TALIS

Teachers Getting the Best out of Their Students

FROM PRIMARY TO UPPER SECONDARY EDUCATION

OECD

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OECD
BETTER POLICIES FOR BETTER LIVES

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Foreword

The COVID-19 pandemic has both required but also inspired unprecedented changes in educational systems around the world. In this rapidly evolving environment, questions emerged on how to best use these new digital tools and new pedagogical approaches to meet the needs of students, especially the most vulnerable ones. As schools reopen, policy makers, practitioners, students and their families wonder how the pandemic experience will affect the future of teaching and learning and what "teaching professionalism" really means in these trying times.

However, whatever that future will look like, the foundations for "teaching professionalism" will remain: building, supporting and maintaining the teaching workforce as knowledgeable, resourceful and active agents capable of making expert decisions concerning their students, classrooms and schools. As for all professionals, teachers need adequate support to live up to the expectations set in their work and to help their students achieve their full potential. In that sense, the pandemic has not shifted the notions of professionalism, but rather has made them more visible, palpable and present. If anything, it has created a sense of urgency in the education community, reinforcing the need to move quickly on the steps required for the teaching profession to successfully meet these new challenges.

This vision of professionalism in teaching has guided the development of the Teaching and Learning International Survey (TALIS), the largest international survey asking teachers and school leaders about their working environments and practices. Although the data for TALIS 2018 were collected prior to the pandemic, they can provide valuable input on the status of teacher professionalism across participating systems. The focus of the previous TALIS reports has been on lower secondary education, but this new volume extends the picture to both primary and upper secondary teachers. In doing so, it reveals that the challenges and work of teachers vary significantly across levels of education. In addition, by expanding the coverage to these new levels of education, we are able to explore whether education systems can provide students with quality educational opportunities across all levels. Findings and analyses were selected based on the goals of each educational level, while keeping in mind what information will be most useful for education systems in a post-COVID-19 world.

In primary education, one of the most revealing findings concerns the transition of students from pre-primary levels to more formal learning and higher-order skills. TALIS 2018 shows that less than half of the teachers in primary education had training in managing students' transitions from pre-primary to primary. Analysis also shows that teachers who use transition skills, such as facilitating play in the classroom, were able to implement cognitive stimulating skills. In upper secondary education, results showed that vocational and educational training (VET) teachers more frequently engage in practices that stimulate the cognitive skills of students than their non-VET colleagues. Based on these results, I believe that VET instructors have much to offer in disseminating and sharing these practices with their colleagues in general programmes.

Common strengths and challenges were also recognised across all levels. Most notably, a need was expressed for training and infrastructure on the use of information and communication technologies for instruction. Although resources are crucial, they should not be the prime focus for digital instruction. It is more important to understand the pedagogical goals and values of these digital tools, since that will bring

us closer to effectively implementing them. It is the task of teachers to make pedagogical sense of these new technologies, and they are irreplaceable in that role.

Finally, let us not lose sight of teachers' well-being. Our findings show that most teachers are committed workers who love their profession, but that issues outside their core task of teaching (such as administrative work) are a major source of stress. These issues need to be addressed.

This report presents a comprehensive review across three levels of education on the areas to boost and monitor in the teaching profession in order to get the best from our students. In expanding analyses to new educational levels, TALIS 2018 is able to provide relevant data and insights on the consequences of the COVID-19 pandemic and to continue the debate on how to shape the teaching profession of tomorrow.

Andreas Schleicher

Special Advisor on Education Policy to the Secretary General

Director for Education and Skills

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This report is the outcome of a collaboration among the countries and economies participating in the ISCED 1 and ISCED 3 options in TALIS 2018, the OECD Secretariat, the European Commission and the TALIS 2018 International Consortium.

The development of this report was guided by Andreas Schleicher, Yuri Belfali and Karine Tremblay (TALIS Team Leader). Pablo Fraser led its development and production, with contributions from Emily Groves and Aakriti Kalra, and he was also the lead author for Chapter 6. Chapter 1 was authored by Rodrigo Castaneda-Valle, Pablo Fraser and Aakriti Kalra. Rodrigo Castaneda-Valle was the lead author of Chapters 2 and 5. Aakriti Kalra was the lead author for Chapters 3 and 4. All statistical analyses were performed by Hélène Guillou, with contributions from Rodrigo Castaneda-Valle. Asuka Ohagi co-ordinated system level data collection for Tables A B.3, A B.4 and A B.5.

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Reader's guide

The results referred to in this volume are provided in Annex C via links to online tables.

Country coverage

The publication presents statistics and analysis derived from the survey responses of teachers and school principals in primary education in 15 countries and economies (ISCED level 1)[1] and teachers and school principals in upper secondary in 11 countries and economies (ISCED level 3). Although results are also presented for lower secondary education, these values as are introduced as comparison points for primary and upper secondary education rather than in-depth descriptions of the level on itself.[2] In tables, countries and economies are ranked in alphabetical order. Countries that have not met TALIS standard participation rates are placed at the bottom of the tables.

There are four sub-national entities participating in TALIS 2018 in primary education or upper secondary education. They are referred to in the following manner:

In primary education

- The Flemish Community of Belgium is referred to as Flemish Comm. (Belgium) in tables and figures.
- Ciudad Autónoma de Buenos Aires is referred to as CABA (Argentina).
- The nation of England is referred to as England (United Kingdom), or England (UK) in tables and figures.

In upper secondary education

- The province of Alberta, in Canada, is referred to as Alberta (Canada)

Chinese Taipei did not participate directly in TALIS 2018: their data collection and processing were managed exclusively by the international research consortium. Their data are reported in the result tables listed in Annex C.

Classification of levels of education

The classification of levels of education is based on the International Standard Classification of Education (ISCED). ISCED is an instrument for compiling statistics on education internationally. ISCED-97 was recently revised, and the new International Standard Classification of Education (ISCED-2011) was formally adopted in November 2011 and is now the basis of the levels presented in this publication. It distinguishes between nine levels of education:

- early childhood education (ISCED level 0)
- primary education (ISCED level 1)

- lower secondary education (ISCED level 2)
- upper secondary education (ISCED level 3)
- post-secondary non-tertiary level of education (ISCED level 4)
- short-cycle tertiary education (ISCED level 5)
- bachelor's or equivalent level (ISCED level 6)
- master's or equivalent level (ISCED level 7)
- doctoral or equivalent level (ISCED level 8).

More information can be found in Annex B.

Reporting teacher data

The report uses "teachers" as shorthand for the TALIS target population of teachers of primary education or upper secondary depending of the section in the report. TALIS covers teachers who, as part of their regular duties in a target school, provide instruction in programmes at the corresponding ISCED level. "Teachers in primary education" refers to teachers providing instruction in programmes at the ISCED level 1 (primary education). "Teachers in upper secondary education" refers to teachers providing instruction in programmes at the ISCED 3 level (upper secondary education).

Reporting principal data

The report uses "principals" and "school leaders" as equivalent shorthand for the TALIS target population of principals of primary, lower secondary or upper secondary. School principals provided information on their schools' characteristics and their own work and working conditions by completing a principal questionnaire. Where responses from school principals are presented in this publication, they are usually weighted by the school weights. In some cases, principals' responses are treated as attributes of the teachers' personal working conditions. In such cases, principals' answers are analysed at the teacher level and weighted by the teacher weights.

International averages

The TALIS averages correspond to the arithmetic mean of the respective country estimates in each educational level. They are calculated for most indicators based on the survey data for each educational level presented in this report.

The system-level estimates of countries that have not met the standards for TALIS participation rates are excluded from the international averages. This is the case for the estimates based on the responses of teachers and principals of primary education in Australia and in the Netherlands.

In the case of some countries, data may not be available for specific indicators, or specific categories may not apply. Therefore, readers should keep in mind that the term "TALIS average" refers to the countries included in the respective averages. Each of these averages may not necessarily be consistent across all columns of a table.

The ISCED level in the label used in figures and tables indicates the list of countries included in the international average:

- **TALIS average ISCED 1:** arithmetic average across 13 TALIS 2018 countries and economies with adjudicated data in primary education.

- **TALIS average ISCED 3:** arithmetic average across 11 TALIS 2018 countries and economies with adjudicated data in upper secondary.

In analyses involving data from multiple ISCED levels, both averages are reported on consistent sets of countries. The "TALIS average ISCED 1" computed on ISCED level 2 data refers to the average across countries and economies with adjudicated data in primary education, and the "TALIS average ISCED 3" computed on ISCED level 2 data refers to the average across countries and economies with adjudicated data in upper secondary education. This distinction allows for valid comparisons with ISCED level 2 data.[3]

The list of countries and economies included in each international average is provided in Annex B.

Data underlying the figures

Five symbols are used to denote non-reported estimates:

a: The question was not administered in the country because it was optional or it is part of a questionnaire from a TALIS cycle the country has not participated in. Therefore, data are missing.

c: There are too few or no observations to provide reliable estimates and/or to ensure the confidentiality of respondents (i.e. there are fewer than 10 schools/principals and/or 30 teachers with valid data; and/or the item non-response rate [i.e. ratio of missing or invalid responses to the number of participants for whom the question was applicable] is above 50%).

m: Data were collected but subsequently removed for technical reasons (e.g. erroneous translation) as part of the data checking process.

p: Data were collected but are not reported for technical reasons (e.g. low participation rate) as part of the data adjudication process.

w: Data were withdrawn or were not collected at the request of the country concerned

"r": System-level data are missing due to non-response during the data collection process

"na": System-level data was not collected as the survey was not implemented at the corresponding educational level.

TALIS results are based exclusively on self-reports from teachers and school leaders and, therefore, represent their opinions, perceptions, beliefs and accounts of their activities. No data imputation from administrative data or other studies is conducted and, as with any self-reported data, this information is subjective and may, therefore, differ from data collected through other means (e.g. administrative data or video observations). The same is true of school leaders' reports about school characteristics and practices, which may differ from descriptions provided by administrative data at a national or local government level.

Rounding figures

Because of rounding, some figures in tables may not add up exactly 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, two or three decimal places. Where the value 0.0, 0.00 or 0.000 is shown, this does not imply that the standard error is zero, but that it is smaller than 0.05, 0.005 or 0.0005, respectively.

Focusing on statistically significant differences

This publication only comments on statistically significant differences or changes. These are denoted in darker colours in figures and in bold font in tables. See Annex B for further information.

Abbreviations

ISCED International Standard Classification of Education

Dif. point difference

% dif. percentage-point difference

ICT information and communication technology

S.D. standard deviation

S.E. standard error

Further technical documentation

For further information on TALIS documentation, instruments and methodology, see the *TALIS 2018 Technical Report* (OECD, 2019[1]) and *TALIS 2018 and TALIS Starting Strong 2018 User Guide* (OECD, 2019[2]).

This report uses the OECD StatLinks service. All tables and charts are assigned 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.

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Notes

[1] As classified by the International Standard Classification of Education (ISCED 2011) (UNESCO-UIS, 2012[5]).

[2] For the detailed results on lower secondary education, please refer to *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners* (OECD, 2019[3]) and *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals* (OECD, 2020[4]).

[3] As these lower secondary averages were estimated based on the countries and economies participating in primary education or upper secondary education, these values do not match those previously reported in *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners* (OECD, 2019[3]) and *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals* (OECD, 2020[4]), as those were estimated based on the full list of 48 participants taking the survey at that level.

What is TALIS?

Introduction

The OECD Teaching and Learning International Survey (TALIS) is an international, large-scale survey of teachers, school leaders and the learning environment in schools. TALIS uses questionnaires administered to teachers and their school principals to gather data. Its main goal is to generate internationally comparable information relevant to developing and implementing policies focused on school leaders, teachers and teaching, with an emphasis on those aspects that affect student learning. It gives a voice to teachers and school leaders, allowing them to provide input into educational policy analysis and development in key areas. It is also a collaboration between participating countries and economies, the OECD, an international research consortium, teachers' unions and the European Commission.

TALIS must serve the goals of its three main beneficiaries: policy makers, education practitioners and researchers. First, it must help policy makers review and develop policies that promote the teaching profession and the best conditions for effective teaching and learning. Second, TALIS must also help teachers, school leaders, and education stakeholders to reflect upon and discuss their practice and find ways to enhance it. Third, TALIS must build upon past research while informing the future work of researchers.

Which countries and economies participate in TALIS?

In 2018, the main survey of TALIS aimed at lower secondary education was implemented in 48 countries and economies. On an optional basis, 15 countries and economies surveyed teachers and school leaders in their primary (ISCED level 1) schools and 11 did so in their upper secondary schools.

Primary education participants: Australia, Ciudad Autonóma de Buenos Aires (Argentina), Denmark, England (United Kingdom), the Flemish Community of Belgium, France, Japan, Korea, the Netherlands, Spain, Sweden, Chinese Taipei, Turkey, the United Arab Emirates and Viet Nam.

Upper secondary education participants: Alberta (Canada), Brazil, Croatia, Denmark, Portugal, Slovenia, Sweden, Chinese Taipei, Turkey, the United Arab Emirates and Viet Nam.

What is the TALIS survey about?

Nine main themes were selected for inclusion in the TALIS survey: teachers' instructional practices, school leadership, teachers' professional practices, teacher education and initial preparation, teacher feedback and development, school climate, job satisfaction, teacher human resource issues and stakeholder relations, and teacher self-efficacy. Two cross-cutting themes were added to this list: innovation, and equity and diversity.

What are the key features of TALIS design?

The key features of TALIS 2018 survey design are as follows:

- International target population: teachers and school leaders of mainstream schools in primary, lower secondary and upper secondary education.
- Target sample size: 200 schools per country; 20 teachers and 1 school leader in each school per educational level.
- Target response rates for teachers: 75% of the sampled schools, together with a 75% response rate from all sampled teachers in the country. A school is considered to have responded if 50% of sampled teachers respond.
- Target response rates for school leaders: 75% of the sampled school leaders.
- Questionnaires: Separate questionnaires for teachers and school leaders, each requiring between 45 and 60 minutes to complete.
- Mode of data collection: questionnaires completed on paper or on line.
- Survey windows: September to December 2017 for Southern Hemisphere countries (with some countries extending into January 2018 as an exception) and March to May 2018 for Northern Hemisphere countries (with some early starting participants in January and February, and some extending into July 2018).

Further details on the sample for all target populations can be found in Annex A.

What kinds of results does TALIS provide?

TALIS results are based exclusively on self-reports from teachers and school leaders and, therefore, represent their opinions, perceptions, beliefs and accounts of their activities. No data imputation from administrative data or other studies is conducted. Giving a voice to teachers provides insight into how they perceive the learning environments in which they work and how policies that are put in place are carried out in practice. But, as with any self-reported data, this information is subjective and may, therefore, differ from data collected through other means (e.g. administrative data or video observations). The same is true of school leaders' reports about school characteristics and practices, which may differ from descriptions provided by administrative data at a national or local government level.

In addition, as a cross-sectional survey, TALIS cannot measure causality. For instance, in examining the relationship between teachers' participation in professional development and self-efficacy in teaching, it is possible to determine the sense (positive, negative) of the association, its strength and its statistical significance, but it is not possible to establish whether participating in professional development depends on self-efficacy or whether self-efficacy depends on participation in professional development.

How is this report organised?

The chapters included in this volume are the following:

- Chapter 1 gives readers an overview of the main findings and recommendations of this present volume across educational levels.
- Chapter 2 focuses on the demographic characteristics of principals and teachers, their motivations to join the profession, along with the characteristics of their places of work.
- Chapter 3 looks at the pre-service training of teachers, their subject-specific profiles, along with their teaching practices.

- Chapter 4 addresses topics concerning induction, mentoring, professional development and the use of feedback in schools.
- Chapter 5 addresses topics concerning school organisation, teacher autonomy, collaboration and policy priorities.
- Chapter 6 explores teachers' working conditions and arrangements, along with their job satisfaction, levels of stress, and intentions to leave teaching.
- Annex A contains information about the TALIS target populations, TALIS samples and a summary of the adjudication outcomes for each sample, along with cautionary notes about the interpretations of results, whenever necessary.
- Annex B contains information about complex variables derived from the teacher and principal questionnaires analysed in the volume, and statistical methods used to analyse TALIS data.
- Annex C contains the full list of online result tables.

Executive summary

The overarching goal of the Teaching and Learning International Survey (TALIS) is to describe the working conditions, learning environments and levels of professionalism of teachers and school leaders around the world. This report, *Teachers Getting the Best out of their Students: From Primary to Upper Secondary Education*, continues this tradition by expanding the data on teacher professionalism to primary and upper secondary education, as well as deepening its analysis within education levels. Of the 48 countries and economies that participated in TALIS 2018, 15 chose to conduct the survey in primary education and 11 in upper secondary. The principal objective guiding these analyses is to understand whether the dimensions of professionalism found in primary and upper secondary education are similar to those in found in lower secondary education.

Primary education

The fact that teaching is a largely feminised profession is not a surprise at this point. However, in lower levels of education, there are far more women than men. In primary education, almost three out of four teachers are women. Teachers are important references for gender roles and stereotypes, especially for younger students.

The data drawn from primary education shows that there is a challenge regarding building more inclusive classrooms. At this level, a high share of teachers report that they do not feel sufficiently prepared to teach students with special needs, feel stress about preparing lessons catering for these students and consider that support for these students should be a spending priority. Early diagnosis and intervention are crucial for the development of children, but education systems must go beyond providing adequate training to teachers to also embrace schools and provide the support staff require to help students progress with their learning.

That is not the only difficulty faced by primary teachers, as a high share of teachers report not feeling prepared in classroom management and spending too much time on keeping order in the classroom. Training and support are great tools for building teachers' confidence, but unfortunately induction activities reach only small numbers of teachers and mentoring opportunities are equally scarce.

