	(0.01)
Partners	Hong Kong-China	-0.09	(0.03)	0.11	(0.03)	0.18	(0.03)	0.34	(0.03)	**-0.43**	(0.04)
	Macao-China	-0.44	(0.02)	-0.19	(0.02)	-0.11	(0.03)	0.05	(0.03)	**-0.49**	(0.04)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.14a **Index of self-confidence for high-level ICT tasks, by computer use at home for browsing the Internet for schoolwork**

		Browse the Internet for schoolwork									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.24	(0.04)	0.02	(0.02)	0.17	(0.01)	0.35	(0.02)	**-0.59**	(0.05)
	Austria	0.12	(0.04)	0.28	(0.03)	0.43	(0.03)	0.56	(0.05)	**-0.44**	(0.06)
	Belgium	-0.15	(0.04)	-0.03	(0.02)	0.08	(0.02)	0.25	(0.04)	**-0.39**	(0.06)
	Chile	-0.25	(0.03)	-0.15	(0.03)	0.01	(0.02)	0.23	(0.03)	**-0.49**	(0.04)
	Denmark	-0.28	(0.06)	-0.21	(0.02)	0.00	(0.02)	0.20	(0.04)	**-0.48**	(0.06)
	Hungary	-0.28	(0.06)	0.08	(0.03)	0.25	(0.03)	0.44	(0.05)	**-0.72**	(0.08)
	Iceland	-0.26	(0.04)	-0.21	(0.02)	0.04	(0.03)	-0.01	(0.11)	**-0.25**	(0.13)
	Ireland	-0.32	(0.04)	-0.18	(0.03)	0.15	(0.04)	0.40	(0.08)	**-0.72**	(0.09)
	Japan	-0.79	(0.02)	-0.52	(0.03)	-0.34	(0.05)	0.07	(0.16)	**-0.86**	(0.16)
	Korea	-0.76	(0.04)	-0.37	(0.02)	-0.20	(0.02)	0.00	(0.05)	**-0.76**	(0.07)
	New Zealand	-0.31	(0.04)	-0.19	(0.03)	0.02	(0.03)	0.25	(0.05)	**-0.56**	(0.06)
	Norway	-0.01	(0.06)	-0.05	(0.02)	0.04	(0.02)	0.14	(0.04)	**-0.15**	(0.06)
	Poland	-0.17	(0.04)	0.19	(0.03)	0.35	(0.02)	0.42	(0.03)	**-0.59**	(0.05)
	Spain	-0.03	(0.04)	0.11	(0.03)	0.30	(0.03)	0.38	(0.04)	**-0.41**	(0.05)
	Sweden	-0.35	(0.05)	-0.34	(0.03)	-0.17	(0.02)	0.03	(0.05)	**-0.39**	(0.06)
	OECD average-15	-0.27	(0.01)	-0.11	(0.01)	0.08	(0.01)	0.25	(0.02)	**-0.52**	(0.02)
Partners	Hong Kong-China	-0.22	(0.05)	0.08	(0.02)	0.32	(0.02)	0.43	(0.04)	**-0.66**	(0.06)
	Macao-China	-0.47	(0.04)	-0.25	(0.01)	-0.01	(0.02)	0.00	(0.05)	**-0.47**	(0.07)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.14b Index of self-confidence for high-level ICT tasks, by computer use at home for sending e-mail to communicate with other students about schoolwork

		Send e-mail to communicate with other students about schoolwork									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.01	(0.02)	0.13	(0.01)	0.27	(0.02)	0.41	(0.03)	**-0.41**	(0.03)
	Austria	0.21	(0.03)	0.29	(0.03)	0.44	(0.03)	0.59	(0.05)	**-0.38**	(0.06)
	Belgium	-0.10	(0.02)	-0.02	(0.02)	0.12	(0.03)	0.26	(0.03)	**-0.35**	(0.04)
	Chile	-0.26	(0.03)	-0.14	(0.04)	-0.05	(0.03)	0.19	(0.02)	**-0.45**	(0.03)
	Denmark	-0.16	(0.02)	-0.06	(0.02)	0.06	(0.03)	0.26	(0.06)	**-0.42**	(0.06)
	Hungary	-0.09	(0.04)	0.13	(0.03)	0.21	(0.03)	0.37	(0.04)	**-0.46**	(0.05)
	Iceland	-0.24	(0.02)	-0.08	(0.03)	-0.03	(0.05)	0.14	(0.10)	**-0.39**	(0.11)
	Ireland	-0.24	(0.03)	0.00	(0.04)	0.14	(0.05)	0.38	(0.07)	**-0.62**	(0.08)
	Japan	-0.73	(0.02)	-0.59	(0.04)	-0.46	(0.04)	-0.38	(0.06)	**-0.35**	(0.06)
	Korea	-0.47	(0.02)	-0.21	(0.03)	-0.16	(0.04)	-0.04	(0.08)	**-0.44**	(0.08)
	New Zealand	-0.20	(0.02)	0.00	(0.03)	0.05	(0.04)	0.33	(0.05)	**-0.53**	(0.05)
	Norway	-0.02	(0.02)	0.04	(0.03)	0.12	(0.04)	0.44	(0.07)	**-0.45**	(0.07)
	Poland	0.08	(0.02)	0.30	(0.02)	0.41	(0.03)	0.51	(0.04)	**-0.43**	(0.05)
	Spain	0.07	(0.03)	0.16	(0.03)	0.23	(0.03)	0.36	(0.03)	**-0.29**	(0.04)
	Sweden	-0.37	(0.02)	-0.22	(0.03)	-0.05	(0.03)	0.19	(0.07)	**-0.55**	(0.07)
	OECD average-15	-0.17	(0.01)	-0.02	(0.01)	0.09	(0.01)	0.27	(0.01)	**-0.44**	(0.02)
Partners	Hong Kong-China	0.01	(0.03)	0.12	(0.03)	0.25	(0.03)	0.39	(0.04)	**-0.38**	(0.04)
	Macao-China	-0.30	(0.02)	-0.22	(0.02)	-0.05	(0.02)	-0.04	(0.06)	**-0.26**	(0.06)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.14c Index of self-confidence for high-level ICT tasks, by computer use at home for sending e-mail to communicate with teachers about schoolwork

		Send e-mail to communicate with teachers and submit homework or other schoolwork									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.06	(0.01)	0.19	(0.02)	0.31	(0.03)	0.42	(0.06)	**-0.36**	(0.06)
	Austria	0.29	(0.02)	0.37	(0.04)	0.50	(0.05)	0.50	(0.09)	**-0.21**	(0.10)
	Belgium	-0.02	(0.02)	0.08	(0.02)	0.11	(0.05)	0.44	(0.08)	**-0.46**	(0.08)
	Chile	-0.16	(0.02)	0.00	(0.03)	0.13	(0.04)	0.36	(0.06)	**-0.52**	(0.06)
	Denmark	-0.14	(0.02)	-0.03	(0.02)	0.14	(0.03)	0.27	(0.10)	**-0.40**	(0.10)
	Hungary	0.06	(0.03)	0.21	(0.03)	0.25	(0.06)	0.46	(0.10)	**-0.39**	(0.10)
	Iceland	-0.19	(0.03)	-0.13	(0.03)	-0.03	(0.05)	0.05	(0.12)	-0.24	(0.13)
	Ireland	-0.15	(0.03)	0.07	(0.07)	0.16	(0.10)	0.33	(0.18)	**-0.48**	(0.18)
	Japan	-0.67	(0.02)	-0.53	(0.07)	-0.51	(0.13)	-0.49	(0.26)	-0.17	(0.25)
	Korea	-0.46	(0.02)	-0.23	(0.03)	-0.03	(0.05)	0.10	(0.12)	**-0.56**	(0.12)
	New Zealand	-0.14	(0.02)	-0.01	(0.03)	0.15	(0.05)	0.24	(0.10)	**-0.37**	(0.11)
	Norway	0.00	(0.02)	0.05	(0.03)	0.08	(0.05)	0.55	(0.13)	**-0.56**	(0.13)
	Poland	0.19	(0.02)	0.36	(0.04)	0.35	(0.07)	0.63	(0.12)	**-0.44**	(0.12)
	Spain	0.15	(0.02)	0.25	(0.04)	0.24	(0.05)	0.29	(0.11)	-0.13	(0.11)
	Sweden	-0.33	(0.02)	-0.20	(0.03)	-0.04	(0.04)	0.17	(0.10)	**-0.51**	(0.10)
	OECD average-15	-0.10	(0.01)	0.03	(0.01)	0.12	(0.02)	0.29	(0.03)	**-0.39**	(0.03)
Partners	Hong Kong-China	0.06	(0.02)	0.23	(0.02)	0.30	(0.04)	0.50	(0.10)	**-0.44**	(0.09)
	Macao-China	-0.28	(0.02)	-0.15	(0.02)	-0.01	(0.03)	-0.18	(0.12)	-0.09	(0.12)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 1/1]
Table VI.6.14d Index of self-confidence for high-level ICT tasks, by computer use at home for downloading, uploading or browsing material from the school's website