Regarding teachers' involvement in helping students transition from pre-primary to primary and their training in facilitating play, less than half of the teachers in primary education stated that they had had training in this area. This is problematic in terms of ensuring children can build on their prior learning. Facilitating play is one mechanism for doing so, especially as TALIS shows that teachers who have had training in this area also implement practices that stimulate children cognitively.

Upper secondary education

Upper secondary education benefits from having teachers with experience outside of the education field who are connected to specific professions in the labour market. That being said, diversity of background

should not justify a lack of preparation. TALIS results show that, compared to lower secondary education, there is a lower share of teachers in upper secondary education whose training encompassed content and pedagogy of their subject. It is crucial to monitor these cases to ensure that these teachers have the required skills and, if not, to provide supplementary programmes that will help them respond to the demands of their job.

TALIS findings show that teachers in vocational education and training (VET) more often engage in cognitively stimulating practices than their non-VET colleagues. Thus, there is potential for teachers in general programmes to learn from their VET colleagues through mentorship programmes and peer collaboration. Unfortunately, the share of teachers who engaged in professional collaboration in upper secondary is lower than in other levels of education. Teachers have much to gain in learning from the experience of their colleagues, so mechanisms to stimulate participation at this level are warranted.

Across education levels

Beyond the specific issues in primary and upper secondary education, it was possible to identify common challenges for all levels. One of the issues is the need to offer attractive working conditions and arrangements to draw the best candidates to the profession. Part-time contracts could be a way for schools to have the flexibility necessary to have sufficient staff in response to emerging issues such as the COVID-19 pandemic. However, TALIS data show that part-time working arrangements are still relatively rare across all levels. More exploration is warranted to explain the reasons why there is still a low share of teachers working part-time and in what ways part-time contracts can help contribute to a more dynamic workforce.

Another common issue observed across all levels of education is that, despite teachers reporting that their schools are implementing policies to respond to the gender, socio-economic and ethnic diversity of students, many still feel that they need training to work with students with special needs, to work in multicultural/multilingual environments and to develop skills for individualised learning. Training in this area is important, but it is also essential to building a more diverse workforce to respond to these needs.

One crucial aspect common to all education levels that is particularly acute in the COVID-19 crisis is preparation for the use of digital technologies. Indeed, when schools reopen, they will probably be using some form of hybrid learning that will require teachers to have the skills to not only operate these technologies but also to use them with a clear pedagogical purpose. Peer collaboration and mentorship within schools could be a valuable asset in this area

Finally, teachers' well-being is paramount. If teachers are expected to act as professionals, they should be treated as such. For most teachers, the COVID-19 pandemic has led to huge changes, involving longer working hours and additional workload. Attention should be paid to work-life balance for teachers, as TALIS results showed that major sources of stress include administrative work, keeping up with the requirements of authorities and being held responsible for students' achievement. All these sources of stress could be more arduous during these difficult times. Furthermore, TALIS findings show that, with higher levels of stress, teachers are more likely to report wanting to leave teaching within the next five years. However, the findings also show that there are ways to reduce stress and the risk of attrition. Supportive school environments and satisfaction with terms of employment are some of the measures that can help in this area.

1 Overview: Opportunities and challenges for the teaching profession from primary to upper secondary education

The international report on the results of the 2018 Teaching and Learning International Survey (TALIS) focuses on the notion of professionalism and its various dimensions. This volume discusses issues and insights from TALIS data in primary and upper secondary levels of education. It presents a more comprehensive picture of the opportunities and challenges for the teaching profession across educational levels. This first chapter presents an overview of the main findings identified for primary and upper secondary education. It offers policy pointers emerging from these findings and discusses trade-offs for policy makers to consider in designing teacher policies.

Introduction

The overarching goal of the Teaching and Learning International Survey (TALIS) is to describe the working conditions, learning environments and levels of professionalism of teachers and school leaders around the world. The evidence presented by TALIS seeks to help policy makers review and develop policies that promote the teaching profession and the best conditions for effective teaching and learning. This report, *Teachers Getting the Best out of their Students: From Primary to Upper Secondary Education*, continues this tradition by expanding the data on teacher professionalism across education levels as well as deepening analysis within education levels. The principal objective guiding these analyses is to understand whether the dimensions of professionalism found in primary and upper secondary education are similar to those in found in lower secondary education. The relevance of the question is tied to the ability of education systems to provide students with quality educational opportunities across all levels. If professionalisation of the teaching workforce is a crucial factor to ensure quality education, it must be assured across all education levels.

The COVID-19 pandemic has highlighted and further stressed several components of professionalism. Indeed, according to the most recent OECD/UNESCO-UIS/UNICEF/World Bank Special Survey on COVID-19,[1] the vast majority of OECD systems required all their teachers to keep teaching during the school closure period in 2020 (OECD, 2021[1]). This was the case for 25 OECD countries in primary and lower secondary education and 28 in upper secondary education. The sudden transition to distance and hybrid learning has required teachers to adapt swiftly to new technologies and learning modalities. The reduced teaching time has also meant prioritising curriculum content and developing new planning for classes in a short period of time. The pandemic has required many teachers to acquire new skills and new responsibilities almost overnight. That being said, teachers have been extremely resourceful, collaborative and creative in responding to emerging needs (OECD, 2021[2]).

Although TALIS 2018 data were collected prior to the crisis, they can still shed some light on how well the teaching profession in multiple education systems was prepared to respond to the changes brought on by COVID-19. Furthermore, TALIS can provide insights on how the teaching profession at different levels of education may have responded.

To guide this data exploration, the report tackles three research questions:

- What are the dimensions and levels of teachers' and school leaders' professionalism in primary and upper secondary education?
- What are some of the educational challenges unique to each education level?
- What are the factors that could explain the differences in the levels of professionalism observed across education levels?

Although these questions are analytically distinguishable, they are interrelated. Indeed, to know what is particular at each education level, it is important to acknowledge what sets it apart from other levels and what the unique factors at each level reveal about the levels of professionalism.

Thus, instead of addressing these three questions separately, the report discusses them jointly through five empirical chapters following the teaching career pathway model of professionalism introduced in the first chapter of *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals* (OECD, 2020[3]). The teacher career pathway model broadly encompasses five stages for teachers' career progress: 1) attracting and selecting teachers; 2) developing teachers for effective practices; 3) supporting teachers through in-service training and feedback; 4) empowering the profession through leadership, autonomy and collaboration; and 5) retaining teachers by fostering stimulating working and learning environments. These five stages of teachers' career development present an articulated and cohesive policy narrative from which a holistic view of the levels of professionalism across different levels of

education can be developed. Consequently, each of the chapters in this report addresses one of the stages of the teacher career pathway:

- **Chapter 2, Attracting and selecting high-calibre candidates,** focuses on the demographic characteristics of principals and teachers, as well as on their motivations to join the profession, along with the characteristics of their places of work.
- **Chapter 3, Preparing teachers and leaders as expert professionals,** looks at the pre-service training of teachers and school leaders and their subject-specific profiles.
- **Chapter 4, Enabling lifelong learning of teaching professionals through in-service opportunities,** addresses topics concerning induction, mentoring, professional development and the use of feedback in schools.
- **Chapter 5, Empowering teaching professionals,** addresses topics concerning school organisation, teacher autonomy, collaboration and policy priorities reported by teachers.
- **Chapter 6, Building fulfilling working conditions, well-being and satisfactory jobs**, explores teachers' working conditions and arrangements, along with their job satisfaction, levels of stress and intentions to leave teaching.

A survey among lower secondary teachers and their principals was the default form of participation for all TALIS 2018 participants. The implementation of the survey in primary education and upper secondary education was optional. Of the 48 countries and economies that participated in the study,[2] 15 participated in primary education (from which data is available for 13) and 11 participated in upper secondary education.[3]

This first chapter synthesises the most relevant policy findings identified across the five empirical chapters and their implications for education policy. The first section of the chapter covers the main findings common across education levels. It is followed by a section on the specific issues concerning primary education and concludes with a section on findings and policy pointers specific to upper secondary education.

Opportunities and challenges across education levels

For the last 15 years, the TALIS study has collected policy-relevant data on lower secondary teachers while at the same time serving as a voice for the views and opinions of teaching professionals on their working environments, needs and perceptions of their work. By expanding the data collection to primary and upper secondary education, TALIS 2018 offers countries and economies participating in these optional modules a comprehensive view of the teaching profession for the 12 years of core schooling (i.e. International Standard Classification of Education [ISCED] level 1 to ISCED level 3 – primary education to upper secondary education). With this additional data, analysis allows for a more complete overview of the status of the teaching profession.

Although a different set of countries and economies participated in primary and upper secondary education, the analysis shows that there were some recurrent topics across the three education levels. This may point to pervasive and enduring issues for the teaching profession. This section summarises the findings from the report that are recurrent across education levels. Four topics were identified: ensuring inclusive learning environments; creating mechanisms for attracting highly qualified teachers; promoting the use of digital technologies; and fostering teachers' well-being. Attention is also placed on the relevance of these results and the current COVID-19 pandemic.

Creating mechanisms for attracting a highly qualified and diverse teaching workforce

The first stage of the teacher career pathway involves the mechanisms to attract candidates to the profession. Thus, it is relevant to have a good understanding of what could be the drivers for joining the profession. Altruistic motivations are the most predominant factors for teachers to join the profession (OECD, 2019[4]). Considerations such as "teaching allowed me to influence the development of children

and young people", "teaching allowed me to benefit the socially disadvantaged" and "teaching allowed me to provide a contribution to society" were important motivations to join the profession for at least three out of four teachers in primary and upper secondary education (Table 2.13). At the same time (OECD, 2019[4]), job security is another important consideration for teachers to join the profession. Across all levels, over 67% of teachers reported that teaching being a "steady career path" and a "secure job" was an element of moderate or high importance in deciding to become a teacher (Table 2.13). In addition, more than 80% of teachers work under a permanent contract and full-time (across all teaching jobs) across the three education levels (Tables 6.1 and 6.4) (Table 1.1).[4]

Table 1.1. Snapshot: Motivation and working arrangements, from primary to upper secondary education

Results based on responses of teachers and principals in primary education, lower secondary education and upper secondary education

	Percentage of teachers who reported that teaching being a secure job was of moderate importance or high importance in deciding to become a teacher			Percentage of teachers who reported that teaching being a steady career path was of moderate importance or high importance in deciding to become a teacher			Percentage of teachers with a permanent employment status			Percentage of teachers working full-time (more than 90% of full-time hours) across all teaching jobs[1]		
	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3
Alberta (Canada)		88.0	89.5		89.5	88.4		75.1	85.4		88.4	88.9
Brazil		74.4	71.4		76.5	75.6		79.5	77.9		42.6	46.0
CABA (Argentina)	31.1	29.5		41.0	40.3		75.8	72.4		70.4	58.8	
Croatia		61.1	65.0		59.8	56.8		90.9	92.2		82.1	83.7
Denmark	45.4	43.6	49.7	34.6	32.0	35.1	96.3	96.8	93.3	84.7	87.8	80.1
England (UK)	86.8	86.7		80.5	81.8		90.9	94.4		77.4	82.7	
Flemish Comm. (Belgium)	61.5	62.3		69.3	69.4		83.1	82.0		73.5	72.1	
France	59.4	65.2		67.1	72.4		96.1	92.6		80.2	86.4	
Japan	91.1	85.6		52.1	49.6		77.5	75.3		92.7	90.2	
Korea	91.9	88.2		79.4	74.7		98.6	88.1		97.2	95.3	
Portugal		69.8	64.5		72.1	67.7		73.8	72.1		83.4	81.5
Slovenia		56.3	54.6		52.6	54.0		91.1	91.1		88.0	88.3
Spain	44.0	58.1		53.4	67.1		71.7	66.6		84.8	79.4	
Sweden	71.4	70.2	65.5	51.2	49.8	47.0	92.2	87.6	88.5	85.5	82.5	80.5
Chinese Taipei	94.8	94.4	91.8	96.3	95.9	93.9	72.4	77.0	67.3	94.3	93.8	92.9
Turkey	85.8	84.5	82.2	65.6	65.4	64.7	92.2	89.1	85.6	86.2	81.4	86.9
United Arab Emirates	89.5	88.6	88.5	91.5	92.2	91.3	44.7	39.1	38.4	90.7	91.0	92.8
Viet Nam	91.4	88.2	84.4	98.2	97.7	95.7	94.8	93.9	92.3	71.5	66.3	73.5
TALIS average ISCED 1	72.6	72.7		67.7	68.3		83.6	81.1		83.8	82.1	
TALIS average ISCED 3		74.5	73.4		71.2	70.0		81.3	80.4		80.7	81.4
Australia[a]	81.5	83.1		79.2	79.5		75.9	85.8		73.5	83.9	
Netherlands[a]	29.4	39.2		32.3	40.2		92.4	86.7		33.9	41.2	

Note: A grey cell indicates that the country and economy did not take part in that specific option.
a Participation rate in TALIS 2018 at primary education level is too low to ensure comparability. See Annex A for more information.
1. The employment status across all teaching employments has been assumed to be equal to the employment status at the surveyed school for teachers who: (1) reported to work in only one school; (2) did not report their employment status across all teaching employments; (3) reported their employment status at the surveyed school.
Source: OECD, TALIS 2018 Database, Tables 2.13, 6.1 and 6.4.

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It is important to reflect on the predominance of full-time contracts and the limited presence of part-time working arrangements. Overly rigid contractual arrangements may hamper the flexibility of education systems and schools to adapt to emerging education situations (OECD, 2019[5]; OECD, 2010[6]). Part-time contracts are useful mechanisms employed by schools to respond to fluctuation in the demands for teachers (Nusche et al., 2015[7]). In addition, flexible time arrangements such as part-time contracts might enable attracting new types of profiles into teaching, thereby contributing to diversity in the supply of teachers in terms of their skills and socio-demographic composition (OECD, 2019[8]). This might be of particular relevance in upper secondary education, as more specialised skills might be needed for specific subjects. Indeed, in vocational education and training (VET), teachers bring experience and knowledge of their particular areas of expertise in the labour market (e.g. finance, electronics, computer science, cosmetology, medical assistance). Part-time contracts would make it easier for professionals in these areas to move into the educational field, although such contacts should not come at the expense of teachers' working conditions and teaching skills (OECD, 2021[9]).

Part-time arrangements can be voluntary or involuntary (e.g. due to a lack of full-time job opportunities). Unfortunately, TALIS 2018 does not collect data on the reasons why teachers work under a full-time or part-time arrangement. However a recent study conducted in England (United Kingdom), based on the survey responses of 475 teachers and 19 school leaders in secondary schools, showed that the percentage of teachers expressing a desire to work part-time was double that of the percentage of teachers who actually did it (Sharp et al., 2019[10]). The main limitation for working part-time, according to these teachers, is that it was not a financially sustainable option for them. In addition, school leaders objected to the expansion of this form of employment, as it can present obstacles such as the need to co-ordinate different timetables and work schedules, communications issues and additional costs involved in managing a larger staff. However, the same study found that school principals identified four advantages of offering part-time arrangements: 1) it enabled them to retain effective teachers who might otherwise have left the school; 2) it had a positive impact on staff well-being, leading to improved energy and creativity for the whole staff; 3) it helped to retain specialist expertise and maintain the breadth of the curriculum; and 4) it was an opportunity to reduce costs for subjects that do not need a full-time teacher (for example, due to a reduction on the number of students opting for that subject) (Sharp et al., 2019[10]).

Despite these advantages, part-time work and arrangements need to be assessed carefully, as they can carry penalties in terms of standard of living (when this is not by choice), earnings-related pensions and career progression (OECD, 2010[6]). TALIS 2018 data show that, at the system level, in both primary and upper secondary education, the higher the share of women working part-time the lower the share of women in leadership positions, although the strength of this correlation is weak to moderate. Regarding the implications of part-time work for the development of professional practices, TALIS 2018 finds that, for six countries and economies in primary and upper secondary education, teachers with full-time contracts were more likely to engage in professional learning than teachers with part-time contracts (Tables 6.7 and 6.8). As this evidence is not conclusive, more research should be done on the implication of part-time work for the quality and level of professionalism of teachers' work.

For some education systems, the COVID-19 pandemic led to a proliferation of teacher absences and shortages, due to teachers getting sick or having to isolate due to contact with cases of COVID infection (OECD, 2021[2]). This could have implications for recruitment practices and staff policies. However, such revisions only occurred in a limited set of OECD countries. Results from a recent OECD survey showed that 11 OECD countries in primary education, 8 in lower secondary education and 9 in upper secondary education hired new teachers for school reopening in 2020/21 (OECD, 2021[1]). Of the 28 OECD countries that monitored changes in teacher recruitment and reported having recruited temporary teachers and/or other staff to support students in the context of the pandemic, 8 countries in lower secondary education and 9 in primary and lower secondary education recruited temporary teachers or other staff during the 2019/20 school year to support teachers, and only 4 reported hiring them for the reopening of schools for 2020/21 (OECD, 2021[1]). These preliminary results show that education systems may not have

immediately or necessarily changed their working arrangements during the COVID-19 pandemic, although it will be important to further examine the working stability of teachers and how it will evolve during these challenging times. Indeed, as hybrid learning expands and becomes more common, it will also be important to monitor how the range of teachers' tasks shifts and whether this will translate to specific changes in the number or the type of contracts (permanent or temporary) and their hourly arrangements (full-time or part-time). Particular education sectors, such as early childhood education and care (ECEC), could be susceptible, as private provision is more common and there is less job security and more financial instability for ECEC centres (OECD, 2020[11]).