		Download, upload or browse material from the school's website									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.08	(0.01)	0.17	(0.02)	0.27	(0.03)	0.45	(0.06)	**-0.38**	(0.06)
	Austria	0.25	(0.02)	0.32	(0.03)	0.48	(0.06)	0.59	(0.05)	**-0.34**	(0.06)
	Belgium	-0.03	(0.02)	0.02	(0.02)	0.16	(0.04)	0.35	(0.08)	**-0.39**	(0.08)
	Chile	-0.17	(0.02)	-0.06	(0.03)	0.06	(0.04)	0.34	(0.05)	**-0.51**	(0.05)
	Denmark	-0.15	(0.02)	-0.04	(0.03)	0.10	(0.04)	0.25	(0.06)	**-0.40**	(0.06)
	Hungary	0.06	(0.03)	0.21	(0.03)	0.20	(0.04)	0.41	(0.09)	**-0.36**	(0.09)
	Iceland	-0.22	(0.02)	-0.09	(0.03)	-0.05	(0.05)	0.02	(0.08)	**-0.23**	(0.09)
	Ireland	-0.16	(0.03)	-0.01	(0.05)	0.10	(0.10)	0.30	(0.11)	**-0.46**	(0.12)
	Japan	-0.69	(0.02)	-0.48	(0.04)	-0.34	(0.07)	-0.33	(0.18)	**-0.37**	(0.17)
	Korea	-0.54	(0.02)	-0.27	(0.02)	-0.09	(0.04)	0.06	(0.08)	**-0.61**	(0.08)
	New Zealand	-0.16	(0.02)	0.02	(0.03)	0.10	(0.05)	0.25	(0.07)	**-0.41**	(0.07)
	Norway	-0.02	(0.02)	0.00	(0.02)	0.07	(0.03)	0.22	(0.06)	**-0.24**	(0.06)
	Poland	0.13	(0.02)	0.25	(0.03)	0.37	(0.04)	0.51	(0.05)	**-0.38**	(0.05)
	Spain	0.13	(0.02)	0.22	(0.04)	0.29	(0.05)	0.45	(0.07)	**-0.32**	(0.07)
	Sweden	-0.35	(0.02)	-0.17	(0.03)	-0.04	(0.04)	0.15	(0.07)	**-0.50**	(0.07)
	OECD average-15	-0.12	(0.01)	0.01	(0.01)	0.11	(0.01)	0.27	(0.02)	**-0.39**	(0.02)
Partners	Hong Kong-China	0.00	(0.03)	0.20	(0.02)	0.36	(0.03)	0.30	(0.06)	**-0.30**	(0.06)
	Macao-China	-0.30	(0.01)	-0.16	(0.02)	-0.07	(0.03)	0.09	(0.08)	**-0.40**	(0.08)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 1/1]
Table VI.6.14e Index of self-confidence for high-level ICT tasks, by computer use at home for checking the school's website for announcements

		Check the school's website for announcements									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.09	(0.01)	0.26	(0.03)	0.30	(0.04)	0.44	(0.07)	**-0.35**	(0.07)
	Austria	0.26	(0.02)	0.34	(0.04)	0.39	(0.05)	0.57	(0.05)	**-0.30**	(0.06)
	Belgium	-0.01	(0.01)	0.02	(0.03)	0.10	(0.04)	0.26	(0.07)	**-0.27**	(0.07)
	Chile	-0.13	(0.02)	0.03	(0.03)	0.04	(0.05)	0.36	(0.08)	**-0.50**	(0.08)
	Denmark	-0.11	(0.02)	-0.07	(0.03)	0.02	(0.03)	0.13	(0.04)	**-0.24**	(0.05)
	Hungary	0.06	(0.03)	0.21	(0.03)	0.24	(0.05)	0.31	(0.08)	**-0.25**	(0.08)
	Iceland	-0.21	(0.02)	-0.07	(0.04)	-0.02	(0.05)	0.07	(0.09)	**-0.28**	(0.10)
	Ireland	-0.16	(0.03)	0.06	(0.04)	0.26	(0.09)	0.04	(0.17)	-0.20	(0.17)
	Japan	-0.69	(0.02)	-0.45	(0.04)	-0.33	(0.07)	-0.11	(0.22)	**-0.58**	(0.22)
	Korea	-0.49	(0.02)	-0.24	(0.03)	-0.08	(0.04)	0.02	(0.10)	**-0.51**	(0.10)
	New Zealand	-0.11	(0.02)	0.00	(0.04)	0.01	(0.06)	0.09	(0.09)	**-0.20**	(0.09)
	Norway	-0.05	(0.02)	0.09	(0.03)	0.06	(0.03)	0.25	(0.06)	**-0.31**	(0.07)
	Poland	0.19	(0.02)	0.30	(0.03)	0.40	(0.05)	0.45	(0.07)	**-0.26**	(0.08)
	Spain	0.16	(0.02)	0.23	(0.04)	0.27	(0.06)	0.35	(0.11)	-0.19	(0.11)
	Sweden	-0.29	(0.02)	-0.15	(0.04)	-0.07	(0.06)	0.16	(0.11)	**-0.45**	(0.11)
	OECD average-15	-0.10	(0.01)	0.04	(0.01)	0.11	(0.01)	0.23	(0.03)	**-0.33**	(0.03)
Partners	Hong Kong-China	0.10	(0.02)	0.21	(0.03)	0.28	(0.04)	0.42	(0.07)	**-0.33**	(0.07)
	Macao-China	-0.26	(0.01)	-0.16	(0.03)	-0.06	(0.03)	0.10	(0.11)	**-0.35**	(0.11)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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[Part 1/1]

Table VI.6.15a Index of self-confidence for high-level ICT tasks, by computer use at school for chatting on line

		Chat on line at school									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.14	(0.01)	0.07	(0.03)	0.19	(0.04)	0.34	(0.08)	**-0.20**	(0.08)
	Austria	0.26	(0.02)	0.31	(0.04)	0.46	(0.04)	0.48	(0.07)	**-0.22**	(0.07)
	Belgium	0.01	(0.01)	0.04	(0.05)	0.20	(0.06)	0.05	(0.15)	-0.05	(0.15)
	Chile	-0.11	(0.02)	0.02	(0.05)	0.11	(0.05)	-0.05	(0.11)	-0.06	(0.11)
	Denmark	-0.10	(0.02)	-0.09	(0.03)	0.00	(0.04)	0.04	(0.04)	**-0.14**	(0.04)
	Hungary	0.10	(0.03)	0.10	(0.06)	0.24	(0.04)	0.26	(0.11)	-0.16	(0.12)
	Iceland	-0.19	(0.02)	-0.15	(0.03)	0.04	(0.04)	0.20	(0.16)	**-0.40**	(0.17)
	Ireland	-0.17	(0.03)	0.05	(0.07)	0.36	(0.10)	0.08	(0.13)	-0.25	(0.13)
	Japan	-0.66	(0.02)	-0.74	(0.13)	-0.57	(0.16)	c	c	0.28	(0.64)
	Korea	-0.36	(0.02)	-0.17	(0.07)	-0.26	(0.07)	-0.32	(0.15)	-0.03	(0.14)
	New Zealand	-0.10	(0.02)	-0.01	(0.05)	0.05	(0.07)	0.14	(0.11)	**-0.23**	(0.11)
	Norway	-0.03	(0.02)	0.03	(0.03)	0.14	(0.04)	0.35	(0.08)	**-0.38**	(0.08)
	Poland	0.24	(0.02)	0.16	(0.06)	0.28	(0.08)	0.04	(0.22)	0.20	(0.23)
	Spain	0.19	(0.02)	0.19	(0.05)	0.14	(0.05)	0.15	(0.12)	0.04	(0.12)
	Sweden	-0.29	(0.02)	-0.19	(0.04)	-0.05	(0.06)	0.08	(0.14)	**-0.38**	(0.14)
	OECD average-15	-0.07	(0.01)	-0.02	(0.01)	0.09	(0.02)	0.13	(0.03)	**-0.13**	(0.05)
Partners	Hong Kong-China	0.16	(0.02)	0.19	(0.05)	0.15	(0.06)	0.11	(0.05)	0.05	(0.05)
	Macao-China	-0.21	(0.01)	-0.24	(0.03)	-0.20	(0.04)	-0.11	(0.13)	-0.10	(0.12)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15b Index of self-confidence for high-level ICT tasks, by computer use at school for sending e-mail

		Send e-mail at school									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.06	(0.02)	0.12	(0.02)	0.28	(0.02)	0.38	(0.04)	**-0.32**	(0.04)
	Austria	0.22	(0.02)	0.33	(0.03)	0.47	(0.03)	0.61	(0.06)	**-0.39**	(0.06)
	Belgium	-0.01	(0.02)	0.04	(0.03)	0.16	(0.04)	0.27	(0.12)	**-0.28**	(0.12)
	Chile	-0.12	(0.02)	-0.06	(0.03)	0.13	(0.05)	0.20	(0.10)	**-0.32**	(0.10)
	Denmark	-0.17	(0.02)	-0.06	(0.03)	0.06	(0.03)	0.17	(0.05)	**-0.34**	(0.06)
	Hungary	0.12	(0.03)	0.09	(0.04)	0.20	(0.05)	0.10	(0.16)	0.01	(0.17)
	Iceland	-0.22	(0.02)	-0.12	(0.03)	0.04	(0.04)	0.13	(0.14)	**-0.35**	(0.14)
	Ireland	-0.21	(0.03)	0.08	(0.06)	0.36	(0.06)	0.08	(0.16)	-0.30	(0.16)
	Japan	-0.66	(0.02)	-0.65	(0.08)	-0.51	(0.09)	-0.61	(0.16)	-0.05	(0.16)
	Korea	-0.37	(0.02)	-0.16	(0.06)	-0.13	(0.07)	-0.49	(0.17)	0.13	(0.17)
	New Zealand	-0.17	(0.02)	-0.07	(0.03)	0.14	(0.04)	0.23	(0.06)	**-0.40**	(0.06)
	Norway	-0.08	(0.02)	0.06	(0.02)	0.17	(0.04)	0.53	(0.08)	**-0.62**	(0.08)
	Poland	0.23	(0.02)	0.27	(0.04)	0.29	(0.06)	-0.05	(0.19)	0.27	(0.19)
	Spain	0.15	(0.02)	0.23	(0.04)	0.29	(0.05)	0.35	(0.09)	**-0.20**	(0.09)
	Sweden	-0.36	(0.02)	-0.23	(0.03)	-0.07	(0.03)	0.28	(0.08)	**-0.64**	(0.09)
	OECD average-15	-0.11	(0.01)	-0.01	(0.01)	0.13	(0.01)	0.15	(0.03)	**-0.25**	(0.03)
Partners	Hong Kong-China	0.09	(0.02)	0.22	(0.03)	0.21	(0.04)	0.33	(0.07)	**-0.24**	(0.07)
	Macao-China	-0.25	(0.01)	-0.13	(0.03)	-0.12	(0.03)	0.20	(0.21)	**-0.45**	(0.21)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15c **Index of self-confidence for high-level ICT tasks, by computer use at school for browsing the Internet for schoolwork**

		Browse the Internet for schoolwork									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	-0.02	(0.03)	0.01	(0.02)	0.17	(0.01)	0.35	(0.03)	**-0.37**	(0.04)
	Austria	0.21	(0.03)	0.24	(0.03)	0.39	(0.03)	0.62	(0.04)	**-0.41**	(0.05)
	Belgium	0.00	(0.02)	0.00	(0.02)	0.11	(0.03)	0.11	(0.09)	-0.12	(0.09)
	Chile	-0.09	(0.02)	-0.13	(0.03)	-0.05	(0.04)	0.04	(0.04)	**-0.13**	(0.05)
	Denmark	-0.16	(0.08)	-0.20	(0.03)	-0.06	(0.02)	0.11	(0.03)	**-0.27**	(0.08)
	Hungary	0.12	(0.04)	0.05	(0.04)	0.17	(0.03)	0.38	(0.08)	**-0.26**	(0.08)
	Iceland	-0.18	(0.04)	-0.17	(0.02)	-0.11	(0.03)	0.01	(0.10)	-0.19	(0.11)
	Ireland	-0.24	(0.04)	-0.18	(0.03)	0.12	(0.05)	0.27	(0.09)	**-0.51**	(0.09)
	Japan	-0.67	(0.02)	-0.65	(0.04)	-0.67	(0.04)	-0.32	(0.20)	-0.35	(0.20)
	Korea	-0.39	(0.02)	-0.28	(0.03)	-0.22	(0.05)	-0.06	(0.09)	**-0.33**	(0.09)
	New Zealand	-0.23	(0.04)	-0.19	(0.03)	-0.01	(0.03)	0.22	(0.04)	**-0.45**	(0.06)
	Norway	-0.02	(0.06)	-0.10	(0.02)	0.03	(0.02)	0.19	(0.04)	**-0.21**	(0.07)
	Poland	0.25	(0.03)	0.21	(0.03)	0.22	(0.03)	0.27	(0.09)	-0.01	(0.10)
	Spain	0.12	(0.03)	0.16	(0.03)	0.21	(0.03)	0.34	(0.05)	**-0.22**	(0.06)
	Sweden	-0.24	(0.07)	-0.38	(0.03)	-0.22	(0.02)	-0.03	(0.04)	**-0.22**	(0.08)
	OECD average-15	-0.10	(0.01)	-0.11	(0.01)	0.01	(0.01)	0.17	(0.02)	**-0.27**	(0.02)
Partners	Hong Kong-China	0.09	(0.03)	0.15	(0.03)	0.22	(0.03)	0.30	(0.06)	**-0.20**	(0.06)
	Macao-China	-0.27	(0.02)	-0.24	(0.02)	-0.08	(0.02)	0.00	(0.09)	**-0.27**	(0.09)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15d **Index of self-confidence for high-level ICT tasks, by computer use at school for downloading, uploading or browsing material from the school's website**

		Download, upload or browse material from the school's website									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.08	(0.01)	0.12	(0.02)	0.29	(0.02)	0.42	(0.04)	**-0.34**	(0.04)
	Austria	0.26	(0.02)	0.36	(0.04)	0.59	(0.04)	0.64	(0.09)	**-0.38**	(0.09)
	Belgium	0.00	(0.01)	0.02	(0.02)	0.13	(0.04)	0.11	(0.13)	-0.11	(0.13)
	Chile	-0.13	(0.02)	-0.02	(0.03)	0.01	(0.05)	0.18	(0.07)	**-0.31**	(0.07)
	Denmark	-0.12	(0.02)	-0.04	(0.03)	0.05	(0.04)	0.21	(0.06)	**-0.33**	(0.06)
	Hungary	0.11	(0.02)	0.11	(0.06)	0.24	(0.05)	0.32	(0.17)	-0.21	(0.17)
	Iceland	-0.21	(0.02)	-0.03	(0.04)	0.11	(0.05)	-0.06	(0.26)	-0.15	(0.26)
	Ireland	-0.16	(0.03)	0.02	(0.06)	0.20	(0.08)	-0.05	(0.14)	-0.11	(0.14)
	Japan	-0.67	(0.02)	-0.58	(0.05)	-0.48	(0.07)	c	c	c	c
	Korea	-0.38	(0.02)	-0.24	(0.03)	-0.12	(0.06)	-0.12	(0.09)	**-0.26**	(0.09)
	New Zealand	-0.12	(0.02)	-0.09	(0.04)	0.10	(0.05)	0.23	(0.06)	**-0.35**	(0.07)
	Norway	-0.08	(0.02)	0.02	(0.03)	0.13	(0.03)	0.37	(0.07)	**-0.45**	(0.06)
	Poland	0.24	(0.02)	0.18	(0.04)	0.26	(0.06)	0.23	(0.14)	0.01	(0.15)
	Spain	0.17	(0.02)	0.19	(0.04)	0.24	(0.04)	0.35	(0.10)	-0.18	(0.10)
	Sweden	-0.31	(0.02)	-0.13	(0.04)	0.01	(0.06)	0.12	(0.10)	**-0.43**	(0.11)
	OECD average-15	-0.09	(0.01)	-0.01	(0.01)	0.12	(0.01)	0.21	(0.03)	**-0.26**	(0.03)
Partners	Hong Kong-China	0.10	(0.02)	0.17	(0.03)	0.27	(0.03)	0.24	(0.09)	-0.14	(0.09)
	Macao-China	-0.28	(0.02)	-0.17	(0.02)	0.00	(0.03)	-0.08	(0.13)	-0.19	(0.14)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15e Index of self-confidence for high-level ICT tasks, by computer use at school for posting work on the school's website

		Post work on the school's website									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.13	(0.01)	0.16	(0.04)	0.26	(0.05)	0.37	(0.11)	**-0.24**	(0.11)
	Austria	0.30	(0.02)	0.36	(0.05)	0.49	(0.06)	0.65	(0.12)	**-0.35**	(0.12)
	Belgium	0.02	(0.02)	-0.04	(0.03)	0.11	(0.04)	0.16	(0.12)	-0.14	(0.12)
	Chile	-0.10	(0.02)	0.00	(0.04)	0.03	(0.07)	0.30	(0.13)	**-0.40**	(0.12)
	Denmark	-0.08	(0.01)	0.02	(0.05)	0.07	(0.06)	0.14	(0.11)	**-0.22**	(0.11)
	Hungary	0.12	(0.03)	0.15	(0.05)	0.19	(0.06)	0.07	(0.15)	0.05	(0.14)
	Iceland	-0.16	(0.02)	-0.02	(0.09)	0.53	(0.15)	-0.06	(0.38)	-0.11	(0.38)
	Ireland	-0.11	(0.03)	-0.15	(0.10)	0.06	(0.16)	-0.38	(0.27)	0.26	(0.27)
	Japan	-0.66	(0.02)	-0.67	(0.06)	-0.67	(0.06)	c	c	c	c
	Korea	-0.35	(0.02)	-0.32	(0.07)	-0.17	(0.07)	c	c	c	c
	New Zealand	-0.08	(0.02)	0.00	(0.06)	-0.02	(0.10)	0.01	(0.17)	-0.09	(0.17)
	Norway	-0.09	(0.03)	-0.05	(0.02)	0.10	(0.03)	0.35	(0.05)	**-0.44**	(0.05)
	Poland	0.23	(0.02)	0.19	(0.05)	0.29	(0.09)	0.10	(0.24)	0.13	(0.25)
	Spain	0.19	(0.02)	0.16	(0.05)	0.25	(0.06)	0.16	(0.11)	0.03	(0.12)
	Sweden	-0.27	(0.02)	-0.05	(0.05)	-0.21	(0.10)	0.21	(0.19)	**-0.48**	(0.19)
	OECD average-15	-0.06	(0.01)	-0.02	(0.01)	0.09	(0.02)	0.16	(0.05)	**-0.15**	(0.05)
Partners	Hong Kong-China	0.10	(0.02)	0.15	(0.03)	0.26	(0.03)	0.34	(0.09)	**-0.24**	(0.09)
	Macao-China	-0.27	(0.02)	-0.21	(0.02)	-0.14	(0.02)	0.03	(0.10)	**-0.30**	(0.10)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15f Index of self-confidence for high-level ICT tasks, by computer use at school for playing simulations at school