Policy makers could explore flexible mechanisms to integrate a wider and more diverse set of professionals from the labour market into schools. Part-time arrangements could be negotiated through a reconfiguration of the teaching timetable, along with strategies such as sharing subject specialists with another school. Regarding the possible limitations in accessing leadership that part-time arrangements could involve, it will be important to review the areas of responsibility within schools and to develop a system of distributed leadership based on delegation of tasks, job sharing or deputising roles. On the relevance of maintaining collaboration, it is important to ensure fluid and transparent communication by ensuring part-time teachers have remote access to their school and classrooms through the use of information and communication technology (ICT), such as e-mail, texts messages and virtual meetings. Equally crucial is making part-time teachers feel involved in the school organisation (Sharp et al., 2019[10]).

Ensuring inclusive learning environments

One of the greatest challenges of education systems worldwide is to promote the learning and well-being of all. A fundamental action toward this goal is to develop inclusive classroom environments for increasingly heterogeneous student populations (Brussino, forthcoming[12]). To achieve this, it is important to value diversity as an asset rather than a challenge. Inclusive education refers the capacity of school systems to provide quality education to all students, respecting diversity and the different needs and abilities, characteristics and learning expectations of the students and communities, eliminating all forms of discrimination (Brussino, forthcoming[12]).

The COVID-19 pandemic not only brought existing inequalities to the forefront but also, in some contexts, exacerbated them. Students with disabilities, from socio-economically disadvantaged groups, or from historically disfranchised groups were less likely to be able to access the resources required for digital or hybrid lessons or to keep up with them (UNESCO et al., 2021[13]). In this way, the pandemic might be affecting and holding back concrete efforts by countries and economies to reinforce social linkages and promote diversity as a societal value. As the next stage of the teacher career pathway, concerning development and support in their instruction, catering to inclusive classrooms is an area that warrants special attention.

Evidence from 2020 indicates that less than half of OECD countries reported undertaking special efforts to make online learning more accessible to migrant and displaced children, including those in refugee camps, or designing learning materials for speakers of minority languages. Countries that implemented at least half of these measures from primary to upper secondary education were Belgium (Flemish and French Communities), Chile, Colombia, England (United Kingdom), Estonia, France, Japan, Korea, Latvia, New Zealand, Poland, Portugal, Slovenia, Spain and Turkey. In these countries, such measures were implemented at the primary, lower secondary or upper secondary levels of education (OECD, 2021[2]).

TALIS results prior to the pandemic show that schools were already addressing policies concerning the diversity and inclusion of students. On average across participating countries and economies, around one out of three teachers considered "supporting students from disadvantaged or migrant backgrounds" as a priority area of high interest in both primary education and upper secondary education (Table 1.2). In addition, around half of the teachers in primary education and upper secondary education considered that supporting students with special needs is a priority issue (Table 5.29).

In primary education, of the countries and economies just mentioned, several have already reported a set of policies and practices to foster inclusion in their schools. In England (United Kingdom), France, Korea and Spain, more than 80% of teachers in primary education work in a school where policies addressing ethnic and cultural discrimination have been implemented. In the case of upper secondary education, 80% of teachers in Portugal and Slovenia work in schools with those characteristics. Percentages remain high for other indicators, such as policies supporting activities or organisations encouraging students' expression of diverse ethnic and cultural identities, organising multicultural events and adopting teaching and learning practices that integrate global issues throughout the curriculum (Table 2.26) (Table 1.2). Thus, the policies implemented in 2020 in response to COVID-19 might have been embedded in wider policy traditions of inclusiveness, aiming also for the inclusion of minorities.

Table 1.2. Snapshot: Training and policies to cater to a diverse student population

Results based on responses of teachers and principals in primary education, lower secondary education and upper secondary education

	Percentage of teachers working in a school where teaching how to deal with ethnic and cultural discrimination was implemented[1]			Percentage of teachers who reported the supporting students from disadvantaged or migrant backgrounds was a spending priority of "high importance"			Percentage of teachers for whom teaching in a multicultural or multilingual setting was included in their formal education or training			Percentage of teachers reporting a high level of need for professional development in teaching in a multicultural or multilingual setting		
	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3
Alberta (Canada)		81.9	78.1		24.0	25.1		62.8	61.8		9.6	7.6
Brazil		92.1	84.3		62.0	56.7		41.7	39.8		44.0	46.2
CABA (Argentina)	96.2	95.3		54.8	56.4		38.7	34.8		26.0	24.9	
Croatia		77.3	89.0		43.6	40.5		24.6	22.3		14.3	12.7
Denmark	27.1	26.5	21.8	28.6	22.2	12.3	38.1	36.8	29.9	14.3	10.7	6.2
England (UK)	91.5	94.5		27.1	22.0		71.7	68.3		4.3	4.9	
Flemish Comm. (Belgium)	81.3	86.6		49.8	46.5		40.0	34.0		10.7	8.4	
France	91.3	86.1		m	m		14.4	12.0		20.7	16.7	
Japan	69.7	73.6		23.3	19.9		41.7	27.3		20.5	14.9	
Korea	95.0	89.8		22.6	20.4		46.9	28.8		18.5	14.5	
Portugal		91.7	93.5		48.6	52.0		20.6	22.0		21.6	19.8
Slovenia		92.5	84.4		24.0	25.6		11.9	11.6		14.3	11.4
Spain	89.8	86.4		52.2	49.5		39.0	29.5		18.3	17.6	
Sweden	79.8	81.2	79.4	40.2	35.2	30.7	46.6	40.6	34.8	14.5	14.8	11.5
Chinese Taipei	98.7	94.1	94.4	21.1	23.4	25.3	43.2	43.3	42.1	15.0	12.4	14.0
Turkey	75.8	74.2	67.9	21.5	21.4	18.5	34.8	32.7	28.7	20.5	22.2	23.5
United Arab Emirates	92.6	94.8	93.2	51.5	50.7	49.9	75.8	75.9	74.7	11.0	10.1	9.2
Viet Nam	94.7	88.5	92.2	37.3	31.4	23.4	42.3	43.9	48.7	22.5	19.1	17.0
TALIS average ISCED 1	83.4	82.4		35.8	33.2		44.1	39.1		16.7	14.7	
TALIS average ISCED 3		81.3	79.8		35.1	32.7		39.5	37.9		17.6	16.3
Australia[a]	84.8	76.1		40.8	36.6		59.0	58.7		7.1	7.2	
Netherlands[a]	84.9	83.5		28.2	24.4		44.5	30.3		6.0	3.6	

Note: A grey cell indicate that the country and economy did not take part in that specific option.
[a] Participation rate in TALIS 2018 at primary education level is too low to ensure comparability. See Annex A for more information.
1. The sample is restricted to teachers who teach in schools that include students from "more than one cultural or ethnic background" based on both teachers' and principals' responses.
Source: OECD, TALIS 2018 Database, Tables 2.26, 3.7, 4.24 and 5.29.

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TALIS results showed that even though training is somewhat widespread, there is still a considerable proportion of teachers who reported that they do not feel prepared. In both primary and upper secondary education, almost half of the teachers stated that they had training in teaching in multicultural or multilingual settings. Training in these areas seems to be more widespread in recent years, as a larger share of novice teachers (those with up to five years of experience) reported having had training in this area than more experienced teachers in both primary and upper secondary education (Tables 3.7, 3.8 and 3.9). However, only around a third of teachers reported that they feel prepared for teaching in multicultural or multilingual settings (Table 3.13). Furthermore, despite the training received, teaching students with special needs and teaching in multicultural and multilingual classrooms are still among the areas in which the largest share of teachers (around one out of five) reported training needs in both primary education and upper secondary education (Tables 1.2 and 4.24). The fact that training for "individualised learning" is also an area where teachers reported needs may speak to a need for further guidance for more student-tailored instruction. These results might point to a growing awareness among teaching professionals of the need for training to work in diverse classrooms. It might also reflect a growing diversity in classrooms. Indeed, prior TALIS analysis conducted for lower secondary education showed that for some countries and economies, an increase in the share of teachers reporting a need for training in teaching students with special needs has been accompanied by an increase in the proportion of students with these characteristics in the classroom (OECD, 2019[4]).

Education systems need to keep supporting school principals and teachers and designing school policies and practices that support the learning of all students, respecting their abilities, learning needs and social or cultural origins and to equip teachers to meet this challenge. These policies can include information sessions for students and teachers to raise their awareness about ethnic and/or cultural discrimination, integration of global issues into the curriculum, adoption of concrete teaching practices to support and foster inclusive classrooms, and training of teachers in these areas. A possible solution is to adopt policies to hire teachers from diverse backgrounds and develop short-term preparation programmes for migrant teachers joining the workforce so that the teaching workforce can be more diverse and more closely reflect the diversity of the student body. Fast-track programmes can enable newly arrived teachers to learn about the pedagogical practices specific to the host countries, such as teacher-student interactions and classroom routines and traditions. Teacher training programmes for diverse classrooms are another tool at the disposal of policy makers and school leaders. These training programmes should ideally cover pedagogical approaches for second language learning and support strategies to foster the social integration of students in diverse settings (Cerna, 2019[14]). These initiatives should be also accompanied by efforts to address diversity at its root by getting students with diverse backgrounds into initial teacher education programmes (Brussino, forthcoming[12]). Finally, the need for more student-tailored responses should be met with training addressing teaching students with special needs and schools/systems supporting more holistically the most socially disadvantaged students (e.g. school meals, partnerships with social workers and help with school-based homework when there is no support for this at home).

Several of the countries and economies participating in TALIS have promising policies in place to support more inclusive classrooms. Since 2008, Slovenia has been implementing a comprehensive school-wide programme to support schools and teachers providing instruction to Roma students. Results reported by Council of Europe include attendance of Roma children in educational institutions, improved co-operation between Roma parents and educational institutions, increased awareness among Roma of the importance of learning and education, and more successful co-operation between teaching assistants, teachers and Roma parents in the education of Roma children (for more details see Chapter 2, Box 2.2.).

Promoting the use of digital technologies

The most highlighted issue related to teaching since the beginning of the COVID-19 pandemic has probably been teachers' training for and use of ICT. In addition, as students coming from more socio-economically advantaged backgrounds tend to be allocated to schools with more resources (OECD,

2019[15]), students from disadvantaged backgrounds might not have access to the required ICT resources (e.g. infrastructure, equipment, staff expertise and training) to ensure their continuous learning.

Two out of three OECD countries have supported teachers in their transition to remote teaching by offering content adapted to the specificities of remote teaching (e.g. open educational resources, lesson plans), instructions on distance teaching (e.g. TV, radio, learning platforms), and special ICT professional development activities (e.g. workshops and webinars) on pedagogy and ICT use (OECD, 2021[2]). School reopening will not shift attention away from the needs of teachers to further develop their skills in using digital technology for teaching, as the requirements for hybrid learning are likely to remain widespread in coming years. Spain presents a relevant example on the use of technology during these times through the digital education programme ProFuturo, which provides training courses and educational resources to teachers and students, with more than 160 online training courses and digital resources for teachers focused on the development of their pedagogical and digital skills. In addition, ProFuturo adapted methodologies and content during the pandemic to reach students without access to technology or Internet connectivity, ensuring that no one was left behind (for more details, see Chapter 4, Box 4.3)

Based on pre-pandemic TALIS 2018 data, more than 60% of teachers in both primary and upper secondary education reported having received training in ICT for teaching, and the share of novice teachers reporting receiving such training was significantly higher than the share of experienced teachers (those with more than five years of experience) (Tables 3.7, 3.8, 3.9) (Table 1.3).

Table 1.3. Snapshot: Training and policies for using information and communication technologies

Results based on responses of teachers and principals in primary education, lower secondary education and upper secondary education

	Percentage of teachers who reported that they "frequently" or "always" let students use ICT for projects or class work[1,2,3]			Percentage of teachers who reported that investing in ICT was a spending priority of "high importance"			Percentage of teachers for whom use of ICT for teaching was included in their formal education or training			Percentage of teachers reporting a high level of need for professional development in ICT skills for teaching		
	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3
Alberta (Canada)		65.7	69.4		22.1	15.9		70.5	71.0		8.4	8.0
Brazil		41.6	50.6		73.2	69.7		64.4	63.8		27.0	26.8
CABA (Argentina)	53.2	64.0		54.0	64.2		50.9	52.9		24.5	19.6	
Croatia		46.2	50.7		48.5	48.7		47.3	45.3		26.2	20.8
Denmark	58.3	90.4	83.0	16.7	15.3	4.9	41.3	46.7	57.6	14.3	11.2	8.0
England (UK)	42.4	41.3		30.5	25.7		79.1	74.7		8.3	5.3	
Flemish Comm. (Belgium)	38.6	37.8		50.1	47.6		49.4	56.5		15.1	9.4	
France	14.5	36.1		m	m		52.6	50.9		34.6	22.9	
Japan	24.4	17.9		22.4	22.6		69.8	60.2		38.8	39.0	
Korea	28.3	29.6		20.1	22.8		83.5	59.0		21.2	21.0	
Portugal		56.8	69.8		38.2	36.9		46.9	47.7		12.0	11.8
Slovenia		36.5	43.2		20.4	22.3		53.0	43.7		8.5	11.5
Spain	42.0	51.4		47.8	37.9		48.9	38.0		22.1	15.0	
Sweden	50.6	63.3	68.7	26.2	17.6	10.5	40.3	36.7	42.0	25.0	22.2	14.8
Chinese Taipei	16.5	14.7	24.5	27.7	28.7	30.3	57.7	59.2	56.4	23.3	24.2	24.4
Turkey	56.8	66.6	67.9	51.2	48.1	41.2	75.4	74.4	68.0	7.7	7.5	7.4
United Arab Emirates	68.1	76.8	80.8	57.2	56.0	57.9	86.2	86.5	85.0	11.0	9.6	9.1
Viet Nam	22.8	42.8	53.4	41.8	47.1	42.0	93.8	96.6	94.6	55.8	55.5	51.4

	Percentage of teachers who reported that they "frequently" or "always" let students use ICT for projects or class work[1,2,3]			Percentage of teachers who reported that investing in ICT was a spending priority of "high importance"			Percentage of teachers for whom use of ICT for teaching was included in their formal education or training			Percentage of teachers reporting a high level of need for professional development in ICT skills for teaching		
	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3
TALIS average ISCED 1	39.7	48.7		37.1	36.1		63.8	60.9		23.2	20.2	
TALIS average ISCED 3		54.7	60.2		37.8	34.6		62.0	61.4		19.3	17.6
Australia[a]	61.6	78.2		45.2	32.3		58.7	64.7		17.9	11.4	
Netherlands[a]	67.8	51.3		40.8	28.4		48.2	49.2		17.3	16.0	

Note: a grey cell indicates that the country and economy did not take part in that specific option.
[a] Participation rate in TALIS 2018 at primary education level is too low to ensure comparability. See Annex A for more information.
1. The analysis is restricted to teachers reporting that their teaching in the target class is not directed entirely or mainly at students with special needs.
2. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.
3. ICT: Information and communication technology.
Source: OECD, TALIS 2018 Database, Tables 3.7, 3.31, 4.23 and 5.29.

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That being said, the use of ICT in classrooms seems to be more frequent in upper secondary education than in primary education. On average for those countries and economies with data available, 60% of teachers in upper secondary reported that they "frequently" or "always" use ICT in their classroom, compared to 40% at the primary level (Table 3.31). Similarly, it is possible to identify that there seems to be a higher share of teachers in upper secondary who feel prepared to use ICT in their instruction (Table 3.13). The proportion of teachers reporting a need for training in ICT is relatively similar in primary and upper secondary, with a slightly higher share in primary education. More exploration is needed to better understand why the need for training is apparently lower in primary education than in upper secondary, as it might be due to differences in the socio-demographic profile of teachers (e.g. age, experience) or to the type of training they received. These results should be interpreted carefully, as the groups of countries and economies behind these averages are different for primary and upper secondary education (Table 1.3).

It is important to note that TALIS results reflect teachers' use of digital technology in regular classroom practice, among other pedagogical tools for instruction. The pandemic has brought about a major shift by making digital technology the primary tool for delivering instruction. This has fundamentally changed the way teachers are using ICT during the pandemic and raised the importance of the skills they need to use ICT for everyday instruction.

The use of technology in teaching not only relies on the development of digital skills of qualified and knowledgeable professionals but also on the availability of adequate infrastructure and resources. In this respect, TALIS 2018 showed that, prior to the pandemic, one out of three teachers in primary and upper secondary education considered that investment in ICT should be a spending priority (Table 5.29). This could indicate a need for additional resources (Table 1.3). This assessment was also confirmed by principals, with around one out of four principals in primary education and upper secondary education stating that the quality of instruction was hindered in their school by a shortage or inadequacy of digital technology for instruction or insufficient Internet access (Table 5.28).

Right now, there is little question that we are entering a period where the pedagogical use of technology will be paramount. In this process, it will be important keep in mind that technology should be seen as a

tool to improve student learning rather than an end in itself. Effective allocation of resources, and appropriate training are needed to reinforce this and prioritise the pedagogical goal of implementing technology in school settings. Teachers are also the key source for information in understanding and detecting when ICT becomes a bridge to knowledge or when it creates increased social learning gaps between students.

Policy makers must be receptive to exploring innovative forms of ICT that are particularly tailored to advance students' learning. For example, the use of tools such as robots, virtual reality, augmented reality and simulators allows teachers to develop students' vocational skills while also fostering their digital and soft skills. These technologies are likely to become more common in VET in the years to come, as they have advantages in terms of flexibility, cost and safety (OECD, 2021[16]).[5]

In terms of resources, it is important to acknowledge that not all contexts, schools or students have equal access to the required technology for instruction and can devise strategies to address this issue. Thus, it is important to have a broad view of the different technologies (not only digital) that can facilitate learning (e.g. also tapping into the potential of radio and TV/video). In terms of training, approaches should reflect how technology could be used to amplify great teaching and empower teachers to become better instructors. To build teachers' competencies in using technology in the classroom, it would be important for professional learning to move beyond just helping teachers acquire the tools and skills to master certain technological competencies to working collaboratively to find ways to tailor technology to specific subjects and specific activities within those subjects.

Previous TALIS 2018 data revealed an important generational divide between novice and experienced teachers in their sense of preparedness to use ICT in their classrooms (OECD, 2019[4]). Rather than being an obstacle, this situation could transform into an opportunity by having teachers more knowledgeable in using technology mentor teachers who have more experience in teaching but maybe less knowledge in ICT. Schools are unique intergenerational hubs, and the increased reliance on digital tools in teaching brought about by the COVID pandemic offers a unique opportunity for individuals of different generations to learn from one another and collaborate in tackling these challenges. Moreover, this peer mentoring could go beyond just relations between teachers by also incorporating students into the discussion. For this type of collaboration to work, it is crucial to adopt a perspective of schools as learning organisations that models learning within a school as an important aspect of promoting the continuous improvement of teachers under the joint leadership of both the principal and the teachers (Kools and Stoll, 2016[17]).

Fostering teachers' well-being

The last stage of the teacher career pathway concerns building and improving working conditions to retain effective teachers. Teaching professionals' routines were disturbed, disrupted and reconfigured nearly overnight due to the school closures and remote learning imposed by the COVID-19 pandemic. In a very short period of time, teachers have had to, among other crucial tasks, adapt classes from a physical to a virtual setting, work extra hours and provide emotional support for students. However, one potential positive aspect of the crisis is that teachers may have gained more recognition for the fundamental and irreplaceable work they do. It is important that this recognition be transformed into concrete actions to boost the overall prestige of the teaching profession. According to pre-pandemic results from TALIS 2018, only around one out of three teachers in both primary and upper secondary education considered that they are valued by society (Table 2.18) (Table 1.4).

Table 1.4. Snapshot: Teachers' work satisfaction and well-being, from primary to upper secondary education

Results based on responses of teachers and principals in primary education, lower secondary education and upper secondary education

	Percentage of teachers who, all in all, are satisfied with their job			Percentage of teachers who "agree" or "strongly agree" that the teaching profession is valued in society			Percentage of teachers reporting that experiencing stress in their work occurs "a lot"			Percentage of teachers who want to leave teaching within the next five years		
	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3	ISCED level 1	ISCED level 2	ISCED level 3
Alberta (Canada)		92.7	94.4		62.7	55.1		26.3	25.8		16.7	21.5
Brazil		87.4	85.4		11.4	11.1		13.6	13.0		22.3	22.2
CABA (Argentina)	96.0	96.1		6.5	8.6		15.8	8.2		23.2	24.6	
Croatia		90.6	89.8		9.2	10.9		7.4	7.6		21.0	26.5
Denmark	84.8	89.2	89.1	18.5	18.5	38.2	17.2	14.5	17.3	26.0	25.9	25.6
England (UK)	83.6	77.5		33.7	28.8		31.1	38.2		22.9	28.9	
Flemish Comm. (Belgium)	92.5	92.9		30.8	25.8		30.6	26.6		15.4	16.6	
France	85.7	84.7		4.2	6.6		12.7	10.9		16.5	17.7	
Japan	86.1	81.8		37.1	34.4		19.6	19.6		24.4	25.0	
Korea	90.1	89.1		60.1	67.0		16.1	17.9		14.2	23.8	
Portugal		92.1	94.0		9.1	13.9		34.8	29.8		10.8	15.9
Slovenia		89.8	90.8		5.6	9.8		16.4	11.9		27.1	25.3
Spain	97.9	95.7		12.3	14.1		11.8	10.8		16.6	17.7	
Sweden	92.9	90.3	91.3	10.9	10.7	13.8	17.4	17.1	16.3	28.9	34.7	33.7
Chinese Taipei	88.5	87.3	86.5	52.8	55.4	59.0	9.4	10.3	13.9	23.0	20.9	23.8
Turkey	88.9	89.2	88.0	26.7	26.0	30.0	6.5	6.7	5.9	24.1	13.5	22.8
United Arab Emirates	89.1	88.7	89.1	74.6	71.6	71.1	29.1	27.5	24.6	29.5	28.8	29.4
Viet Nam	98.1	96.4	95.5	95.1	92.3	91.4	4.2	3.8	3.4	14.7	10.9	6.0
TALIS average ISCED 1	90.3	89.1		35.6	35.4		17.0	16.3		21.5	22.2	
TALIS average ISCED 3		90.3	90.4		33.9	36.8		16.2	15.4		21.1	23.0
Australia[a]	91.4	90.0		41.8	44.7		24.6	24.3		22.8	21.7	
Netherlands[a]	91.1	93.9		33.0	30.7		11.8	10.0		22.6	20.1	

Note: A grey cell indicates that the country and economy did not take part in that specific option.
[a] Participation rate in TALIS 2018 at primary education level is too low to ensure comparability. See Annex A for more information.
Source: OECD, TALIS 2018 Database, Tables 2.18, 6.16, 6.24 and 6.34.

StatLink https://stat.link/awt7os

Despite the low share of teachers reporting they feel valued by society, teachers are highly satisfied with their work. In 2018, more than 90% of teachers in both primary and upper secondary education stated that they are satisfied with their working conditions and profession (Table 6.16) (Table 1.4). However, in both primary and upper secondary education, only around 40% of teachers stated that they are satisfied with their salaries, and 60% of teachers reported that they are satisfied with their contractual arrangements (Table 6.19). Regression results showed that the levels of satisfaction with the terms of employment have a significant association with intentions to leave teaching in the next five years. In three-quarters of the countries and economies taking part in the TALIS 2018 primary education and upper secondary education surveys, teachers satisfied with their terms of employment were less likely to state they would like to leave

teaching within the next five years (Tables 6.39 and 6.40).[6] The results point to the need to provide good working environments and conditions for teachers, beyond the financial rewards.

Behind the satisfaction with terms of employment, total working hours play a predominant role, since they are a significant predictor of satisfaction for almost all countries and economies in both primary and upper secondary education. The higher the number of working hours reported by teachers, the less likely they are to state that they are satisfied with the terms of their employment (Tables 6.22 and 6.23).

Although the share of teachers reporting satisfaction with their work and profession is high, that does not mean they are exempt from stress. Indeed, in both primary and upper secondary education, more than 15% of teachers consider that they experience stress a lot in their work (Table 6.24) (Table 1.4). Working hours, especially the hours devoted to marking, is the variable showing a significant association with stress in the majority of countries and economies in both primary and upper secondary education (Tables 6.27 and 6.28). Stress levels is the indicator showing a significant association with the intention to leave teaching within the next five years in most countries and economies in both primary and upper secondary education, even if this relationship is controlled by satisfaction with salaries, terms of employment and collaboration (Tables 6.39 and 6.40).

The sources of stress tend to vary significantly across levels, as reported by teachers. In primary education, “having too much administrative work”, “being held responsible for students' achievement”, “addressing parent or guardian concerns” and “keeping up with changing requirements from local, municipal/regional, state or national/federal authorities” were the sources of stress that concentrated the largest share of teachers. In upper secondary education, the sources of stress reported by the largest share of teachers were “being held responsible for students' achievement”, “having too much marking” and “having too much administrative work”. Compared to lower secondary education, a higher share of teachers in primary education reported “having too much administrative work”, “being held responsible for students’ achievement” and “modifying lessons for students with special needs” as sources of stress. A higher share of teachers in upper secondary education reported “maintaining classroom discipline” and “addressing parent or guardian concerns” as sources of stress than in lower secondary education (Tables 6.29 and 6.30).

The results on sources of stress seem to suggest that workload is an important factor for the overall well-being of teachers. Some of the responses to the COVID-19 pandemic from countries and economies could indirectly or directly address the issues, such as diminishing class sizes (Denmark, Spain), increasing the number of teachers in schools (Portugal, Spain, Turkey) and increasing teachers’ salaries (Slovenia)[7] (OECD, 2021[2]). A particular case of interest is Japan, where human resources were reinforced for schools that were dividing classes for staggered attendance. Additional teachers enabled multiple smaller classes to run among students in the final years of primary and lower secondary education so they could receive a sufficient amount of in-person teaching (for more details see Chapter 6, Box 6.1).

Since one of the main sources of work stress reported by teachers for both levels is working hours, that issue deserves scrutiny. Teachers balance multiple responsibilities across a regular school day, ranging from instruction to planning, marking, training, counselling, etc. A crucial strategy to create balance in teachers’ work is to allow support staff to take on some of teachers’ non-essential tasks. Table A B.5 in Annex B shows that countries and economies differ considerably in the allocation of support staff across schools. A staffing strategy based on identifying problems and allocating resources per school could be an effective mechanism for reducing teacher workload and associated stress.

In terms of the hours devoted to marking, this is a crucial task for teaching, and delegating this type of task could take teachers down a slippery slope towards deprofessionalisation. Indeed, the recent TALIS-PISA link report (OECD, 2021[18]) shows that time spent on marking is positively associated with students’ performance. The processes explaining the relation between marking and student achievement are complex and possibly driven by teachers’ ability to provide good and pertinent feedback. Indeed these might reflect stronger academic pressure and emphasis on assessment in high-performing schools,

without necessarily indicating a causal impact from assessment time to student performance. However, moving beyond this association, the results also showed that marking is an important stressor for teachers. One alternative could be to make the marking process more efficient by, for example, by automating the mechanical summative part of the evaluation through technology so that teachers can focus on the formative and feedback-driven side of the assessment.

An important consideration when examining the well-being of teachers is that there appears to be a gender divide. Among both primary and teachers in upper secondary, a higher share of female teachers than male teachers expressed experiencing a lot of stress in their work and wanting to leave teaching within the next five years for the larger share of countries and economies (Tables 6.25, 6.26, 6.35 and 6.36). In addition, a lower share of female teachers than male teachers stated that they feel valued in society, although this share is higher in upper secondary education (Tables 2.19 and 2.20). More in-depth analyses are warranted to have a better understanding of why female teachers feel more stress than their male colleagues. This might be attributed to differences in working conditions, but also to factors outside of work, such as greater demands on the home and parenting fronts for some female teachers compared to their male colleagues. Since female teachers constitute the majority of the workforce at every level of education, it is crucial to identify which of the female workers are showing symptoms of ill-being.

Opportunities and challenges in primary education

Programmes at ISCED level 1 (primary education) are typically designed to provide students with fundamental skills in reading, writing and mathematics (i.e. literacy and numeracy) and to establish a solid foundation for learning and understanding core areas of knowledge, personal and social development in preparation for lower secondary education. They focus on learning at a basic level of complexity with little, if any, specialisation. Educational activities in primary education (particularly in the early grades) are frequently organised around units, projects or broad learning areas, often with an integrated approach rather than providing instruction in specific subjects (OECD, 2015[19]). Beyond the more established "academic" objectives, primary education also has an important role to play to help students build foundations for learning. It does so by teaching basic knowledge and skills, as well as a wide range of social and emotional skills including "learning to learn" (i.e. acquisition of the skills to create the condition for students to structure their own learning procedures) and collaboration and co-operation with other students. A total of 15 countries and economies took part in the TALIS 2018 survey for primary education, from which data are reported for only 13 (see Note 3 for details).

The usual entry age for primary education is between five and seven and it has a typical duration of six years. For the countries and economies that participated in the TALIS primary education study, the entry age is usually six (see Table A B.3). As children may be less independent at these young ages, the role of teachers and the relationship they have with students and parents or caregivers might be different from the role teachers usually play in lower or upper secondary education. In many countries and economies, primary school teachers are often subject generalists who teach all subjects to their students and, thus, might be required to be knowledgeable about the content and pedagogy for subjects as diverse as literacy, the sciences and the arts. The kind of teaching required in primary schools is different from that in other levels of education, and hence the teaching and assessment practices employed might also be different from those at other levels. In addition, the pandemic might have introduced extra challenges for teachers in primary education as subject generalists, given that they need to find digital pedagogical solutions across a broader range of fields than specialist teachers.

The next section presents an overview of recommendations based on the findings that were considered the main and most distinctive for primary education. In summary, these are:

- fostering a gender-diverse teaching workforce
- creating opportunities for training in facilitating transitions

- promoting teachers' participation in induction and mentoring activities
- catering to students with special needs
- strengthening teachers' resilience and efficiency for classroom management.

Fostering gender diversity in the primary teaching workforce

Linking back to the first stage of the teacher career pathway concerning attracting teachers, the gender composition of the teaching workforce has long been a topic of concern in education policy. From a labour-integration perspective, teaching has been a venue for women to integrate into the workforce (OECD, 2018[20]). Regarding pedagogical processes themselves, evidence shows that the socio-demographic composition of the teaching workforce may have an impact on development of role models for students (OECD, 2020[21]). In particular, it can contribute to promoting positive gender identities and challenging gender stereotypes (Brussino, forthcoming[12]). Recent conversations have advocated for more involvement of male teachers in the profession to create a wider spectrum of role models for students. This situation seems to be particularly acute in primary education, as the proportion of female teachers is significantly higher than in other levels.

Compared to higher levels of education, we find the largest share of female teachers in primary education (OECD, 2020[21]). TALIS 2018 data shows that female teachers represent over three-quarters of the primary teaching workforce (TALIS average of 78% in primary education, compared to 63% in lower secondary education). In 6 out of 13 countries and economies with available data, over 80% of teachers in primary education are female (Table 2.9). The data analysed in this volume show that, in the majority of countries and economies (8 out of 13), the share of female teachers is similar among novice teachers and experienced teachers. This suggests that no strong changes in the gender composition have taken place in recent years in most of these contexts (Table 2.10).

Social and historical factors help to explain this phenomenon, including the perceived traditional roles of women in society, inequities in women's access to education and labour markets, as well as persistent wage gaps compared to men in many sectors. These factors together have traditionally encouraged women to search for positions as teachers (Elacqua et al., 2017[22]). Despite this, women are increasingly finding other careers open to them, and their occupational aspirations are changing. Data from THE Programme for International Student Assessment (PISA) 2018 show that the career aspirations of girls have changed between 2000 and 2018. While the teaching profession remains highly attractive, it is no longer the most cited occupation by 15-year-old girls. It has been replaced by a preference to enter the medical profession (Schleicher, 2020[23]).

Likewise, it has been argued that, in some contexts, teachers' gender may have an association with students' attitudes towards learning and also with their career aspirations, where teachers can have an influence on the motivations and performances of same-gender students (Beilock et al., 2010[24]; Lim and Meer, 2017[25]; OECD, 2021[18]; OECD, 2019[4]). TALIS data have been analysed together with PISA data on the performance of 15-year-old boys and girls in reading, mathematics and science (OECD, 2021[18]). These analyses have shown that, in some countries and economies, teachers may influence the academic performance of same-gender students by acting as role models. Student performance tends to change in favour of girls as the share of female teachers increases in the school, while boys' performance in all subjects improves compared to that of girls when the share of male teachers increases (OECD, 2021[18]).

These facts show the relevance for policy makers to address gender composition in primary education. In particular, depending on the type of job targeted, it may be helpful to consider designing recruitment campaigns that are not gender blind, emphasising that men can achieve professional growth as teachers and women as school leaders (OECD, 2019[4]).

Interestingly, primary education is the sole level that has reached a more balanced gender distribution when it comes to principals' positions, as 53% are female (16 percentage points higher than in lower

secondary education) (Table 2.12). However, this might just be a reflection of the gender composition of the teaching workforce at the primary level. Findings have demonstrated that school leaders are recruited among teachers. As the proportion of female teachers is higher in primary education than in lower secondary education, it stands to reason that the proportion of school leaders is higher in primary than in lower secondary education. While this shows that strong inequities remain in the career progression of women in primary education, it does suggest that this education level may have started to transition into a more gender-balanced workforce. Thus, countries and economies should also engage in research to better understand the factors underlying differential recruitment of male and female candidates into teaching. Research on the differential progression of male and female teachers towards leadership roles is also warranted, as well as policies to overcome any barriers identified to career progression for female teachers.

Creating more training opportunities in play-based learning and facilitating student transitions between pre-primary and primary

In terms of child development, primary education represents the first step to more structured forms of schooling with a greater emphasis on academic responsibility (Shuey et al., 2019[26]). Indeed, in looking at the definitions set out in *Education at Glance 2017: OECD Indicators* (OECD, 2017[27]), pre-primary education (ISCED 0) could be defined as aiming to develop the cognitive, physical and socio-emotional skills necessary for participation in school and society, while primary education is defined as aiming to provide a sound basic education in reading, writing and mathematics and a basic understanding of some other subjects.

As a result, strategies predominant in pre-primary education, such as the use of play, are typically discontinued or reduced in primary education (OECD, 2017[28]). However, some of the aspects embedded in play-based pedagogies, such as effective balances between teacher-centred and student-centred activities and warm and responsive staff-child interactions, are as pertinent for primary education as they are for pre-primary education. In broader terms, facilitating transitions from pre-primary to primary education has become a crucial consideration for the primary education level, as demonstrated by growing initiatives worldwide seeking to align the curriculum between these two levels (Shuey et al., 2019[26]). This alignment has implications for the children's long-term learning and well-being outcomes. Transitions from pre-primary education are a crucial milestone for students, as primary education marks the beginning of formal classroom learning, which is different in many respects from the learning environment of students in early childhood education. The role played by teachers during this transition transcends academic learning and extends to the social and emotional learning of young students.