		Play simulations at school									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.13	(0.01)	0.14	(0.02)	0.18	(0.03)	0.39	(0.07)	**-0.26**	(0.07)
	Austria	0.31	(0.02)	0.31	(0.06)	0.47	(0.05)	0.47	(0.11)	-0.16	(0.10)
	Belgium	0.00	(0.01)	0.09	(0.04)	0.15	(0.04)	0.15	(0.11)	-0.15	(0.11)
	Chile	-0.09	(0.02)	-0.06	(0.05)	0.01	(0.07)	0.25	(0.15)	**-0.34**	(0.14)
	Denmark	-0.12	(0.02)	-0.01	(0.04)	0.15	(0.05)	0.22	(0.07)	**-0.34**	(0.07)
	Hungary	0.11	(0.03)	0.22	(0.05)	0.20	(0.07)	0.15	(0.19)	-0.04	(0.19)
	Iceland	-0.19	(0.02)	0.04	(0.06)	0.20	(0.10)	0.16	(0.26)	-0.35	(0.26)
	Ireland	-0.15	(0.03)	0.01	(0.07)	0.13	(0.08)	0.08	(0.19)	-0.23	(0.19)
	Japan	-0.66	(0.02)	-0.73	(0.07)	-0.59	(0.10)	c	c	c	c
	Korea	-0.35	(0.02)	-0.25	(0.07)	-0.43	(0.11)	c	c	c	c
	New Zealand	-0.09	(0.02)	-0.01	(0.05)	0.08	(0.07)	0.02	(0.14)	-0.11	(0.14)
	Norway	-0.04	(0.02)	0.08	(0.03)	0.25	(0.06)	0.45	(0.09)	**-0.49**	(0.09)
	Poland	0.25	(0.02)	0.11	(0.05)	0.19	(0.07)	0.04	(0.18)	0.22	(0.19)
	Spain	0.18	(0.02)	0.22	(0.04)	0.23	(0.08)	0.19	(0.14)	-0.01	(0.14)
	Sweden	-0.29	(0.02)	-0.04	(0.04)	-0.05	(0.09)	0.12	(0.22)	-0.41	(0.22)
	OECD average-15	-0.07	(0.01)	0.01	(0.01)	0.08	(0.02)	0.21	(0.04)	**-0.20**	(0.04)
Partners	Hong Kong-China	0.18	(0.02)	0.13	(0.04)	-0.04	(0.07)	0.02	(0.09)	0.15	(0.09)
	Macao-China	-0.20	(0.01)	-0.24	(0.04)	-0.29	(0.05)	-0.06	(0.20)	-0.15	(0.20)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15g **Index of self-confidence for high-level ICT tasks, by computer use at school for practicing and drilling**

		Practice and drilling									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.12	(0.01)	0.16	(0.02)	0.31	(0.04)	0.31	(0.08)	**-0.19**	(0.08)
	Austria	0.30	(0.03)	0.30	(0.04)	0.53	(0.06)	0.56	(0.09)	**-0.26**	(0.09)
	Belgium	0.00	(0.02)	0.03	(0.02)	0.11	(0.03)	0.10	(0.09)	-0.10	(0.09)
	Chile	-0.10	(0.02)	-0.04	(0.03)	-0.05	(0.04)	0.10	(0.09)	**-0.20**	(0.09)
	Denmark	-0.14	(0.02)	-0.04	(0.03)	0.14	(0.04)	0.33	(0.07)	**-0.47**	(0.07)
	Hungary	0.12	(0.03)	0.19	(0.04)	0.15	(0.07)	-0.03	(0.17)	0.15	(0.16)
	Iceland	-0.17	(0.02)	-0.14	(0.02)	-0.06	(0.05)	-0.02	(0.16)	-0.15	(0.16)
	Ireland	-0.14	(0.03)	0.01	(0.06)	-0.04	(0.08)	-0.08	(0.24)	-0.06	(0.24)
	Japan	-0.67	(0.02)	-0.51	(0.10)	-0.62	(0.11)	c	c	c	c
	Korea	-0.36	(0.02)	-0.24	(0.05)	-0.25	(0.06)	-0.15	(0.09)	**-0.21**	(0.09)
	New Zealand	-0.09	(0.02)	-0.02	(0.04)	0.04	(0.06)	-0.04	(0.12)	-0.06	(0.12)
	Norway	-0.03	(0.02)	0.00	(0.02)	0.13	(0.03)	0.32	(0.07)	**-0.35**	(0.07)
	Poland	0.24	(0.02)	0.17	(0.04)	0.28	(0.05)	0.20	(0.12)	0.04	(0.13)
	Spain	0.17	(0.03)	0.18	(0.03)	0.19	(0.04)	0.29	(0.08)	-0.12	(0.09)
	Sweden	-0.29	(0.02)	-0.19	(0.03)	-0.12	(0.05)	0.13	(0.12)	**-0.42**	(0.13)
	OECD average-15	-0.07	(0.01)	-0.01	(0.01)	0.05	(0.01)	0.15	(0.03)	**-0.17**	(0.03)
Partners	Hong Kong-China	0.11	(0.02)	0.24	(0.02)	0.15	(0.04)	0.36	(0.11)	**-0.25**	(0.12)
	Macao-China	-0.24	(0.01)	-0.14	(0.03)	-0.15	(0.03)	-0.03	(0.11)	-0.22	(0.12)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15h **Index of self-confidence for high-level ICT tasks, by computer use at school for doing individual homework on a school computer**

		Do individual homework on a school computer									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.06	(0.02)	0.08	(0.01)	0.21	(0.02)	0.43	(0.04)	**-0.36**	(0.04)
	Austria	0.29	(0.02)	0.35	(0.04)	0.41	(0.05)	0.61	(0.07)	**-0.32**	(0.06)
	Belgium	0.01	(0.02)	0.01	(0.03)	0.10	(0.03)	-0.05	(0.13)	0.06	(0.13)
	Chile	-0.10	(0.02)	-0.10	(0.03)	-0.04	(0.04)	0.06	(0.05)	**-0.17**	(0.05)
	Denmark	-0.18	(0.04)	-0.18	(0.02)	-0.03	(0.02)	0.15	(0.03)	**-0.32**	(0.06)
	Hungary	0.14	(0.03)	0.13	(0.05)	0.09	(0.06)	0.00	(0.18)	0.14	(0.19)
	Iceland	-0.19	(0.02)	-0.14	(0.03)	0.02	(0.06)	-0.06	(0.16)	-0.13	(0.16)
	Ireland	-0.17	(0.03)	0.01	(0.05)	0.16	(0.07)	0.12	(0.17)	-0.30	(0.17)
	Japan	-0.67	(0.02)	-0.72	(0.09)	-0.41	(0.09)	c	c	c	c
	Korea	-0.37	(0.02)	-0.27	(0.06)	-0.07	(0.06)	-0.12	(0.14)	-0.25	(0.14)
	New Zealand	-0.14	(0.03)	-0.10	(0.03)	0.04	(0.04)	0.14	(0.06)	**-0.27**	(0.07)
	Norway	-0.03	(0.03)	-0.02	(0.02)	0.06	(0.03)	0.26	(0.05)	**-0.29**	(0.06)
	Poland	0.26	(0.02)	0.15	(0.05)	0.16	(0.05)	0.32	(0.11)	-0.06	(0.11)
	Spain	0.18	(0.02)	0.15	(0.04)	0.22	(0.04)	0.31	(0.10)	-0.13	(0.11)
	Sweden	-0.27	(0.02)	-0.29	(0.02)	-0.13	(0.04)	0.21	(0.11)	**-0.47**	(0.10)
	OECD average-15	-0.08	(0.01)	-0.06	(0.01)	0.05	(0.01)	0.17	(0.03)	**-0.21**	(0.03)
Partners	Hong Kong-China	0.14	(0.02)	0.17	(0.03)	0.18	(0.03)	0.21	(0.10)	-0.08	(0.11)
	Macao-China	-0.27	(0.02)	-0.19	(0.02)	-0.11	(0.02)	-0.03	(0.12)	**-0.24**	(0.12)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.6.15i Index of self-confidence for high-level ICT tasks, by computer use at school for group work and communication with other students

		Use school computers for group work and communication with other students									
		Never or hardly ever		Once or twice a month		Once or twice a week		Every day or almost every day		Difference (never or hardly ever – every day or almost every day)	
		Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Mean index	S.E.	Dif.	S.E.
OECD	Australia	0.06	(0.02)	0.13	(0.01)	0.26	(0.02)	0.40	(0.05)	**-0.34**	(0.05)
	Austria	0.27	(0.03)	0.31	(0.03)	0.46	(0.04)	0.54	(0.08)	**-0.26**	(0.08)
	Belgium	0.01	(0.02)	0.00	(0.02)	0.11	(0.03)	0.22	(0.10)	**-0.21**	(0.10)
	Chile	-0.12	(0.02)	-0.08	(0.03)	-0.02	(0.04)	0.04	(0.06)	**-0.16**	(0.06)
	Denmark	-0.20	(0.04)	-0.18	(0.02)	-0.02	(0.02)	0.19	(0.04)	**-0.39**	(0.05)
	Hungary	0.12	(0.03)	0.10	(0.04)	0.16	(0.04)	0.18	(0.09)	-0.05	(0.10)
	Iceland	-0.19	(0.03)	-0.17	(0.02)	-0.02	(0.04)	-0.01	(0.15)	-0.18	(0.15)
	Ireland	-0.17	(0.03)	-0.10	(0.04)	0.12	(0.07)	0.07	(0.13)	-0.24	(0.13)
	Japan	-0.68	(0.02)	-0.52	(0.05)	-0.57	(0.04)	c	c	c	c
	Korea	-0.37	(0.02)	-0.23	(0.04)	-0.12	(0.07)	-0.23	(0.13)	-0.13	(0.13)
	New Zealand	-0.15	(0.02)	-0.07	(0.03)	0.09	(0.04)	0.22	(0.07)	**-0.37**	(0.07)
	Norway	-0.04	(0.04)	-0.04	(0.02)	0.09	(0.02)	0.25	(0.05)	**-0.28**	(0.06)
	Poland	0.25	(0.02)	0.18	(0.04)	0.27	(0.05)	0.15	(0.12)	0.10	(0.13)
	Spain	0.15	(0.03)	0.21	(0.03)	0.20	(0.04)	0.32	(0.07)	**-0.17**	(0.07)
	Sweden	-0.31	(0.02)	-0.26	(0.03)	-0.07	(0.04)	0.11	(0.11)	**-0.43**	(0.11)
	OECD average-15	-0.09	(0.01)	-0.05	(0.01)	0.06	(0.01)	0.17	(0.03)	**-0.22**	(0.03)
Partners	Hong Kong-China	0.12	(0.02)	0.18	(0.02)	0.22	(0.04)	0.19	(0.14)	-0.07	(0.14)
	Macao-China	-0.28	(0.02)	-0.17	(0.02)	-0.05	(0.04)	0.09	(0.14)	**-0.37**	(0.14)