In relation to the next stage of the teacher career pathway, developing teachers' skills, the alignment or continuation of strategies between pre-primary and primary education can be often interrupted by the training received by teachers in primary education (Shuey et al., 2019[26]). TALIS is able to capture these forms of training by asking teachers whether they received training and how well prepared they feel in play-based learning and facilitating transitions (Elacqua et al., 2017[22]).

TALIS results highlight the need for education systems to improve both pre-service and in-service training opportunities on facilitating transitions and play-based learning. Less than half of the teaching workforce (46%) in primary education reported that they had received formal training in facilitating transitions from early childhood education to primary education, and an even lower share (38%) reported that they feel well prepared in this aspect (Table 3.10). Of all the areas surveyed, training in transitions was one of only two areas (along with training in teaching in multicultural and multilingual environments) where less than half of teachers reported receiving training. In contrast, more than 90% of teachers reported receiving training in their subject content and/or pedagogy, and more than 70% reported receiving training in teaching in mixed-ability settings and teaching cross-curricular skills (Table 3.7). Training in play-based learning is somewhat more prevalent, as 67% of teachers on average across the participating countries and economies reported receiving training in this area, although a smaller share (57%) reported feeling well

prepared in this area (Table 3.10). The share of teachers reporting training in this area is similar to the share of teachers who reported receiving training in the use of ICT for teaching (Table 3.7).

Further analyses showed that the implementation of cognitive stimulation practices (instructional activities that require students to evaluate, integrate and apply knowledge within the context of problem solving) was more frequent among the share of teachers that had training in facilitating playing than among those who did not. The results might indicate that training in this area might also provide teachers with elements promoting activities for the cognitive stimulation of the children. This link makes sense, as both cognitive practices and play-based training share a student-centred approach (Echazarra et al., 2016[29]). The results could also reflect teachers' more general pedagogical knowledge and selecting from among a range of pedagogic approaches, of which play-based learning would be one strategy (Table 3.32).

As next steps, policy makers need to assess what role primary education should play in regard to the continuous development of children. General training in transitions may have a strong focus in trying to help children to assimilate to the more formal structure of school, while a focus on introducing play in primary education can ease the children's adaptation. Although TALIS does not have further information on the type of content provided in the training for transition, just the low share of teachers who have taken part in these activities demonstrates a need to introduce content on facilitating transitions and play-based learning in formal training and competency frameworks. Policy makers, school leaders and teachers also need to reflect on the effectiveness of existing training modules on this topic so that teachers build the necessary skills in this area. While pre-service learning in this area is essential for new teaching candidates, the skill set of the current workforce in these areas should be improved through in-service training. Training opportunities could include collaborative spaces and guidance on collaboration between teachers and parents, learning modules on forming meaningful relationships with students and pedagogical guidance on play materials (Nilsen, 2021[30]; Skouteris, Watson and Lum, 2012[31]). Targeted support could be offered to teachers, especially those teaching in the early grades of primary education. Collaborative spaces, such as professional learning communities, could benefit teachers who teach the youngest age groups.

Promoting teachers' participation in induction activities

Teachers in primary education' participation in induction activities is limited. On average across the participating countries and economies, about 42% of teachers took part in induction during their first employment, 34% of teachers took part in induction activities at their current school, whereas 41% did not participate in any induction activities (Table 4.4). Moreover, TALIS data show that, in primary education, novice teachers are more exposed to induction activities in their current school than experienced teachers in 10 of 13 countries and economies (Table 4.5). Compared to lower secondary education, teachers' participation in induction programmes in primary education is lower by 3 percentage points, on average across the 13 countries and economies with available and comparable data for these two levels (Table 4.4).

Although it could be expected that induction programmes be particularly targeted to novice teachers, they can also be positive for experienced teachers who can benefit from these programmes when starting a position in a new school. This is the case among teachers in primary education, as TALIS 2018 data suggest that teachers have spent only half of their work experience in the school where they are currently employed (8 years out of 16) (Table 2.5). While the high mobility of teachers is due to systematic teacher rotations in some countries and economies (e.g. Japan), in others, teacher mobility may depend on other factors, including working conditions. Research suggests that when those conditions include good administrative support and good peer collaboration, teacher retention in schools is higher (Allensworth, Ponisciak and Mazzeo, 2009[32]).

Regarding the type of induction activities teachers engage in, the largest share of teachers (over 70%) declared engaging in training based on courses/seminars attended in person, planned meetings with their

principal and/or experienced teachers and team-teaching with experienced teachers. Regarding the latter, a significantly higher share of teachers in primary education engage in team-teaching with experienced teachers in primary education than in lower secondary education (56% in primary education compared to 49% in lower secondary), which may suggest a particular emphasis on collaboration in primary education. In addition, further analyses are warranted to determine induction activities that may be more suitable for novice teachers or for experienced teachers starting in a new school (Table 4.7). Thus, induction may help both novice and experienced teachers to get support, become familiar with the school's working environment and better collaborate with their colleagues.

Due to the COVID-19 pandemic, for many there is no longer a physical setting where teachers new to the profession or the school have the chance to adapt and get used to their new settings. Hybrid instruction will require strong flexibility and innovation for teacher interaction, collaboration and learning in their new jobs (OECD, 2020[33]). Much attention should be focused on professionals who have started a new position in recent years, as novice teachers are particularly at risk of burnout and attrition. The silver lining shown by TALIS 2018 data is that teachers in primary education already engage in such forms of exchange, as at least a quarter of teachers in primary education reported engaging in online courses and seminars (29%) and online activities (25%) (Table 4.7). Education systems are encouraged to further explore these technological opportunities to promote induction and training among the teacher population.

Catering to students with special needs

Policies promoting the inclusion of students with special needs have helped increase the presence of children with special needs in mainstream schools in several countries and economies (OECD, 2019[4]). Across countries and economies, 27% of teachers in primary education work in schools with at least 10% of students with special needs. In some education systems, more than 50% of teachers work in schools with at least 10% of students with special needs (Table 2.24).[8]

Prior TALIS 2018 analysis conducted with trend data in lower secondary education suggest that the reported increase of students with special needs has influenced the need for staff with different sets of skills and training in some of the participating countries and economies (OECD, 2019[8]). Regarding primary education, TALIS 2018 data show that a third of principals reported that shortages of teachers with competence in teaching students with special needs hinder the school's capacity to provide quality instruction (34%) (Table 5.27). Likewise, on average, more than half (57%) of teachers in primary education consider supporting students with special needs a high spending priority (Table 5.29). This is a significantly less relevant topic for teachers in lower secondary education (a difference of 10 percentage points) (Table 5.29).

While countries and economies may differ in how and when special needs are diagnosed, teachers at lower levels of education are often more likely to report higher proportions of students with special needs in their classrooms (OECD, 2014[34]). Plausible causes include the following:

- In primary schools, there is usually only one generalist teacher per class who is able to spend more time with each student and thus able to detect learning impediments, while these diagnoses are harder to conduct at higher levels because there are multiple subject teachers, each spending less time with particular students.
- By the time students get to higher education levels they have taken different pathways that are more adapted to their skills and interests.
- Upper secondary education is non-compulsory in several countries, and children with special needs often have left the "traditional" pathways by the time they reach this level.
- By the time students have reached lower or upper secondary education, they have acquired coping strategies to manage their special needs, which can make them less visible in some cases.

However, this is a pressing issue, as TALIS 2018 findings show that 37% of teachers in primary education reported that modifying lessons for students with special needs is a source of stress, compared to 29% of teachers in lower secondary education (Table 6.30). Not surprisingly, this is a also pressing issue for professional development. Furthermore, 28% of teachers in primary education reported teaching students with special needs as an area of high need for professional development, compared to 22% of teachers in lower secondary education. All these elements point to the fact that catering to students with special needs is an issue of particular relevance for primary education (Table 4.24).

While this shows the strong pressure that special needs education poses on primary education across countries and economies, it also calls for actions that focus on equipping teachers to provide adequate support to students with special needs. This is especially true when facing situations that require social distancing, as with the COVID-19 pandemic. In situations where school attendance may be limited, it is of great importance to pay special attention to children with special needs. Education services may need to co-ordinate with other health and social services to provide holistic support and to increase effective resource allocations (OECD, 2020[33]).

Strengthening teachers' skills and efficiency in classroom management

A key challenge encountered by teachers in primary education is managing classroom behaviour and disciplinary issues. Teachers spend a great deal of time and effort on behaviour management, given the young student age group they teach. This not only affects the time that teachers spend on teaching and learning, but also has a bearing on teachers' stress levels.

Education systems could support teachers to develop the necessary skills and efficiency in order to give students at the primary level a strong foundational learning experience as well as build a professional workforce over the years. Training in classroom management before entering teaching, as well as in the beginning years through in-service support such as induction, can help teachers improve their skills in this area and manage their stress in the long run (Dicke et al., 2015[35]).

TALIS 2018 data show that teachers in primary education face a range of issues related to classroom management and student discipline. Generally they spend more time engaging with students to keep order in the classroom (16% of lesson time, on average) than their lower secondary peers (14% of lesson time, on average) (Table 3.26), and about 41% of teachers in primary education reported that maintaining classroom discipline is a source of stress (Table 6.30). Box 1.1 shows how the time spent in keeping order in the classroom diminishes in higher levels of education.

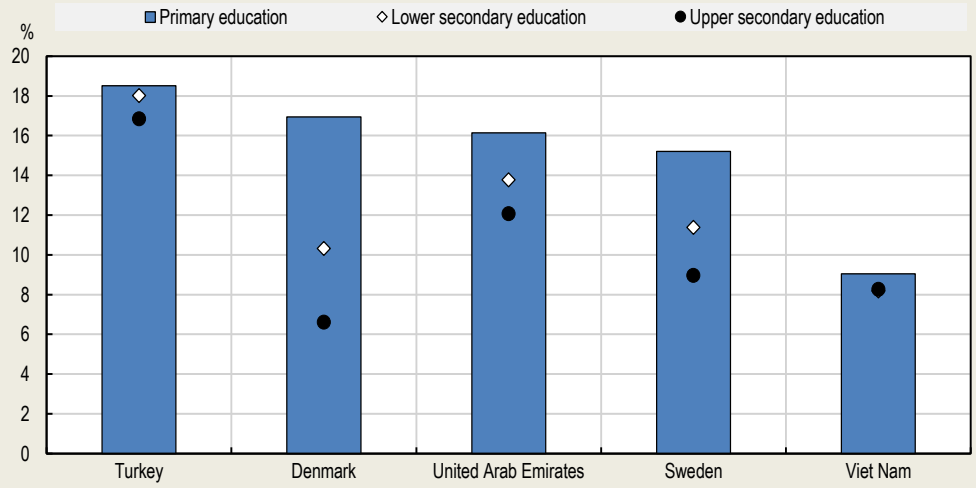
Box 1.1. Keeping order in the classroom, from primary to upper secondary education

TALIS 2018 shows that keeping order in the classroom might be a situation that is particularly acute in primary education. Comparisons across the three levels of education can be complex, since the same countries and economies did not participate in the study across the levels. Only five countries have available data for all three levels of education (Denmark, Sweden, Turkey, the United Arab Emirates and Viet Nam). That being said, the information drawn from the five countries with available data shows that the higher the level of education, the lower the proportion of time teachers spend in keeping order in the classroom (Figure 1.1).

Why is it possible to observe differences across the three different levels? The answers can range from class sizes (i.e. class sizes tend to be smaller in higher levels of education), to teachers' training (i.e. teachers feel more prepared in classroom management in higher levels of education). Examination using gap decomposition analysis found that differences in teachers' experience and working conditions could explain some of the differences in the total amount of time spent on actual instruction.

Figure 1.1. Average proportion of time teachers report spending on keeping order in the classroom, from primary to upper secondary education

Results based on responses of teachers in primary education, lower secondary education and upper secondary education



Note: These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.
Countries and economies are ranked in descending order of the average time teachers in primary education spent in keeping order in the classroom.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/w0e8g5

Source: OECD, TALIS 2018 Database.

Prior TALIS analysis conducted in lower secondary education showed that self-efficacy in instruction is strong predictor of time spent on keeping order in the classroom. The more teachers believe in their classroom management capabilities, the less class time they spend on keeping order (OECD, 2019[4]). One effective manner to build teachers' sense of confidence is through school support and training, such as mentoring. However, data show that, on average across countries and economies, only 12% of teachers in primary education reported having an assigned mentor and 13% reported that they are a mentor to one or more teachers (Table 4.8). While the proportion is higher among novice teachers, as expected, on average only about one-quarter of them have an assigned mentor (26%) (Table 4.9). Clinical experiences, where teachers can explore such strategies, could also facilitate their acquisition of related skills (Cheng, Cheng and Tang, 2010[36]). Teachers should be trained in the use of these practices, be aware of their importance, feel able to use them and enjoy the conditions to actually implement them. Overall, the course of action should be strengthening policies to help teachers better manage and cope with classroom management, such as providing in-service and continuous training on classroom management, collaboration and mentoring to learn from experiences of other teachers.

Opportunities and challenges in upper secondary education

Programmes at ISCED level 3 (upper secondary education) are typically designed to complete secondary education in preparation for tertiary education or to provide skills relevant to employment (or both).

Instruction at this level is more often organised along subject-matter lines than at lower levels of education. The programmes are more differentiated, with an increased range of options and streams available. Teachers are often highly qualified in the subjects they teach, particularly in the higher grades (OECD, 2015[37]). In TALIS 2018, 11 countries and economies participated in the upper secondary module of the survey (i.e. teachers and principals working at the upper secondary level completed the survey).

The typical age at which students enter in upper secondary education is 14 to 16, which implies that teachers at this level interact and manage students of a higher age group, who are at the peak of their teenage years. Vocational education and training constitutes an important element in upper secondary education, as it plays an significant role in ensuring alignment between education and work (OECD, 2020[21]). From the countries and economies participating in the upper secondary education survey, almost 16% of teachers reported teaching practical and vocational skills the year of the survey (Table 3.24). Due to the practical orientation of these programmes, VET courses were particularly affected by the school closures of 2020, although many systems were able to find partial solutions through the use of digital tools (OECD, 2021[9]).

This section provides a list of recommendations based on the main findings. In particular, it identifies the following opportunities and challenges:

- harnessing the potential of an experienced workforce
- enhancing the knowledge and skills profile of teachers
- supporting teaching professionalism in vocational education
- promoting teacher collaboration and collegial relationships.

Harnessing the potential of an experienced workforce

One of the key assets of upper secondary education systems highlighted by TALIS is the presence of a highly experienced teaching workforce. Teachers at this level have, on average, a total of 16 years of experience as a teacher. Having an experienced workforce in upper secondary education presents a great opportunity, as it reflects the presence of more trained and skilled teachers at this level, as well as extensive opportunities for peer support to new teachers from their more experienced colleagues. Another positive aspect of this experienced workforce is that teachers at this level have spent more time developing their professional practices. However, it also implies that experienced teachers need to be well supported with up-to-date skills so that they continue to innovate and maintain their readiness to the new demands of teaching roles (Table 2.5). The advantages of having an experienced workforce can be enhanced when much of that experience is concentrated at the same school, through elements such as increased collegiality and opportunities for peer collaboration and long-term student-teacher relations (Allensworth, Ponisciak and Mazzeo, 2009[32]).

The teaching workforce in upper secondary education also stands out as one that is more diverse in terms of experience in other occupations. On average across the 11 participating countries and economies in upper secondary education, teachers reported two years of experience in other education roles and four years of experience in non-education roles (Table 2.5). Having experience and skills outside of their teaching roles makes these professionals more dynamic, with the potential to bring these diverse skills into their classrooms, ultimately benefitting students' academic and holistic learning.

School principals could tap the collective non-teaching work experience of the teacher workforce by drawing on these as part of career counselling and orientation activities, for example by having them describe their previous jobs to students as part of career counselling workshops and asking them to reach out to former colleagues to come and speak about their job in orientation sessions.

Harnessing the potential of the experience of teachers could also be more systematically used as part of induction or mentoring programmes, observation and feedback sessions, sharing of lessons plans and

preparation of collaborative professional development activities responding to school needs. Conversely, school principals could also play a role in updating the skills of these experienced teachers by organising workshops with expert teachers in a particular area, or asking novice teachers to report on the state of the art in areas that have evolved in recent years.

Maintaining and expanding the experience of teachers might be of particular relevance for VET programmes, as expertise in concrete areas of the labour market is an asset for these types of courses. Employing industry professionals can ease VET teacher shortages. As such professionals generally lack the required teaching qualifications and pedagogical skills, providing flexible pathways for qualification, training and recruitment can ease their entry into teaching. For example, if necessary, countries and economies may relax qualification requirements for industry professionals or for graduates from higher education specialising in the relevant subjects and provide alternative routes to obtaining teaching qualifications (OECD, 2021[9]).

Enhancing the knowledge and skills profile of teachers in upper secondary education

In-service professional development and appraisals should aim to improve the knowledge and expertise of teachers, especially those with lower educational qualifications. Teachers in upper secondary education have typically completed a master's degree or equivalent (52%) or a bachelor's degree or equivalent (42%) (Table 3.2). However, there is still a small part of the teaching workforce whose qualifications are below a bachelor's degree or equivalent.

On average, a lower share of teachers in upper secondary education had initial teacher training in the core areas (content, pedagogy and classroom practice) than their colleagues in lower secondary education (75% in upper secondary, compared to 83% in lower secondary) (Table 3.14). The difference could be explained by the fact that the pool of professionals in upper secondary comes from a more diverse background than in lower levels of secondary education. But regardless, initial and continuous training could focus on core areas to enhance the content base of teachers.

TALIS findings show that the average number of years of teaching experience is lower among teachers working in schools where vocational education programmes are taught than among those in schools where only general academic programmes exist, although by a very slight margin (16 years on average for teachers working in VET schools compared to 16.6 years for teachers working in non-VET schools). While teachers in VET programmes bring diverse experience from non-education roles and skills-oriented expertise from industry, it is essential to support these teachers in their pedagogical roles to ensure that they are able to transfer essential skills to students (Table 2.7).

VET programmes attract teachers with prior experience from a diverse set of industries and skills. This is also reflected in TALIS findings that show that a lower share of teachers in VET schools chose teaching as their first choice of career (62%) than did teachers in other schools (70%). It is therefore desirable to build an experienced workforce within the VET sector in upper secondary education, as well as to aim for high levels of satisfaction and well-being for these teachers so that they choose to stay in the profession (Table 2.15).

Teachers in upper secondary have the crucial role of ensuring in-depth student learning in different subjects. The highly rigorous demands of teachers require them to not only be pedagogical experts but also have a good command of the content they teach so that they can deliver high-quality instruction, including the use of cognitive activation practices in complex content areas (Echazarra et al., 2016[29]). TALIS findings indicate that training in the subjects that teachers teach ranges from 78-83% in the core subjects of reading, writing and literature, mathematics, science and social science. This implies that about one-fifth of teachers were not formally trained in the subjects they teach (Table 3.20). This points to an important need for education systems to offer learning opportunities for teachers to receive training for the subjects they teach and to link their pedagogical skills to the specific subjects they teach (Shulman, 1986[38]). In addition, it is important to examine systems of teacher allocation. In some contexts,

understaffing situations can lead to allocating teachers to teach subjects for which they do not have appropriate training. These instances and the causes behind them should be explored more deeply and explained.

Supporting teacher professionalism in vocational education and training

It is important to support VET teachers in their instructional and pedagogical roles. One way that TALIS examines the quality of teacher preparation is to check how comprehensive their training was (i.e. whether it included the core areas of preparation). Seventy-two percent of teachers who teach in a VET school said that their initial training included all the areas of content, pedagogy and classroom practice compared to 79% of teachers who reported receiving this training in schools not offering a VET programme (Table 3.16). As mentioned in the prior section, the diverse background of teachers in upper secondary education could explain this situation.

Another relevant finding concerns the frequency of implementing pedagogical practices able to stimulate students cognitively (instructional activities that require students to evaluate, integrate and apply knowledge within the context of problem solving). For example, on average, a larger share of VET teachers than non-VET teachers reported that they always or frequently ask students to decide on their own procedures for solving complex tasks (52% of VET teachers reported this compared to 45% of non-VET teachers) and have students work in small groups to come up with a joint solution to a problem or task (58% of VET teachers reported this compared to 53% of non-VET teachers) (Table 3.33). The more practically oriented background of VET teachers could explain this small gap and, more importantly, they possess a set of skills that could be shared and disseminated among their non-VET colleagues.

Initial teacher education and training programmes should develop the pedagogical skills of future VET teachers, along with their basic, digital and soft skills and the vocational skills and knowledge needed by the labour market (OECD, 2021, p. 12[16]). Education systems could introduce opportunities for academic and VET teachers to engage in joint activities and collaborate on peer feedback and knowledge sharing so that all teachers can reap the benefits of an experienced teaching workforce. In addition, to make such participation more effective, VET teachers' training needs need to be assessed so that relevant, customised and engaging professional development can be provided. Participation can be increased by fostering collaboration between VET stakeholders, including VET institutions, teacher and school networks, local companies, and universities and other associations. Finally, offering work-based learning opportunities in industry as part of initial training can be particularly helpful for those with no industry background (OECD, 2021, p. 12[16]).

To sustain, support and promote the use of innovative pedagogical methods in VET, educational systems should also provide strategic guidance and institutional support to VET teachers. This could include guidance on how to choose effective teaching methods, combined with improving their access to digital devices, high-tech equipment and technical support. Countries and economies can also promote innovation in VET by establishing partnerships between the VET sector and industry to improve the procurement of materials and equipment tailored to teaching and learning needs (OECD, 2021, p. 12[16]). Finally, mentorship and professional network opportunities could be viable mechanisms through which VET teachers could share their knowledge and expertise with non-VET teachers.

Promoting teacher collaboration and collegial relationships

TALIS data shows that teachers' professional collaboration, such as teaching jointly in teams, collaborative professional learning, observing colleagues and providing feedback could be further encouraged at the upper secondary education level. There is less incidence of teachers engaging in collaborative activities in upper secondary education than at the lower secondary level (Table 5.22). These findings suggest that teachers in upper secondary education may be missing important opportunities to benefit from teacher collaboration, such as support from their colleagues while facing instructional challenges (Vescio, Ross and Adams, 2008[39]).

Therefore, education systems could create structures and opportunities in upper secondary schools that could kick-start collaborative interactions between teachers (Goddard, Goddard and Tschannen-Moran, 2007[40]). Preliminary support in the form of opportunities to collaborate on curriculum, instruction and professional development can be a way for teachers to experience the benefits and support working in a collaborative working environment, which could further promote voluntary engagements with their colleagues. Steps to increase teacher collaboration at the upper secondary level could include, in particular, activities that may have the greatest benefits for teachers' instructional improvement, innovation, student achievement and a sense of collective support based on research evidence (Darling-Hammond, Hyler and Gardner, 2017[41]). Box 1.2 shows that the percentage of teachers engaging in professional collaborative learning reduces as the level of education increases.

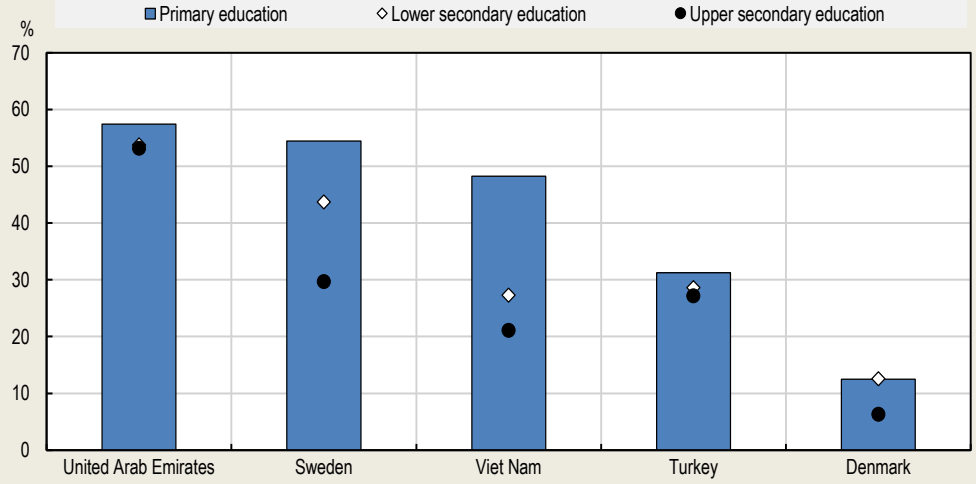
Box 1.2. Professional collaboration across education levels

More efforts could be aimed at upper secondary education to increase the frequency of engaging colleagues in meaningful and impactful collaboration. An assessment of the level of collaboration across the three ISCED levels is difficult and comparisons across the three levels of education can be complex, because the same countries and economies did not take part in the study across the ISCED levels. Only five countries have available data for each of the three levels of education (Denmark, Sweden, Turkey, the United Arab Emirates and Viet Nam). Nevertheless, drawing on the data for those five systems with available data in all three levels, it is possible to observe something of a pattern, where the share of teachers who report engaging in collective professional learning diminishes as the level of education increases.

The results may respond to the institutional features of each level. Higher levels of education usually take place in bigger schools, with more staff and a more diverse set of teachers, which could make it more complex to establish systematic, periodic and impactful collaboration. It could also be argued that there might be a stronger "school culture" (de Jong, Meirink and Admiraal, 2019[42]) of support in primary education than in higher levels of education, which could be the result of the background of teachers (i.e. generalist versus subject-specific), which facilitates communication and co-ordination of tasks.

Figure 1.2. Teachers who report that they participate in collaborative professional learning at least once a month, from primary to upper secondary education

Results based on responses of teachers in primary education, lower secondary education and upper secondary education



Note: These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.
Countries and economies are ranked in descending order of the share of teachers in primary reporting participating in professional learning at least once a month.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/xsgko1

Source: OECD, TALIS 2018 Database.

The limitations of teacher collaboration at the upper secondary level could be explained by the organisational structures of schools (such as division into subject tracks, general and vocational education tracks), which may lead teachers to work more independently and in isolation. It might also be because teachers in upper secondary tend to be more experienced than teachers in primary education and feel they have less need to collaborate with their colleagues. Finally, it can respond to a specific "school culture" (de Jong, Meirink and Admiraal, 2019[42]) fostered by the goals of this educational level or even the training of teachers, in the sense that a generalist background (rather than subject-specific as in higher levels of education) might facilitate co-operation among teachers.

Policies to promote teacher collaboration should be grounded in research understanding the conditions that schools and teachers need to purposefully collaborate. For example, do teachers in upper secondary education have time and interaction spaces outside their instructional duties to exchange ideas with their colleagues and obtain peer-to-peer support? In order to improve teacher collaboration, there is a need to observe and document existing forms of collaboration between teachers at the upper secondary level.

The benefits that teachers perceive and derive from collaborating with their colleagues can ultimately encourage them to engage voluntarily in collaborative exchanges and build a community of practice in their collegial circles. Research indicates that the relevance of particular forms of collaboration for teachers depends on their learning needs (de Jong, Meirink and Admiraal, 2019[42]). Therefore, identifying the improvement needs for teachers at the upper secondary level can be a starting point to identify what forms of collaboration education systems need to promote. Having a consultation with teachers and extracting lessons in a post-pandemic context may be a way to identify needs and boost new forms of collaboration for teachers in upper secondary.

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Notes

[1] This data was collected and processed by the OECD based on the Survey on Joint National Responses to COVID-19 School Closures, a collaborative effort conducted by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the UNESCO Institute for Statistics (UIS), the United Nations Children's Fund (UNICEF), the World Bank and the OECD. Designed for government officials responsible for education, the survey collected information on national or regional education responses to school closures related to the COVID-19 pandemic. All OECD countries answered the survey, with the exception of Greece and Switzerland. The data were collected between January and February 2021.

[2] For the detailed findings in lower secondary education for all of these 48 countries and economies, see *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners* (OECD, 2019[4]) and *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals* (OECD, 2020[3]).

[3] The countries and economies that participated in the primary education option are Australia, Ciudad Autónoma de Buenos Aires (Argentina, henceforth CABA [Argentina]), Chinese Taipei, England (United Kingdom), Denmark, the Flemish Community of Belgium, France, Japan, Korea, the Netherlands, Spain, Sweden, Turkey, the United Arab Emirates and Viet Nam. The data from Australia and the Netherlands are not reported, counted or included in the average of primary education since they were not adjudicated (see details in Annex A). The countries and economies that participated in the upper secondary education option are Alberta (Canada), Brazil, Chinese Taipei, Croatia, Denmark, Portugal, Slovenia, Sweden, Turkey, the United Arab Emirates and Viet Nam. Chinese Taipei participated in both levels (primary and upper secondary education). Its data was included in the tables and adds to the averages. However, it is not reported in the text or charts due to OECD regulations and agreements with Chinese Taipei.

[4] Note that substitute, emergency or occasional teachers were not included in the TALIS 2018 sampling, as they were deemed an out-of-scope population. It stands to reason that levels of job security of these teachers may differ from those of regular teachers reported by TALIS. Thus, caution is warranted if using these results to provide an overall assessment of the job security of the teaching workforce. For more information on the criteria of the in-scope teacher population, please see Annex A.

[5] For concrete examples on the use of robots, augmented reality and virtual reality in VET education, see OECD (2021[16]), Box 4.8.

[6] On the percentage of teachers intending to leave the teaching profession within the next five years, please note that the percentages might be a direct reflection of the age structure of the teaching profession: the older the teachers, the higher the percentage of teachers expressing that they would like to leave the profession within the next five years.

[7] In Slovenia there have been minor changes to teacher pay and benefits: 1) in the form of allowances for work in risky situations during the pandemic period when teachers are performing work at the workplace; and 2) in the form of compensation for the use of their own resources when performing work at home in the period of school closures.

[8] TALIS 2018 considers as special needs students those for whom a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged. Often they will be those for whom additional public or private resources (personnel, material or financial) have been provided to support their education.

2 Attracting and selecting high-calibre candidates

This chapter looks at the demographic composition of teacher and principal workforces in primary and upper secondary education. It explores teachers' work experience and main motivations for joining the profession, their feelings about how the profession is seen by society, as well as some characteristics of the school environment, such as school composition, school diversity and policies and actions related to equity. Finally, this chapter explores teachers' perceptions of their relationships with students to offer a broad picture of how school environments allow for positive exchanges and interactions.

Highlights

Primary education

- An average of 23% of teachers are at least 50 years old, which may put pressure on the renewal of the teaching workforce in the coming years.
- At primary level, teacher mobility is higher than at lower secondary. Turkey and Viet Nam are the only countries where primary school teachers stayed longer in their current school than lower secondary teachers.
- The proportion of female teachers represents over three-quarters of the primary teaching force (TALIS average 78%). In more than half the countries and economies, over 80% of teachers at this level are female.
- Seventy-six percent of teachers in primary education reported that teaching was their first career choice. Yet, still more female teachers in primary education reported this (77%) than male teachers (71%).
- In most countries and economies, fewer novice teachers (70%) considered teaching as a first career choice than more experienced teachers (77%).
- Among school principals in primary education, 53% are female, on average, ranging from 90% in Ciudad Autónoma de Buenos Aires (henceforth, CABA [Argentina]), to 8% in Turkey.
- Twenty-five percent of teachers in primary education teach in schools where at least 1% of students are refugees, while 30% of lower secondary teachers do.

Upper secondary education

- An average of 30% of teachers in upper secondary are age 50 and above, increasing pressure on the workforce renewal.
- Teachers in upper secondary have, on average, 16 years of experience in total, ranging from 23 years in Portugal to 14 in Denmark, Turkey and Viet Nam.
- The average proportion of female teachers in upper secondary education is 59%. Only in Denmark is there a 50% balance of female and male teachers in upper secondary.
- At the upper secondary level, 66% of teachers chose the teaching profession as a first career choice on average. More female than male teachers in primary education reported this in 9 out of 11 countries and economies.
- The percentage of teachers in upper secondary who believe the teaching profession is valued in society is relatively low, just above one-third (37%).
- The average upper secondary school composition shows that, while 20% of teachers teach in schools with linguistic diversity, 18% teach in schools with ethnic and cultural diversity, and 25% teach in schools where at least 1% of students are refugees.
- Most teachers in upper secondary (at least 90%) believe they have good relations with their students, that student well-being is important and that, when a student needs extra assistance, the school provides it.

Introduction

Education systems face numerous challenges at a time when societies and economies are more interconnected than ever. Among the most salient aspects for the success of any education system are the skills and strengths of its teacher workforce (OECD, 2019[1]).

While across countries and economies teachers' age and experience may vary, many education systems are facing shortages in qualified teachers. The proportions of their teacher population approaching retirement is increasing and new recruitments are sometimes not keeping pace. Key priorities for the renewal of teaching workforce lie in how to attract and select high-calibre candidates who have the necessary skills to be successful teachers. But it is equally important to retain and motivate existing teachers as they advance, grow and increase their knowledge and mastery within the system (OECD, 2005[2]).

Exploring and analysing the socio-demographic characteristics of teachers and principals as well as the motivations that lead them to join the profession provide useful information about the teaching profession in the context of increasingly competitive labour markets. Likewise, teachers' perceptions of how societies, policy makers and the media value their work are important aspects of the public attractiveness of the profession. They are also important when looking to improve the motivation and job satisfaction of teachers and principals (Bruinsma and Jansen, 2010[3]; McLean, Taylor and Jimenez, 2019[4]; OECD, 2019[5]).

First, this chapter looks at the composition of teacher and principal workforces in terms of age, gender, and teaching and working experience at primary and upper secondary levels. Then it explores teachers' main motivations to join the profession, such as social and personal utility and how they vary across educational levels. In that same section, it looks at teachers' perceptions of how the profession is valued in society.

As classrooms and school environments are influenced by the personal stories and trajectories of their students, analysing school composition, school diversity and policies and actions on equity offers a neat picture of how schools adapt their teaching and learning practices to their student body. This chapter concludes by analysing the diversity of student backgrounds, including linguistic diversity, immigrant and socio-economic background, and exploring how attentive schools are to this and if they promote equitable environments for children's development. Finally, as these policies and practices are important components of teacher-student relations, it explores these relations further, as well as the differences that may exist across levels.

Looking at the age and experience of teachers and principals

The Teaching and Learning International Survey (TALIS) 2018 provides useful information on the age and experience of principals and teachers in primary and upper secondary education. When combined with information on the entry of new teachers and the size of the school-age population, they help to assess the urgency of the renewal of the teaching workforce (OECD, 2020[6]).

The balance between supply and demand of teachers is far from neutral in several countries and economies. For instance, the European Commission has observed that several European countries face large shortages of qualified teachers, often at all education levels (Carlo et al., 2013[7]). Changes in student enrolment rates can have important effects on this balance. For example, OECD data show that enrolment rates in primary education have recently increased in countries like Slovenia and Sweden, with a rise of more than 10% in 2018 with respect to enrolment rates in 2014. Likewise, the diversification of upper secondary programmes in several countries and economies has led to a growing demand and an increase in enrolment between 2010 and 2018 (OECD, 2020[6]). However, in many countries, enrolment rates do not necessarily put pressure on the teaching workforce or the teaching profession still attracts high-calibre

candidates. Still, it happens that, in such systems, shortages can prevail concerning, for example, specific subjects like sciences or information and communication technology (ICT), specific geographic areas in which schools are located, or even specific positions, like special needs instruction (Carlo et al., 2013[7]).