Note: Values that are statistically significant are indicated in bold (see Annex A3).
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Table VI.7.1a Within- and between-school variation in digital reading performance, and variation explained by the multilevel regression model without print reading performance

		Empty (or fully unconditional) model[1]				Model without print reading performance[2]			Variance accounted for by the model without print reading performance		
		Variance			Between-school variance as a percentage of total variance	Remaining variance			Within-school variance accounted for	Between-school variance accounted for	Total variance accounted for
		Within-school	Between-school	Total	%	Within-school	Between-school	Total	%	%	%
		(a)	(b)	(a+b)	b/(a+b)*100	(c)	(d)	(c+d)	(a-c)/a*100	(b-d)/b*100	((a+b)-(c+d))/(a+b)*100
OECD	Australia	6 877	2 768	9 645	28.7	4 925	1 174	6 098	28.4	57.6	36.8
	Austria	4 121	8 249	12 370	66.7	3 430	3 604	7 034	16.8	56.3	43.1
	Belgium	4 167	5 900	10 068	58.6	3 182	2 015	5 197	23.7	65.8	48.4
	Chile	4 228	6 107	10 335	59.1	3 197	1 163	4 360	24.4	81.0	57.8
	Denmark	5 408	2 132	7 541	28.3	3 577	1 232	4 809	33.9	42.2	36.2
	Hungary	3 800	7 248	11 048	65.6	3 300	1 747	5 047	13.1	75.9	54.3
	Iceland	6 704	1 676	8 379	20.0	4 613	1 017	5 630	31.2	39.3	32.8
	Ireland	6 123	1 706	7 830	21.8	4 412	775	5 187	27.9	54.6	33.8
	Japan	3 626	2 342	5 967	39.2	2 587	415	3 003	28.6	82.3	49.7
	Korea	3 874	2 303	6 176	37.3	2 657	1 119	3 776	31.4	51.4	38.9
	New Zealand	7 627	2 474	10 101	24.5	5 190	683	5 872	32.0	72.4	41.9
	Norway	5 702	1 350	7 052	19.1	3 932	1 039	4 971	31.0	23.0	29.5
	Poland	6 490	2 177	8 667	25.1	3 828	758	4 586	41.0	65.2	47.1
	Spain	6 091	2 628	8 719	30.1	4 153	1 625	5 778	31.8	38.2	33.7
	Sweden	6 156	2 048	8 204	25.0	4 204	713	4 917	31.7	65.2	40.1
	OECD average-15	5 400	3 407	8 807	36.6	3 812	1 272	5 084	28.5	58.0	41.6
Partners	Hong Kong-China	3 993	3 327	7 320	45.5	3 566	1 880	5 446	10.7	43.5	25.6
	Macao-China	3 484	1 152	4 636	24.9	3 110	813	3 923	10.7	29.5	15.4

1. Multilevel regression model consists of the student and school levels.
2. Multilevel regression model: Digital reading performance is regressed on the variables listed in Table VI.7.1b.
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Table VI.7.1b **Multilevel regression model for digital reading performance, before accounting for print reading performance**

		Using a computer at home		Using a computer at school		Index of enjoyment of reading (1 unit increase)		Index of diversity of reading materials (1 unit increase)		Index of understanding and remembering (1 unit increase)		Index of summarising (1 unit increase)	
		Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	**24.0**	(5.1)	3.3	(3.6)	**21.5**	(1.0)	**-5.5**	(1.3)	**10.3**	(1.0)	**19.6**	(0.9)
	Austria	17.7	(9.1)	**-8.1**	(3.4)	**12.2**	(1.6)	0.4	(1.7)	**8.8**	(1.5)	**16.7**	(1.6)
	Belgium	**38.8**	(5.6)	**-7.2**	(2.5)	**12.4**	(1.3)	**4.0**	(1.2)	**8.2**	(1.1)	**18.1**	(1.1)
	Chile	**10.3**	(2.9)	-4.5	(3.0)	**16.3**	(1.7)	**3.8**	(1.5)	**12.5**	(1.2)	**16.1**	(1.4)
	Denmark	22.2	(11.5)	-9.0	(4.7)	**22.8**	(1.7)	0.2	(1.5)	**14.1**	(1.7)	**22.8**	(1.6)
	Hungary	5.7	(5.4)	**-13.9**	(3.1)	**12.6**	(2.1)	-1.8	(1.2)	**11.4**	(1.7)	**8.3**	(1.8)
	Ireland	20.7	(18.1)	-0.6	(3.4)	**20.1**	(1.4)	2.3	(1.7)	**6.7**	(1.3)	**24.2**	(1.6)
	Iceland	**19.0**	(6.9)	**-6.1**	(3.0)	**20.8**	(1.8)	**-4.0**	(1.9)	**13.8**	(2.0)	**15.1**	(1.5)
	Japan	**15.6**	(3.1)	1.7	(3.5)	**13.0**	(1.4)	0.1	(1.3)	**6.3**	(1.5)	**16.3**	(1.5)
	Korea	**14.8**	(7.3)	-0.4	(3.0)	**15.5**	(2.2)	0.0	(3.9)	**7.0**	(1.7)	**16.9**	(2.0)
	New Zealand	**14.9**	(6.9)	3.0	(5.1)	**26.0**	(2.6)	**-10.9**	(2.5)	**12.2**	(1.9)	**19.4**	(1.7)
	Norway	**47.0**	(15.9)	1.2	(5.9)	**19.7**	(1.5)	**6.6**	(1.5)	**6.1**	(1.5)	**21.0**	(1.7)
	Poland	**22.0**	(4.7)	-2.5	(2.8)	**13.9**	(1.5)	**4.6**	(1.5)	**8.3**	(1.3)	**24.9**	(1.2)
	Spain	**22.6**	(7.0)	1.1	(2.7)	**17.7**	(1.8)	**5.4**	(1.7)	**8.7**	(1.6)	**23.8**	(1.8)
	Sweden	**39.7**	(9.5)	-7.0	(4.0)	**16.1**	(1.8)	**7.9**	(1.5)	**11.4**	(1.4)	**17.3**	(1.4)
	OECD average-15	**22.3**	(2.3)	**-3.3**	(1.0)	**17.4**	(0.4)	0.9	(0.5)	**9.7**	(0.4)	**18.7**	(0.4)
Partners	Hong Kong-China	**33.5**	(7.8)	**-11.2**	(3.2)	**15.7**	(1.6)	0.7	(1.3)	**4.2**	(1.1)	**9.1**	(1.0)
	Macao-China	**13.4**	(4.3)	**-6.4**	(1.7)	**9.7**	(1.5)	**6.4**	(1.2)	**2.3**	(1.0)	**8.6**	(1.1)

		Index of online searching-information activities (1 unit increase)		Index of online social activities (1 unit increase)		Student is a boy		PISA index of economic, social and cultural status of student (1 unit increase)		School average PISA index of economic, social and cultural status (1 unit increase)	
		Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	**9.8**	(1.1)	**4.7**	(0.8)	-1.8	(2.2)	**12.5**	(1.3)	**42.9**	(6.4)
	Austria	**5.1**	(1.7)	**3.0**	(1.0)	**15.4**	(2.8)	**7.5**	(2.0)	**69.0**	(13.2)
	Belgium	**4.9**	(1.2)	**6.5**	(1.1)	**-7.2**	(2.0)	**9.0**	(1.1)	**69.5**	(5.9)
	Chile	**7.4**	(1.3)	**8.3**	(1.3)	-3.7	(2.6)	**3.5**	(1.4)	**40.1**	(4.1)
	Denmark	**5.7**	(1.5)	**4.8**	(1.6)	**16.7**	(3.0)	**9.5**	(1.5)	**38.1**	(7.4)
	Hungary	**6.7**	(1.9)	**7.3**	(2.1)	-0.6	(3.0)	**6.4**	(1.8)	**65.0**	(6.2)
	Ireland	**7.7**	(1.7)	**5.9**	(1.7)	-4.1	(3.3)	**12.9**	(1.5)	**17.8**	(8.5)
	Iceland	**12.2**	(1.7)	**4.8**	(1.6)	**-12.0**	(3.5)	**12.7**	(1.7)	**21.2**	(6.9)
	Japan	**12.5**	(1.1)	**3.2**	(1.4)	**-6.4**	(2.5)	0.7	(1.8)	**63.1**	(8.5)
	Korea	**12.3**	(2.1)	**4.2**	(2.0)	**-11.2**	(4.7)	**6.7**	(1.9)	**26.9**	(9.4)
	New Zealand	**11.0**	(2.2)	**9.5**	(1.6)	**-16.6**	(4.6)	**12.5**	(2.5)	**42.4**	(7.6)
	Norway	1.0	(1.6)	1.1	(1.9)	**-10.3**	(2.8)	**9.8**	(1.8)	16.3	(13.6)
	Poland	**10.6**	(1.5)	**9.3**	(1.5)	**-9.1**	(2.9)	**1 9.0**	(1.7)	**21.7**	(6.3)
	Spain	**9.3**	(1.3)	**6.9**	(1.6)	0.0	(2.3)	**13.2**	(1.6)	**15.2**	(5.2)
	Sweden	**7.7**	(1.6)	**5.1**	(1.5)	-4.0	(2.6)	**13.5**	(1.8)	**32.2**	(8.6)
	OECD average-15	**8.3**	(0.4)	**5.7**	(0.4)	**-3.7**	(0.8)	**9.9**	(0.4)	**38.8**	(2.1)
Partners	Hong Kong-China	**5.9**	(1.3)	**5.6**	(1.1)	**8.5**	(2.3)	-0.9	(1.5)	**40.1**	(8.1)
	Macao-China	**7.4**	(1.1)	**6.5**	(1.1)	3.1	(2.1)	1.0	(1.6)	11.4	(7.1)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Multilevel regression model consists of the student and school levels. Digital reading performance is regressed on the variables listed in this table.

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[Part 1/1]
Table VI.7.2a Within- and between-school variation in digital reading performance, and variation explained by the multilevel regression model with print reading performance

		Empty (or fully unconditional) model[1]				Model with print reading performance[2]			Variance accounted for by the model with print reading performance		
		Variance			Between-school variance as a percentage of total variance	Remaining variance			Within-school variance accounted for	Between-school variance accounted for	Total variance accounted for
		Within-school	Between-school	Total	%	Within-school	Between-school	Total	%	%	%
		(a)	(b)	(a+b)	b/(a+b)*100	(c)	(d)	(c+d)	(a-c)/a*100	(b-d)/b*100	((a+b)-(c+d))/(a+b)*100
OECD	Australia	6 877	2 768	9 645	28.7	1 621	836	2 457	76.4	69.8	74.5
	Austria	4 121	8 249	12 370	66.7	1 228	1 704	2 932	70.2	79.3	76.3
	Belgium	4 167	5 900	10 068	58.6	1 194	765	1 958	71.4	87.0	80.5
	Chile	4 228	6 107	10 335	59.1	1 478	437	1 916	65.0	92.8	81.5
	Denmark	5 408	2 132	7 541	28.3	1 326	983	2 308	75.5	53.9	69.4
	Hungary	3 800	7 248	11 048	65.6	1 437	776	2 213	62.2	89.3	80.0
	Iceland	6 704	1 676	8 379	20.0	1 555	748	2 303	76.8	55.3	72.5
	Ireland	6 123	1 706	7 830	21.8	1 359	859	2 218	77.8	49.6	71.7
	Japan	3 626	2 342	5 967	39.2	1 733	164	1 897	52.2	93.0	68.2
	Korea	3 874	2 303	6 176	37.3	1 289	561	1 850	66.7	75.6	70.0
	New Zealand	7 627	2 474	10 101	24.5	1 666	527	2 193	78.2	78.7	78.3
	Norway	5 702	1 350	7 052	19.1	1 306	1 009	2 315	77.1	25.2	67.2
	Poland	6 490	2 177	8 667	25.1	1 355	666	2 021	79.1	69.4	76.7
	Spain	6 091	2 628	8 719	30.1	1 563	1 012	2 576	74.3	61.5	70.5
	Sweden	6 156	2 048	8 204	25.0	1 178	554	1 732	80.9	72.9	78.9
	OECD average-15	5 400	3 407	8 807	36.6	1 419	773	2 193	72.3	70.2	74.4
Partners	Hong Kong-China	3 993	3 327	7 320	45.5	2 095	785	2 880	47.5	76.4	60.7
	Macao-China	3 484	1 152	4 636	24.9	1 589	122	1 711	54.4	89.4	63.1

1. Multilevel regression model consists of the student and school levels.
2. Multilevel regression model: Digital reading performance is regressed on the variables listed in Table VI.7.2b.
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[Part 1/1]

Table VI.7.2b Multilevel regression model for digital reading performance, after accounting for print reading performance

		Using a computer at home		Using a computer at school		Index of enjoyment of reading (1 unit increase)		Index of diversity of reading materials (1 unit increase)		Index of understanding and remembering (1 unit increase)		Index of summarising (1 unit increase)	
		Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	6.2	(3.4)	-3.7	(2.4)	**-1.5**	(0.7)	0.4	(0.8)	0.5	(0.7)	**3.8**	(0.7)
	Austria	5.8	(5.1)	-1.2	(1.8)	-0.9	(1.0)	**2.5**	(1.0)	0.9	(0.9)	**5.1**	(1.0)
	Belgium	**20.7**	(4.8)	-1.5	(1.4)	-0.5	(0.8)	0.9	(0.9)	0.1	(0.7)	**4.1**	(0.8)
	Chile	**5.5**	(2.6)	-0.5	(2.9)	**5.0**	(1.2)	**2.2**	(1.0)	**4.2**	(0.7)	**6.4**	(1.0)
	Denmark	3.8	(7.0)	-4.4	(3.2)	**4.0**	(1.0)	-1.1	(1.0)	1.2	(0.9)	**8.9**	(1.0)
	Hungary	4.7	(4.2)	**-6.7**	(2.2)	1.1	(1.4)	-1.5	(0.8)	**4.2**	(1.1)	**-4.0**	(1.3)
	Iceland	0.7	(9.9)	-2.9	(2.0)	1.5	(0.9)	**-2.6**	(1.0)	-0.2	(0.8)	**7.3**	(0.9)
	Ireland	6.2	(3.2)	-2.2	(1.8)	-2.1	(1.4)	0.6	(1.1)	**3.5**	(1.1)	0.2	(0.9)
	Japan	**13.5**	(2.7)	1.4	(2.4)	**3.1**	(1.1)	0.2	(1.0)	**2.6**	(1.3)	**7.4**	(1.4)
	Korea	5.1	(5.0)	-0.1	(1.8)	0.8	(1.5)	-1.4	(2.0)	0.4	(1.0)	**3.7**	(1.7)
	New Zealand	-1.8	(4.6)	-1.7	(2.8)	0.3	(1.5)	-2.9	(1.5)	**4.7**	(1.4)	0.3	(1.3)
	Norway	5.1	(8.4)	-2.8	(3.3)	0.8	(1.1)	**3.2**	(1.0)	**-2.9**	(0.9)	**4.0**	(1.2)
	Poland	**6.6**	(2.7)	-1.7	(1.5)	1.3	(0.9)	0.1	(0.8)	**2.3**	(0.9)	**6.6**	(0.8)
	Spain	6.4	(3.8)	-2.0	(1.8)	1.3	(1.4)	**2.4**	(1.0)	1.3	(1.0)	**5.6**	(0.9)
	Sweden	**18.0**	(5.5)	**-7.7**	(2.5)	0.1	(0.9)	0.1	(0.8)	0.9	(1.0)	1.5	(0.9)
	OECD average-15	**7.1**	(1.4)	**-2.5**	(0.6)	**1.0**	(0.3)	0.2	(0.3)	**1.6**	(0.3)	**4.1**	(0.3)
Partners	Hong Kong-China	**19.0**	(6.1)	**-9.1**	(2.4)	1.2	(1.3)	0.2	(1.0)	**-2.3**	(1.0)	1.0	(0.9)
	Macao-China	1.2	(3.3)	**-4.2**	(1.2)	-1.4	(1.2)	**1.8**	(0.8)	-0.4	(0.8)	1.2	(0.8)