Ageing teaching workforces also have implications for teacher demand. In some countries, the ageing of the teaching workforce compels authorities to resort to various mechanisms to deal with teacher shortages (e.g. increasing class sizes, increasing teachers' working or instruction time) (Carlo et al., 2013[7]). These may have negative effects on the attractiveness of the teaching profession. Increased workload (e.g. workload is too heavy, there is too much pressure or the work is too stressful) has been cited as a key reason for novice teachers leaving the profession within the first few years of practice (Kyriacou and Kunc, 2007[8]). In some countries, attrition rates are high among novice teachers, in part due to a mismatch between their expectancies and the reality of the occupation.

All these issues highlight the relevance of finding the right age and profile balance for the teacher workforce.

Age and experience of teachers and school leaders in primary education

The average age of a primary teacher across TALIS participating countries and economies is 41, and the majority of teachers in primary education are between age 30 and 49 even if the picture is more nuanced across countries and economies. On average, 62% of teachers are between 30 and 49 years of age, almost one-quarter are at least 50 years old (23%) and 15% are under the age of 30 (Table 2.1).

The proportion of teachers under the age of 30 signals how the profession has attracted younger generations in recent years. It is above 20% in England (United Kingdom) (25%), the Flemish Community of Belgium (22%) and Japan (22%) (Table 2.1). The influx of newcomers to the profession can be attributed to the need for new teachers, yet other factors can also be in play, including workforce demographics as well as factors tied to the overall success in attracting newcomers.

At the opposite end of the spectrum, the category of those aged 50 or above covers a wide age span. These teachers usually have the most experience and valuable knowledge. Also found in this category are teachers that are closer to the end of their career. The retirement of these teachers can put pressure on the system if the share of new entrants does not cover increased demand due to student demographics.

Moreover, when looking at teachers' and schools' characteristics, no clear pattern can be observed. On average and in 5 out of 13 countries and economies with available data for primary education, there are no differences in age when comparing female and male teachers. In five other countries, male teachers tend to be younger while in three countries the inverse is true (Table 2.2). As will be shown later in this chapter, the teaching profession has historically attracted more women than men. In Denmark, Japan, Korea, Spain and Sweden, the average age of male teachers is lower than that of female teachers. While those differences are small, this could be interpreted as an increased attractiveness of the profession for male teachers in recent years in those systems. Conversely, in some systems it suggests more movement among male teachers, either due to higher attrition or to greater promotion into leadership roles.

As would be expected, school principals tend to be older than teachers in primary schools. Principals' average age in primary education across participating countries and economies varies between 58 (in Japan) and 43 (in Turkey), with a TALIS average of 50 (Table 2.4). Most school principals in primary education are in the 40-to-59 age range (TALIS average 79%).

Teachers and school principals can have a variety of profiles. While the criteria for entry into the teaching profession may vary across participating countries and economies, there may be different pathways for individuals with professional experiences outside teaching and without teaching qualifications (OECD, 2014[9]). In some cases, teachers join the profession immediately after their initial education or training. In others, they enter the profession after having other working experiences, either in the education sector or

elsewhere. School principals may also have varied experiences, quite often as teachers but also in other occupations.

Across the 13 countries and economies with available data at primary level, teachers tend to have 16 years of total experience as teachers (Table 2.5). This ranges from 18 years in Viet Nam to 12 years in England (United Kingdom) and the United Arab Emirates. Interestingly, teachers in primary education reported an average of 8 years of work experience at their current school, which is half of the total average teaching experience. This shows that the average teacher in primary education across TALIS participating countries and economies has worked in more than one school. Yet, there is a certain degree of variation across countries. In Japan and Korea, the average primary teacher has 15 to 17 years of teaching experience in total but only 3 to 4 years at their current school, consistent with their policy of mandatory turnover. The opposite is true in the Flemish Community of Belgium, where the average teaching experience of a primary teacher in their current school is 14 years out of 17 years of total experience.

Further analyses of the reasons that motivate teachers to change schools can prove to be of policy relevance as high teacher mobility can have implications for teaching and learning quality. In some countries and economies, substantial efforts are made by schools to grant teachers with opportunities to have strong support and development opportunities. High mobility among teachers can bring discontinuity to these initiatives and even create shortages in specific education levels or in specific subjects (Allensworth, Ponisciak and Mazzeo, 2009[10]). Research has shown that in these contexts, teachers tend to stay the longest when there are positive working conditions, e.g. where there is good administrative support, positive and safe learning environments, good peer collaboration and parental trust (Allensworth, Ponisciak and Mazzeo, 2009[10]). Yet, this is not the case everywhere, and in some systems, teacher mobility is encouraged. In some countries like Japan and Korea, the high mobility of teachers is due to systematic teacher rotations, which shuffle a proportion of public school teachers to new schools every year (Kang, Akiba and Letendre, 2008[11]; Seebruck, 2019[12]). This shows that assessing motivations for teacher mobility is key when addressing the challenges it may pose to teaching quality.

Teachers can also have work experience in educational roles other than teaching. The average primary teacher across participating countries and economies has one year of such experience (Table 2.5). Yet, in Denmark, Spain and Sweden, teachers in primary education reported three years of experience in other educational roles. Likewise, teachers in primary education can also have experience in other non-educational positions. Teachers in primary education reported two years of such experience across the 13 countries and economies with available data at primary level, ranging from virtually no experience in Korea and Viet Nam to about five years in CABA (Argentina) and Sweden. With pressure increasing in several countries and economies to recruit new teachers, alternatives that allow candidates to switch careers into teaching are of great value. Candidates' value-added to the profession is reflected in the wide range of experiences and skills they may bring with them, which can, potentially, improve the quality of teaching practices (Richardson and Watt, 2005[13]).

Teachers working part-time at primary level tend to have less work experience than their peers working full-time. Notably, full-time teachers are more experienced in 7 out of 13 countries and economies with available data. However, this is not uniform across countries (Table 2.6). In England (United Kingdom), the Flemish Community of Belgium, Japan and Turkey, teachers working part-time have more years of experience on average than teachers working full-time. While these findings suggest differences across countries in approaches to part-time teaching among novice and more experienced teachers, it is important to distinguish between voluntary and involuntary part-time when assessing the relevance of these results. In some countries, involuntary part-time among novice teachers is more recurrent as they have trouble finding full-time opportunities (OECD, 2019[1]; Boeskens and Nusche, 2021[14])

Teachers in primary education working in schools with more students from socio-economically disadvantaged homes tend to be less experienced than their colleagues teaching in more socio-economically advantaged schools. Teachers working in disadvantaged schools, where the

concentration of students from socio-economically disadvantaged homes is above 30%, reported 15 years of work experience as teachers on average, which is one year less than their peers' in more advantaged schools (Table 2.6). This pattern holds in the majority of countries and economies for which data for primary education is available (in 6 out of 10). Only in the United Arab Emirates are teachers working in these more challenging classes on average more experienced.

Challenging schools with high proportions of students from socio-economically disadvantaged homes are often obliged to replace experienced teachers who leave with more novice teachers. Studies have found that more experienced teachers are more prone to leave difficult working conditions (Lankford, Loeb and Wyckoff, 2002[15]). Thus, challenging schools often have trouble attracting and retaining teachers that better fit their needs (Guarino, Brown and Wyse, 2011[16]). Paradoxically, these are schools with strong needs for skilled teachers. As discussed in previous TALIS 2018 reports, in countries where less qualified and experienced teachers are recruited in schools with high concentrations of socio-economically disadvantaged students, the gaps in student performance related to socio-economic status are larger (OECD, 2019[5]).

Across TALIS participating countries and economies, the average primary school principal has eight years of total work experience as a principal, ranging from ten years in Denmark, the Flemish Community of Belgium, France, the United Arab Emirates and Viet Nam to three years in Korea (Table 2.8). Out of the average eight years of experience, five are gained at the current school on average. In Japan, Sweden, Turkey, the United Arab Emirates and Viet Nam, principals in primary schools reported just as much or even more years of experience working as principals in other schools than in their current school. This signals a certain degree of mobility of principals across schools. In contrast, there are countries and economies where principals' experience at current school accounts for the most part of total work experience as a principal, suggesting little mobility among school principals in primary education, if any. This is the case in CABA (Argentina), England (United Kingdom), the Flemish Community of Belgium and Spain.

Moreover, in many systems, school leaders are recruited from within the education sector and, most often, selection criteria include seniority as teachers. While in some countries recruitment processes have changed to include other skills and competences, having a teaching background is a highly relevant criterion (Pont, Nusche and Moorman, 2008, p. 161[17]) across OECD countries. On average across TALIS participating countries and economies at primary level, principals have 19 years of experience as teachers and 6 years of experience in other school management roles (Table 2.8). School principals in primary education reported having over 25 years of teaching experience in Japan (31), Korea (29) and CABA (Argentina) (27), which suggests that opportunities for career progression towards leadership roles come late in a teacher's career. Not surprisingly, in these countries, the total experience as a principal is below the TALIS average.

School principals in primary education can also have work experience beyond the school sphere. Across the 13 countries and economies with available data at primary level, school principals have two years of experience in other jobs (Table 2.8). This sort of experience among school principals in primary education ranges from seven years in Sweden to less than a year in Japan, Korea and Viet Nam.

How do primary and lower secondary levels compare?

Primary education has slightly more younger teachers (under age 30) and fewer older teachers (age 50 and above) compared to lower secondary education across TALIS participating countries and economies (2 percentage points difference) (Table 2.1). Nevertheless, some countries and economies show important variations. In CABA (Argentina) and Korea, the shares of teachers at age 50 and above are at least 10 percentage points smaller in primary education while the proportion of younger teachers (under age 30) is larger. In England (United Kingdom), Korea and the United Arab Emirates, there are more younger teachers in primary education than in lower secondary by at least 5 percentage points. This suggests that

the generational renewal in these countries is more dynamic in primary education compared to lower secondary education. The only exception to this pattern is Turkey, where the percentage of elder teachers is higher (12 percentage points difference) and the share of younger teachers is lower (9 percentage points difference) in primary schools than in lower secondary education (Table 2.1).

The average age of school principals tend to be very similar across primary and lower secondary education. Yet, in France, principals in primary schools are six years younger than their colleagues in lower secondary schools (Table 2.4).

When it comes to teachers' working experience, there are no actual average differences between primary and lower secondary teachers, and most of the differences are seen across countries and economies. The most salient differences concern teachers' working experience at their current school. While in 6 out of 13 countries and economies with available data for both levels there are no differences across levels, teachers have less experience in their current schools at the primary level in five countries and economies. Only in Turkey and Viet Nam do primary school teachers have more experience in their current school than lower secondary teachers (on average two and one year(s) more, respectively) (Table 2.5).

Age and experience of teachers and school leaders in upper secondary

As mentioned above, the issue of the number of teachers approaching retirement and renewal of the teaching workforce with younger teachers is more marked in upper secondary education (Santiago, 2002[18]). It has also been noted that attrition can be greater among teachers that were prepared and recruited for teaching at this level than among those who prepared for lower levels of education (Struyven and Vanthournout, 2014[19]). The reasons for this are numerous but it has been suggested that some trained secondary teachers may have better chances of other employment opportunities than teachers at lower levels due to their subject specialties (Struyven and Vanthournout, 2014[19]).

Across the 11 countries and economies with available data for upper secondary education, 62% of teachers in upper secondary are between 30 and 49 years old, 30% are aged 50 years or more and the remaining 8% are under the age of 30, on average (Table 2.1). While in most countries and economies, at least half of teachers at this education level are aged between 30 and 49, Portugal is the only country where half of teachers are 50 years old or more (50%). It is also in Portugal where the lowest proportion of the youngest teachers (under the age of 30) is observed, representing just 1% of teachers in upper secondary in the country. While this is a very small proportion, young teachers do not represent more than 15% of teachers across the 11 counties and economies with available data for this level. In 5 out of those 11 countries and economies, over one-third of teachers are 50 years old or more (at least 36%). Only in Viet Nam are fewer than 10% of teachers in this age range.

In upper secondary schools, male teachers tend to be one year older than female teachers (Table 2.3). In Turkey, the United Arab Emirates and Viet Nam, male teachers tend to be around three years older than their female colleagues. There are six countries and economies where there is no statistically significant age difference across genders and in no participating country female teachers in upper secondary are older than male teachers, on average.

Teachers in upper secondary working full-time tend to be older than those working part-time. This is the case in 7 out of 11 countries and economies with available data. The average difference across participating countries is two years (Table 2.3). Yet, in Croatia and Portugal, the age difference between teachers working full-time and those working part-time is four years or more. It is only in Turkey and Viet Nam that teachers in upper secondary working full-time are younger than their colleagues working part-time.

Across the 11 countries and economies with available data, three-quarters of principals who work in upper secondary schools are between age 40 and 59 (75%) while only 7% are below age 40 (Table 2.4). Older principals (age 60 and above), represent about one-quarter of all school principals in upper secondary in

Croatia (25%) and Denmark (29%) (TALIS average 18%). At the other end of the spectrum, younger principals (under age 40) constitute, at best, between 9% and 16% of the total principal workforce at upper secondary level in Alberta (Canada), Brazil, Sweden and Turkey.

At upper secondary level, teachers have an average of 16 years of total teaching experience across participating countries and economies, ranging from 14 years in Denmark, Turkey and Viet Nam to 20 years or more in Portugal and Slovenia (Table 2.5).

Teachers in upper secondary have an average of ten years of experience as teachers at their current school. While in Brazil, Turkey and the United Arab Emirates, teachers in upper secondary reported spending half of their teaching career or less at their current school, in most countries with available data, teachers reported having acquired their teaching experience mostly in the school in which they currently teach (Table 2.5). As discussed previously, analysing the reasons for teacher mobility is important as it can have consequences for the quality of teaching and learning. In those contexts in which teacher mobility is not encouraged, it can hinder schools' efforts to develop its workforce. In contrast, among other positive aspects, teacher retention can help establish solid student-teacher relations and improve collaboration in the school (Allensworth, Ponisciak and Mazzeo, 2009[10]).

Across the 11 countries and economies with available data, teachers in upper secondary have two years of experience in other education roles and four years in other non-education roles (Table 2.5). Only in Brazil and Denmark, teachers in upper secondary have more experience in other education roles (three years). In Sweden, teachers working in upper secondary schools have on average eight years of experience in other non-education roles, six years in Brazil and five years in Alberta (Canada) and Denmark (Table 2.5).

The years of teaching experience of teachers in upper secondary vary by gender across countries and economies. In Brazil, Croatia, Portugal, Slovenia and Sweden, female teachers tend to have more work experience as teachers than their male peers (Table 2.7). The inverse is true in Turkey, the United Arab Emirates and Viet Nam.

Full-time teachers in upper secondary education tend to have more work experience as teachers than those working part-time. While the average difference across the 11 countries and economies with available data is three years, in Portugal the difference between teachers working full-time and part-time reaches ten years (Table 2.7). Yet, in Turkey and Viet Nam the opposite pattern is observed as, on average, part-time teachers have slightly more years of teaching experience than their peers working full-time.

Teachers in upper secondary tend to have more work experience as teachers when there is no vocational programme taught in the school. Teachers working in schools where there is a vocational or technical education (VET) programme have fewer years of teaching experience in Brazil, Denmark, Slovenia, Sweden and the United Arab Emirates (Table 2.7). This is linked to the fact that quite often, teachers in VET programmes have work experience in the industry and other related occupations, which would explain the difference in working experience as teachers. Indeed, in some countries, there are minimum industry experience requirements for teaching in these programmes. Among other advantages, VET teachers with industry experience bring up-to-date knowledge and skills, and can simplify students' access to work-based learning based on their professional networks (OECD, 2021, p. 58[20]).

Principals in upper secondary education have an average of nine years of total experience as principals and six years in their current schools, across participating countries and economies (Table 2.8). Data across countries suggest that principals change schools in Sweden, Turkey and the United Arab Emirates as a considerable share of total work experience has not been accumulated at the current school. Conversely, in Brazil, Croatia, Portugal and Slovenia, school principals in upper secondary have less experience outside their current school, if any.

Principals at this level have an average of 6 years of experience in school management roles (Table 2.8). Moreover, school principals in upper secondary' experience as teachers, which is 16 years across the 11 countries and economies with available data, ranges from 12 years in Sweden, Turkey and the United Arab Emirates to over 20 years or more in Alberta (Canada) and Portugal. Principals' experience in other jobs is 4 years on average across participating countries but somewhat longer in Sweden (8 years), Brazil (6 years), Croatia (5 years) and Denmark (5 years).

How do upper and lower secondary levels compare?

The share of the older teachers (age 50 and above) is higher at upper secondary level as compared to lower secondary education (TALIS average difference: 5 percentage points) (Table 2.1). This holds true in seven countries and economies with available data. For instance, in Croatia, 40% of teachers in upper secondary are 50 years old or more while the share of older teachers in lower secondary education is only 24%. Despite this difference, the share of the younger teachers (under age 30) is similar in Croatia across these two levels of education. The same pattern of a larger share of older teachers but equal proportion of younger teachers across lower and upper secondary education is observed in Portugal, Slovenia and Sweden. Viet Nam is the only participating country where the share of teachers aged 50 and above is smaller in upper secondary education than in lower secondary education.