		Index of online searching-information activities (1 unit increase)		Index of online social activities (1 unit increase)		Student is a boy		PISA index of economic, social and cultural status of student (1 unit increase)		School average PISA index of economic, social and cultural status (1 unit increase)		Print reading performance (1 score point increase)	
		Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.	Change in score	S.E.
OECD	Australia	**2.1**	(0.8)	**4.1**	(0.6)	**4.9**	(1.3)	1.2	(0.8)	8.5	(4.4)	**0.8**	(0.0)
	Austria	**2.9**	(1.1)	**3.7**	(0.7)	**17.4**	(1.7)	2.2	(1.3)	**22.3**	(7.2)	**0.8**	(0.0)
	Belgium	**4.7**	(0.8)	**5.9**	(0.8)	**-3.8**	(1.5)	**3.6**	(0.7)	7.3	(4.0)	**0.7**	(0.0)
	Chile	**5.5**	(1.1)	**5.7**	(0.9)	1.7	(2.1)	0.9	(1.1)	**12.2**	(2.6)	**0.7**	(0.0)
	Denmark	**2.7**	(0.9)	**5.7**	(1.0)	**21.9**	(1.7)	**-2.4**	(1.1)	**16.2**	(5.0)	**0.8**	(0.0)
	Hungary	**2.5**	(1.2)	**5.2**	(1.4)	**10.8**	(2.4)	1.5	(1.2)	**13.5**	(3.8)	**0.9**	(0.0)
	Ireland	**4.1**	(0.9)	**5.5**	(1.0)	**5.9**	(1.9)	**4.1**	(1.0)	6.6	(6.0)	**0.8**	(0.0)
	Iceland	**6.8**	(1.0)	**5.8**	(0.9)	3.3	(2.8)	1.8	(1.2)	-6.7	(6.4)	**0.8**	(0.0)
	Japan	**9.1**	(0.9)	**4.2**	(1.3)	1.0	(2.3)	0.5	(1.4)	**22.9**	(6.1)	**0.5**	(0.0)
	Korea	**8.0**	(1.2)	**6.2**	(1.1)	**6.7**	(3.3)	0.1	(1.7)	4.3	(7.7)	**0.6**	(0.0)
	New Zealand	**5.0**	(1.3)	**8.6**	(1.0)	-1.1	(2.5)	-1.6	(1.9)	6.7	(6.8)	**0.8**	(0.0)
	Norway	0.8	(1.2)	**4.2**	(1.1)	1.3	(1.5)	-1.0	(1.2)	-2.8	(14.2)	**0.7**	(0.0)
	Poland	**7.4**	(1.0)	**7.3**	(0.8)	**11.2**	(2.1)	**6.2**	(1.1)	6.2	(6.2)	**0.8**	(0.0)
	Spain	**4.3**	(0.8)	**6.0**	(1.1)	**6.0**	(1.6)	**3.2**	(1.2)	-0.4	(4.6)	**0.8**	(0.0)
	Sweden	**4.9**	(1.1)	**6.1**	(0.8)	**7.9**	(1.6)	-1.1	(1.2)	8.2	(5.9)	**0.8**	(0.0)
	OECD average-15	**4.7**	(0.3)	**5.6**	(0.3)	**6.3**	(0.5)	**1.3**	(0.3)	**8.3**	(1.7)	**0.8**	(0.0)
Partners	Hong Kong-China	**2.2**	(1.1)	**6.5**	(0.9)	**17.2**	(1.9)	-0.7	(1.2)	**23.0**	(4.8)	**0.7**	(0.0)
	Macao-China	**3.9**	(0.7)	**6.2**	(1.0)	**10.3**	(1.8)	1.1	(0.9)	2.8	(3.2)	**0.7**	(0.0)

Notes: Values that are statistically significant are indicated in bold (see Annex A3). Multilevel regression model consists of the student and school levels. Digital reading performance is regressed on the variables listed in this table.

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ANNEX B2
RESULTS FOR REGIONS WITHIN COUNTRIES

[Part 1/1]

Table S.VI.a **Percentage of students at each proficiency level on the digital, print and composite reading scales**

	Digital reading scale									
	Below Level 2 (less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 or above (625.61 score points and above)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated										
Belgium (Flemish Community)	12.0	(0.8)	19.0	(0.9)	28.6	(1.2)	29.5	(1.5)	10.9	(1.1)
Non-adjudicated										
Belgium (French Community)	20.8	(1.6)	21.7	(1.0)	29.0	(1.3)	22.5	(1.2)	6.1	(0.8)
Belgium (German-Speaking Community)	12.8	(1.1)	26.6	(1.6)	28.6	(2.0)	15.9	(1.7)	16.1	(1.0)

	Print reading scale															
	Below Level 1b (less than 262.04 score points)		Level 1b (from 262.04 to less than 334.75 score points)		Level 1a (from 334.75 to less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 (from 625.61 to less than 698.32 score points)		Level 6 (698.32 score points or above)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated																
Belgium (Flemish Community)	0.4	(0.1)	2.7	(0.4)	10.3	(0.8)	20.1	(0.8)	27.2	(1.1)	26.9	(1.0)	11.3	(0.7)	1.2	(0.3)
Non-adjudicated																
Belgium (French Community)	2.2	(0.5)	7.2	(0.9)	13.9	(1.0)	20.5	(1.0)	24.1	(1.4)	22.5	(1.1)	8.6	(0.8)	1.0	(0.2)
Belgium (German-Speaking Community)	0.7	(0.3)	3.2	(0.8)	13.0	(1.0)	23.7	(1.7)	29.2	(2.1)	23.6	(1.7)	6.0	(1.0)	0.5	(0.3)

	Composite reading scale															
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated																
Belgium (Flemish Community)	0.1	(0.1)	2.2	(0.4)	9.9	(0.7)	20.1	(0.8)	27.7	(0.9)	28.8	(1.1)	10.5	(0.9)	0.6	(0.2)
Non-adjudicated																
Belgium (French Community)	1.4	(0.3)	6.1	(0.8)	14.7	(1.0)	20.7	(1.1)	26.8	(1.3)	23.3	(1.2)	6.7	(0.7)	0.3	(0.2)
Belgium (German-Speaking Community)	0.1	c	2.4	(0.7)	12.1	(1.1)	24.5	(1.6)	28.6	(1.7)	22.8	(1.6)	8.6	(1.1)	1.0	(0.5)

Note: See Table VI.2.1 for national data.
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[Part 1/1]

Table S.VI.b **Percentage of boys at each proficiency level on the digital, print and composite reading scales**

	Digital reading scale									
	Below Level 2 (less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 or above (625.61 score points and above)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated										
Belgium (Flemish Community)	14.7	(1.3)	21.8	(1.3)	28.5	(1.4)	26.8	(2.0)	8.3	(1.3)
Non-adjudicated										
Belgium (French Community)	24.7	(2.4)	21.7	(1.5)	27.4	(1.6)	20.5	(1.7)	5.7	(1.1)
Belgium (German-Speaking Community)	16.7	(1.7)	29.7	(2.8)	26.6	(3.2)	13.7	(2.8)	13.4	(1.9)

	Print reading scale															
	Below Level 1b (less than 262.04 score points)		Level 1b (from 262.04 to less than 334.75 score points)		Level 1a (from 334.75 to less than 407.47 score points)		Level 2 (from 407.47 to less than 480.18 score points)		Level 3 (from 480.18 to less than 552.89 score points)		Level 4 (from 552.89 to less than 625.61 score points)		Level 5 (from 625.61 to less than 698.32 score points)		Level 6 (698.32 score points or above)	
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated																
Belgium (Flemish Community)	0.5	(0.2)	3.8	(0.5)	12.6	(1.0)	22.6	(1.2)	26.4	(1.2)	24.0	(1.2)	9.3	(0.9)	0.8	(0.4)
Non-adjudicated																
Belgium (French Community)	3.1	(0.7)	9.2	(1.4)	15.0	(1.4)	21.2	(1.5)	22.5	(1.9)	20.4	(1.8)	7.9	(1.4)	0.8	(0.4)
Belgium (German-Speaking Community)	1.0	(0.5)	5.0	(1.4)	18.4	(1.9)	24.8	(2.2)	27.7	(2.9)	19.0	(2.8)	4.1	(1.2)	0.1	c
	Composite reading scale															
	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated																
Belgium (Flemish Community)	0.2	(0.1)	3.2	(0.6)	11.8	(1.2)	23.2	(1.4)	27.2	(1.3)	25.9	(1.4)	8.2	(1.2)	0.4	(0.2)
Non-adjudicated																
Belgium (French Community)	2.1	(0.5)	7.6	(1.2)	16.6	(1.5)	20.7	(1.4)	25.4	(1.6)	21.3	(1.8)	5.9	(1.0)	0.3	(0.2)
Belgium (German-Speaking Community)	0.1	c	3.7	(1.4)	16.5	(1.7)	26.4	(2.5)	26.9	(2.4)	19.6	(2.6)	6.2	(1.5)	0.6	(0.5)

Note: See Table VI.2.2 for national data.
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[Part 1/1]

Table S.VI.c **Percentage of girls at each proficiency level on the digital, print and composite reading scales**

Digital reading scale

	Below Level 2 (less than 407.47 score points) %	S.E.	Level 2 (from 407.47 to less than 480.18 score points) %	S.E.	Level 3 (from 480.18 to less than 552.89 score points) %	S.E.	Level 4 (from 552.89 to less than 625.61 score points) %	S.E.	Level 5 or above (625.61 score points and above) %	S.E.
Adjudicated										
Belgium (Flemish Community)	9.1	(0.9)	16.0	(1.1)	28.8	(1.5)	32.4	(1.5)	13.7	(1.4)
Non-adjudicated										
Belgium (French Community)	16.6	(1.5)	21.7	(1.5)	30.6	(1.7)	24.6	(1.6)	6.5	(0.9)
Belgium (German-Speaking Community)	8.8	(1.5)	23.4	(2.2)	30.7	(2.5)	18.2	(2.0)	18.9	(1.8)

Print reading scale

	Below Level 1b (less than 262.04 score points) %	S.E.	Level 1b (from 262.04 to less than 334.75 score points) %	S.E.	Level 1a (from 334.75 to less than 407.47 score points) %	S.E.	Level 2 (from 407.47 to less than 480.18 score points) %	S.E.	Level 3 (from 480.18 to less than 552.89 score points) %	S.E.	Level 4 (from 552.89 to less than 625.61 score points) %	S.E.	Level 5 (from 625.61 to less than 698.32 score points) %	S.E.	Level 6 (698.32 score points or above) %	S.E.
Adjudicated																
Belgium (Flemish Community)	0.1	(0.1)	1.6	(0.5)	7.9	(1.0)	17.5	(1.2)	28.1	(1.4)	29.8	(1.4)	13.5	(1.1)	1.5	(0.4)
Non-adjudicated																
Belgium (French Community)	1.2	(0.5)	5.2	(1.1)	12.7	(1.3)	19.8	(1.3)	25.8	(1.7)	24.7	(1.5)	9.3	(0.9)	1.3	(0.4)
Belgium (German-Speaking Community)	0.3	(0.3)	1.3	(0.7)	7.5	(1.3)	22.7	(2.4)	30.8	(2.6)	28.4	(2.4)	8.0	(1.6)	0.9	(0.6)

Composite reading scale

	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Adjudicated																
Belgium (Flemish Community)	0.1	c	1.2	(0.3)	7.9	(0.8)	16.9	(1.2)	28.3	(1.4)	31.9	(1.4)	13.0	(1.1)	0.8	(0.3)
Non-adjudicated																
Belgium (French Community)	0.6	(0.3)	4.4	(0.8)	12.8	(1.4)	20.7	(1.4)	28.3	(1.5)	25.4	(1.5)	7.5	(0.9)	0.4	(0.2)
Belgium (German-Speaking Community)	0.1	c	1.1	(0.5)	7.5	(1.4)	22.5	(2.1)	30.3	(2.3)	26.1	(2.2)	11.0	(1.5)	1.4	(0.7)

Note: See Table VI.2.3 for national data.

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[Part 1/1]

Table S.VI.d **Mean score, variation and gender differences in student performance on the digital, print and composite reading scales**

	All students				Gender differences						Percentiles											
	Mean score		Standard deviation		Boys		Girls		Difference (B – G)		5th		10th		25th		75th		90th		95th	
	Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
Digital reading scale																						
Adjudicated																						
Belgium (Flemish Community)	521	(2.6)	89	(1.7)	508	(3.4)	535	(3.1)	**-26**	(3.9)	360	(3.9)	397	(4.5)	461	(4.2)	588	(2.9)	629	(4.4)	653	(4.7)
Non-adjudicated																						
Belgium (French Community)	490	(4.0)	98	(2.5)	479	(5.6)	500	(3.8)	**-21**	(5.5)	319	(6.9)	357	(6.6)	424	(6.3)	562	(4.6)	609	(4.1)	632	(5.1)
Belgium (German-Speaking Community)	516	(2.4)	99	(1.8)	501	(4.0)	531	(3.9)	**-30**	(6.3)	366	(7.8)	395	(5.9)	446	(3.7)	578	(4.9)	660	(6.2)	691	(6.4)
Print reading scale																						
	Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
Adjudicated																						
Belgium (Flemish Community)	519	(2.3)	94	(1.8)	505	(3.0)	533	(3.3)	**-28**	(4.1)	357	(5.8)	390	(4.3)	453	(3.1)	589	(2.8)	636	(3.7)	660	(4.1)
Non-adjudicated																						
Belgium (French Community)	490	(4.2)	109	(2.9)	478	(6.2)	503	(4.5)	**-26**	(7.1)	299	(8.0)	338	(8.8)	415	(6.7)	574	(4.1)	624	(3.8)	650	(4.5)
Belgium (German-Speaking Community)	499	(2.8)	90	(2.2)	479	(3.9)	519	(4.2)	**-41**	(5.8)	346	(9.5)	379	(6.8)	437	(4.0)	564	(4.0)	609	(5.3)	637	(9.4)
Composite reading scale																						
	Mean	S.E.	S.D.	S.E.	Mean score	S.E.	Mean score	S.E.	Score dif.	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.	Score	S.E.
Adjudicated																						
Belgium (Flemish Community)	520	(2.3)	89	(1.6)	507	(2.9)	534	(3.0)	**-27**	(3.8)	364	(3.7)	396	(3.6)	458	(3.2)	587	(2.8)	630	(3.5)	652	(3.7)
Non-adjudicated																						
Belgium (French Community)	490	(3.9)	100	(2.6)	479	(5.7)	502	(3.9)	**-23**	(6.2)	314	(6.5)	351	(7.4)	418	(7.1)	567	(3.6)	612	(3.9)	638	(5.4)
Belgium (German-Speaking Community)	507	(2.5)	89	(1.9)	490	(3.7)	525	(3.7)	**-35**	(5.6)	362	(10.0)	390	(3.3)	443	(4.5)	572	(3.8)	624	(4.2)	651	(5.1)

Notes: See Table VI.2.4 for national data. Values that are statistically significant are indicated in bold (see Annex A3).

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Annex C

THE DEVELOPMENT AND IMPLEMENTATION OF PISA – A COLLABORATIVE EFFORT

INTRODUCTION

PISA is a collaborative effort, bringing together scientific expertise from the participating countries, steered jointly by their governments on the basis of shared, policy-driven interests.

A PISA Governing Board on which each country is represented determines, in the context of OECD objectives, the policy priorities for PISA and oversees adherence to these priorities during the implementation of the programme. This includes the setting of priorities for the development of indicators, for the establishment of the assessment instruments and for the reporting of the results.

Experts from participating countries also serve on working groups that are charged with linking policy objectives with the best internationally available technical expertise. By participating in these expert groups, countries ensure that the instruments are internationally valid and take into account the cultural and educational contexts in OECD Member countries, the assessment materials have strong measurement properties, and the instruments place an emphasis on authenticity and educational validity.

Through National Project Managers, participating countries implement PISA at the national level subject to the agreed administration procedures. National Project Managers play a vital role in ensuring that the implementation of the survey is of high quality, and verify and evaluate the survey results, analyses, reports and publications.

The design and implementation of the surveys, within the framework established by the PISA Governing Board, is the responsibility of external contractors. For PISA 2009, the questionnaire development was carried out by a consortium led by Cito International in partnership with the University of Twente. The development and implementation of the cognitive assessment and of the international options was carried out by a consortium led by the Australian Council for Educational Research (ACER). Other partners in this consortium include cApStAn Linguistic Quality Control in Belgium, the *Deutsches Institut für Internationale Pädagogische Forschung* (DIPF) in Germany, the National Institute for Educational Policy Research in Japan (NIER), the *Unité d'analyse des systèmes et des pratiques d'enseignement* (aSPe) in Belgium and WESTAT in the United States.

The OECD Secretariat has overall managerial responsibility for the programme, monitors its implementation on a day-to-day basis, acts as the secretariat for the PISA Governing Board, builds consensus among countries and serves as the interlocutor between the PISA Governing Board and the international consortium charged with the implementation of the activities. The OECD Secretariat also produces the indicators and analyses and prepares the international reports and publications in co-operation with the PISA consortium and in close consultation with Member countries both at the policy level (PISA Governing Board) and at the level of implementation (National Project Managers).

The following lists the members of the various PISA bodies and the individual experts and consultants who have contributed to PISA.

Members of the PISA Governing Board

Chair: Lorna Bertrand

OECD countries

Australia: Tony Zanderigo

Austria: Mark Német

Belgium: Christiane Blondin, Isabelle Erauw and Micheline Scheys

Canada: Pierre Brochu, Patrick Bussière and Tomasz Gluszynski

Chile: Leonor Cariola

Czech Republic: Jana Strakova

Denmark: Tine Bak

Estonia: Maie Kitsing

Finland: Jari Rajanen

France: Bruno Trosseille

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PISA 2009 Results: Students On Line

DIGITAL TECHNOLOGIES AND PERFORMANCE

VOLUME VI

Are students well prepared to meet the challenges of the future? Can they analyse, reason and communicate their ideas effectively? Have they found the kinds of interests they can pursue throughout their lives as productive members of the economy and society? The OECD Programme for International Student Assessment (PISA) seeks to answer these questions through the most comprehensive and rigorous international assessment of student knowledge and skills. Together, the group of countries and economies participating in PISA represents nearly 90% of the world economy.

PISA 2009 Results presents the findings from the most recent PISA survey, which focused on reading and also assessed mathematics and science performance. The report comprises six volumes:

- Volume I, *What Students Know and Can Do: Student Performance in Reading, Mathematics and Science,* compares the knowledge and skills of students across countries.
- Volume II, *Overcoming Social Background: Equity in Learning Opportunities and Outcomes,* looks at how successful education systems moderate the impact of social background and immigrant status on student and school performance.
- Volume III, *Learning to Learn: Student Engagement, Strategies and Practices,* examines 15-year-olds' motivation, their engagement with reading and their use of effective learning strategies.
- Volume IV, *What Makes a School Successful? Resources, Policies and Practices,* examines how human, financial and material resources, and education policies and practices shape learning outcomes.
- Volume V, *Learning Trends: Changes in Student Performance Since 2000*, looks at the progress countries have made in raising student performance and improving equity in the distribution of learning opportunities.
- Volume VI, *Students On Line: Digital Technologies and Performance,* explores students' use of information technologies to learn.

PISA 2009 marks the beginning of the second cycle of surveys, with an assessment in mathematics scheduled for 2012 and one in science for 2015.

THE OECD PROGRAMME FOR INTERNATIONAL STUDENT ASSESSMENT (PISA)

PISA focuses on young people's ability to use their knowledge and skills to meet real-life challenges. This orientation reflects a change in the goals and objectives of curricula themselves, which are increasingly concerned with what students can do with what they learn at school and not merely with whether they have mastered specific curricular content. PISA's unique features include its:

- *Policy orientation*, which highlights differences in performance patterns and identifies features common to high-performing students, schools and education systems by linking data on learning outcomes with data on student characteristics and other key factors that shape learning in and outside of school.
- *Innovative concept of "literacy"*, which refers both to students' capacity to apply knowledge and skills in key subject areas and to their ability to analyse, reason and communicate effectively as they pose, interpret and solve problems in a variety of situations.
- *Relevance to lifelong learning*, which goes beyond assessing students' competencies in school subjects by asking them to report on their motivation to learn, their beliefs about themselves and their learning strategies.
- *Regularity*, which enables countries to monitor their progress in meeting key learning objectives.
- *Breadth of geographical coverage and collaborative nature*, which, in PISA 2009, encompasses the 34 OECD member countries and 41 partner countries and economies.

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