Finally, while school principals in upper secondary are older than their lower secondary peers, the shares of principals aged 40 or older are the same on average. In Turkey, there are significantly more principals aged 40 to 59 (17 percentage points difference) and substantially fewer under the age of 40 (21 percentage points) in upper secondary with respect to lower secondary education (Table 2.4).

Exploring teachers' and principals' gender across education levels

TALIS 2018 data show that there are broadly more female teachers than male teachers in the teaching workforce across countries and economies, and across education levels. OECD data show that the share of female teachers increased across education levels from primary to upper secondary education between 2015 and 2018 across OECD and partner countries (OECD, 2020[6]). The feminisation of the teaching profession is a phenomenon that has been widely discussed in the literature as being part of a process that has historically oriented women's access to education and labour markets, and has influenced women's and men's career opportunities and choices (Carrington, 2002[21]; Drudy, 2008[22]; Drudy et al., 2005[23]; Smulyan, 2004[24]).

Large social inequities are among the reasons that have contributed to this imbalance. For example, one potential reason for the feminisation of the teaching profession is the difference between women and men in the opportunity cost, as measured in lower salaries, of becoming a teacher. Teachers' salaries have been largely considered as being comparatively low and less competitive in most labour markets (Carlo et al., 2013[7]; Drudy, 2008[22]; OECD, 2020[6]; Watt and Richardson, 2007[25]). Due to the persistent average wage gap between women and men across OECD countries, teachers' salaries are more aligned to the wages of similarly qualified female workers than those of similarly qualified male workers (OECD, 2020[6]).

As discussed in previous TALIS reports (OECD, 2021[26]; OECD, 2019[5]), research has shown that in some contexts, teachers' gender balance may have an impact on students' attitudes towards learning and in their career aspirations through role models, where teachers can have an influence in same-gender students' motivations and performance (Beilock et al., 2010[27]; Lim and Meer, 2017[28]). Data from the TALIS-PISA link show that in some countries, when the proportion of female teachers in schools is high, the gap in Programme for International Student Assessment (PISA) reading scores between girls and boys increases, and the gap in mathematics and science scores decreases in favour of girls (OECD, 2021[26]).

However, these findings concern only some countries. Research has also shown that in some contexts, the impact of teachers' gender on students' academic motivation and engagement is rather limited (Carrington et al., 2007[29]; Martin and Marsh, 2005[30]). However, in some of these contexts too, while students seem to attribute more value to teachers' practices rather than to their gender, most often they also name same-gender role models overall (Carrington et al., 2007[29]).

What these findings suggest is that, while the relationship between teachers' gender balance and student attitudes to learning may depend on several factors, including cultural aspects, teachers' gender imbalance may contribute to gender stereotypes regarding the roles and career opportunities for women and men. More balanced teaching workforces may contribute to tear down those stereotypes (Carrington and Skelton, 2003[31]).

TALIS 2018 data show that while women are overrepresented among teachers in all education systems, this is not reflected when looking at the gender distribution of school principals. TALIS findings suggest that male teachers reach higher levels of leadership more often than female teachers even if women make up the largest share of the teaching workforce.

As has been pointed out in the literature, what should be relevant for policy makers is to appeal to the best candidates, irrespective of their gender (Drudy et al., 2005[23]). Yet, today's gender imbalance among teachers and school leadership raises important questions about the degree to which female teachers have access to meaningful opportunities for career progression.

Teaching professionals' gender across primary schools

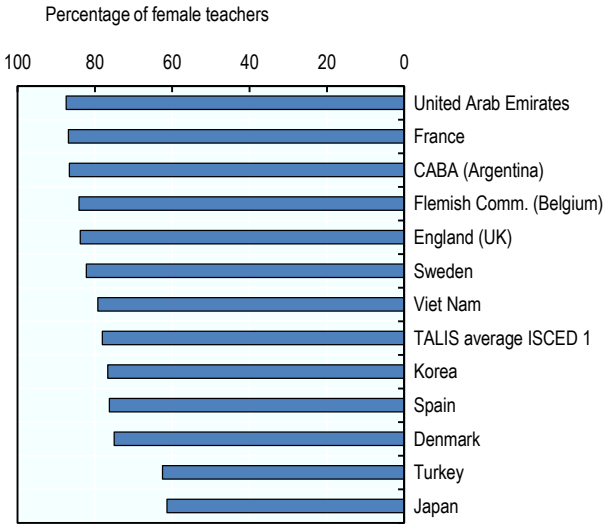
At primary level, the proportion of female teachers represents over three-quarters of the teaching force (TALIS average 78%). In 6 out of 13 countries with available data, over 80% of teachers at this level are female. The lowest percentages of female teachers are found in Turkey (62%) and Japan (61%) (Table 2.9).

As shown in Figure 2.1, across participating countries and economies, the percentage of female teachers is higher among more experienced teachers than among novice teachers (TALIS average difference: 2 percentage points). This is the case in Korea (12 percentage points difference), Denmark (6 percentage points difference) and Japan (5 percentage points difference) and while the inverse is true in Turkey (12 percentage points difference) and Viet Nam (4 percentage points difference) (Figure 2.1 and Table 2.10).

Figure 2.1 also shows that there is no average difference in the proportions of female teachers in rural schools and city schools (Table 2.10). However, in Denmark (12 percentage points difference), Sweden (6 percentage points difference) and the United Arab Emirates (3 percentage points difference), the share of female teachers working in rural schools is larger than the share of female teachers working in urban schools. In contrast, the percentage of female teachers working in city schools is at least 10 percentage points higher than that of female teachers who work in rural schools in Viet Nam.

One significant finding concerns female teachers' employment status. In 7 out of 13 countries and economies, the percentage of female teachers among teachers in primary education working part-time is higher than the percentage of female teachers among teachers in primary education working full-time (TALIS average: 2 percentage points difference). This finding is in line with the fact that women make up most of the part-time workers in many high-income economies (Matteazzi, Pailhé and Solaz, 2018[32]). Only in Korea and Viet Nam are these proportions inversed and by a large margin (20 and 11 percentage points, respectively) (Figure 2.1 and Table 2.10).

Figure 2.1. Female teachers in primary education



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

Difference by teacher and school characteristics		
Teacher with more than 5 years of experience - Up to 5 years	Full-time - Part-time	City - Rural school
	-	-
	-	
	-	
	-	
	-	-
-	+	+
+	-	
+	+	
+	-	-
-		+
+	-	

Education systems with a positive difference	3	2	2
Education systems with no difference	7	3	4
Education systems with a negative difference	2	7	3

Countries and economies are ranked in descending order of the percentage of female teachers in primary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/egujxq

When it comes to school principals in primary education, on average 53% are female. However, there are significant differences across countries and economies. In CABA (Argentina), 90% of school principals in primary education are female, and at least 70% are in England (United Kingdom) and France. On the contrary, three-quarters of school principals at primary level are male in Japan (77%) and 92% in Turkey (Table 2.12).

It is worth noting that, while there is overrepresentation of female teachers in primary education in all countries and economies with available data, in Denmark, Japan, Korea, Turkey and Viet Nam, female principals are underrepresented. While equity at all levels is undoubtedly necessary, as mentioned before, at primary level women and men do not access higher positions with more responsibilities and influence equally.

How do primary and lower secondary levels compare?

In all countries with available information for both levels, the proportion of female teachers in primary school is larger than in lower secondary schools. On average 67% of lower secondary teachers are female compared to a TALIS average of 78% in primary education. The United Arab Emirates (25 percentage points difference), France (22 percentage points difference), England (United Kingdom) (19 percentage points difference), Japan (19 percentage points difference), CABA (Argentina) (18 percentage points difference) and Sweden (16 percentage points difference) show above average differences (Table 2.9).

On the other hand, the percentage of female principals in primary education is also higher than that of lower secondary (TALIS average difference: 16 percentage points). While at the primary level over half of school principals are female (53%), at the lower secondary level, slightly over one-third are (37%). This difference holds true in 9 out of 13 countries and economies with available data for both levels. In France, the difference is remarkable as 75% of school principals in primary education are female while 41% of lower secondary principals are. Other large differences can be seen in CABA (Argentina) (29 percentage points difference), England (United Kingdom) (29 percentage points difference), Korea (24 percentage points) and Viet Nam (19 percentage points) (Table 2.12).

Teaching professionals' gender across upper secondary schools

At the upper secondary level, the proportion of female teachers is 59%, on average. Only in Denmark is there a 50% balance of female and male teachers in upper secondary (Table 2.9).

As shown in Figure 2.2, the share of female teachers among teachers with more than five years of experience is comparatively higher than the share of female teachers among novice teachers (in Slovenia the difference is particularly large – 21 percentage points; Croatia, Portugal and Sweden are other countries with a significant difference). This suggests a recent change in the teacher gender balance as in these countries, the share of female novice teachers is around 50% (Table 2.11). In another group, the inverse is true, and the share of female teachers among novice teaches is comparatively higher (in Turkey, where the difference reaches 15 percentage points, the United Arab Emirates and Viet Nam).

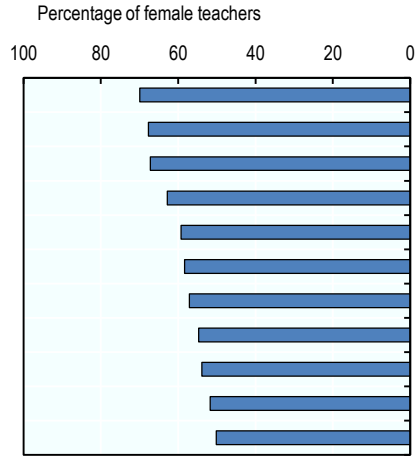
At the upper secondary level, the percentage of female teachers is also higher among teachers who work part-time when compared to teachers working full-time (TALIS average difference: 5 percentage points). This difference is particularly strong in Denmark (23 percentage points difference) and Alberta (Canada) (20 percentage points difference). In Viet Nam, the percentage of female teachers is higher among teachers working full-time (6 percentage points difference) (Table 2.11).

Despite representing over half of teachers at upper secondary level, female teachers are underrepresented in STEM fields compared to non-STEM fields. The percentage of female teachers among STEM teachers is on average 5 percentage points lower than the percentage among non-STEM teachers (Table 2.11). This holds true in 5 out of 11 countries for which data for upper secondary education are available. In Denmark and Sweden, fewer than half of STEM teachers are female. The smaller average proportion of female STEM teachers is not surprising. This phenomenon has been pointed out in the literature. Today, women represent a majority of graduates from tertiary education but it is still the case that fewer women than men complete STEM-related tertiary education (OECD, 2017[33]). This has remained relatively stagnant through decades even in systems with higher equity (Stoet and Geary, 2018[34]).

Moreover, fewer than half of school principals in upper secondary are female (TALIS average: 40%). This is the case in Alberta (Canada) (42%), Portugal (39%), Denmark (35%), and Viet Nam (21%). In Turkey, about 93% of school principals in upper secondary are male (Table 2.12). This is not the case, however, in all countries with available data. In Brazil (68%) and Slovenia (62%), female principals are the majority in upper secondary schools. In other countries, there is almost parity: in Croatia, Sweden and the United Arab Emirates 49% of principals are female.

Figure 2.2. Female teachers in upper secondary education

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by teacher and school characteristics		
	Teacher with more than 5 years of experience - Up to 5 years	Full-time - Part-time	STEM field[1]
Slovenia	+		
Portugal	+		
Croatia	+		
Viet Nam	-	+	-
TALIS average ISCED 3	+	-	-
Brazil		-	-
United Arab Emirates	-		
Alberta (Canada)		-	
Sweden	+	-	-
Turkey	-		
Denmark		-	-
Education systems with a positive difference	4	1	0
Education systems with no difference	3	5	6
Education systems with a negative difference	3	4	4

1. STEM: Science, technology, engineering and mathematics. A "STEM teacher" is someone who marked teaching at least one of the following subjects in the year of the survey implementation: mathematics, science and technology, and no other subject.
Countries and economies are ranked in descending order of the percentage of female teachers in upper secondary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/zo6d9n

How do upper and lower secondary levels compare?

In all countries with available data for upper and lower secondary education, the proportion of female teachers is lower in upper secondary education than in lower secondary (TALIS average difference: 8 percentage points) (Table 2.9). This suggests that in several of these countries the teacher gender composition is close to parity at upper secondary level. This is interesting as data suggest that, in recent years, the proportion of female teachers in upper secondary education has increased (OECD, 2020[6]). This is likely to be related to the fact that, historically, at higher levels of education there have been more male teachers, while female teachers have traditionally taught younger pupils (Drudy et al., 2005[23]).

Concerning gender of school principals, even if there is a difference in the average share of female principals (which is higher at lower secondary education by 4 percentage points), there are mostly no significant differences across countries and economies between the two levels. Only in Sweden is there a large drop in the proportion of female principals between lower and upper secondary education, which drops from 69% to 49% (Table 2.12).

Knowing teachers' choices, motivations and perceptions of the profession

Several aspects of the challenges faced by teaching professionals have been made explicit in recent decades: increasing visibility, expectations and accountability, growing diversity of learners, and growing demands for innovative teaching strategies (Gomendio, 2017[35]).

Challenges have been strongly accentuated by several dramatic global issues, including the economic crisis in 2008 and the recent COVID-19 pandemic. Perhaps more than before, the teaching profession requires highly motivated individuals with skill sets that allow for adaptability in rapidly changing contexts.

Looking at the reasons current teachers have to join the profession allows for an analysis of the attractiveness of the profession but it also helps to identify which working conditions matter most in retaining and keep teachers motivated in the long run. While salaries and certain working conditions are important for some candidates (Won Han, Borgonovi and Guerriero, 2018[36]), research has shown that aspects including the notion of social utility or social value of the profession are motivating factors that can relate positively to career satisfaction among some teachers (Watt et al., 2012[37]).

TALIS 2018 allows for an analysis of teachers' views on the social value of teaching, also referred to in the literature as altruistic value (McLean, Taylor and Jimenez, 2019[4]) as well as some aspects of personal utility. For decades, entrants to the teaching profession have stated the desire to make a social contribution as a central motivation for choosing this career (McLean, Taylor and Jimenez, 2019[4]; Watt et al., 2012[37]).

As will be shown, novice teachers often have a better appreciation of the profession and of its social value than more experienced teachers. While this may respond to several different factors, novice teachers are also at a higher risk of attrition as they may experience a rapid mismatch between their expectations and what they experience once in the job (Kyriacou and Kunc, 2007[8]).

This leads to an important question on the extent to which young people have a realistic view of what teaching is as a profession. This is relevant in the current context as it has been argued that choosing to become a teacher offers job security in times of crisis (Struyven and Vanthournout, 2014[19]). Indeed, despite the difficulties in boosting its attractiveness, as shown by TALIS 2018 data, the teaching profession can also provide a feeling of job security and stability.

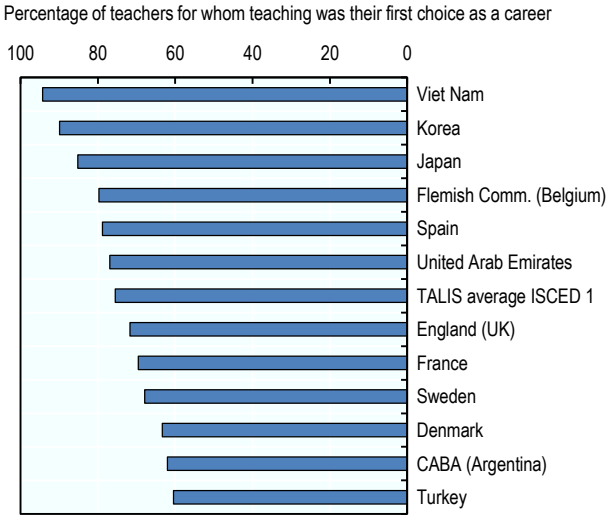
This is important for policy makers for the near future as new generations enrol in teacher initial education programmes. It is imperative to work on the attractiveness of the profession by matching social and personal values, and working conditions to teachers' expectations, and increasing the perceived value and status of the profession.

Teachers' motivations to join the profession and their perception of its value in primary education

When considering teachers' choices and motivations to join the profession, several aspects have to be factored in. There is the decision to become a teacher as a first choice but also the different parameters that were important when deciding to become a teacher.

Figure 2.3. Teaching as a first career choice in primary education

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by teacher and school characteristics		
	Teacher with more than 5 years of experience - Up to 5 years	Full-time - Part-time	City - Rural school
Viet Nam	+		-
Korea			
Japan			
Flemish Comm. (Belgium)	+		
Spain			
United Arab Emirates	+	+	
TALIS average ISCED 1	+	+	-
England (UK)	+		
France	+		-
Sweden	+	+	
Denmark	+	+	
CABA (Argentina)	+		
Turkey			
Education systems with a positive difference	8	3	0
Education systems with no difference	4	9	7
Education systems with a negative difference	0	0	2

Countries and economies are ranked in descending order of the percentage of primary education teachers for whom teaching was their first career choice.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/icqx1h

TALIS 2018 asked teachers whether teaching was their first choice as a career. As shown in Figure 2.3, at primary level an average of 76% of teachers reported that teaching was their first choice (Table 2.13). Across countries and economies, the percentage of teachers for whom teaching was their first choice as a career can vary significantly.

Teachers not choosing the profession as a first choice does not necessarily mean that they missed the opportunity to follow their preferred career options. Rather, it could be a sign of teaching attracting candidates that have training or experience in fields other than teaching. This would suggest that, after some trade-offs, teaching is seen as an attractive job. For example, teachers in primary education motivated by a work schedule that fits with their personal life are 21% more likely to report choosing another career as a first choice (odds ratio=1.21) (Table 2.16). However, teachers in primary education whose main motivation to enter the profession is to have a steady career path are 27% more likely to report

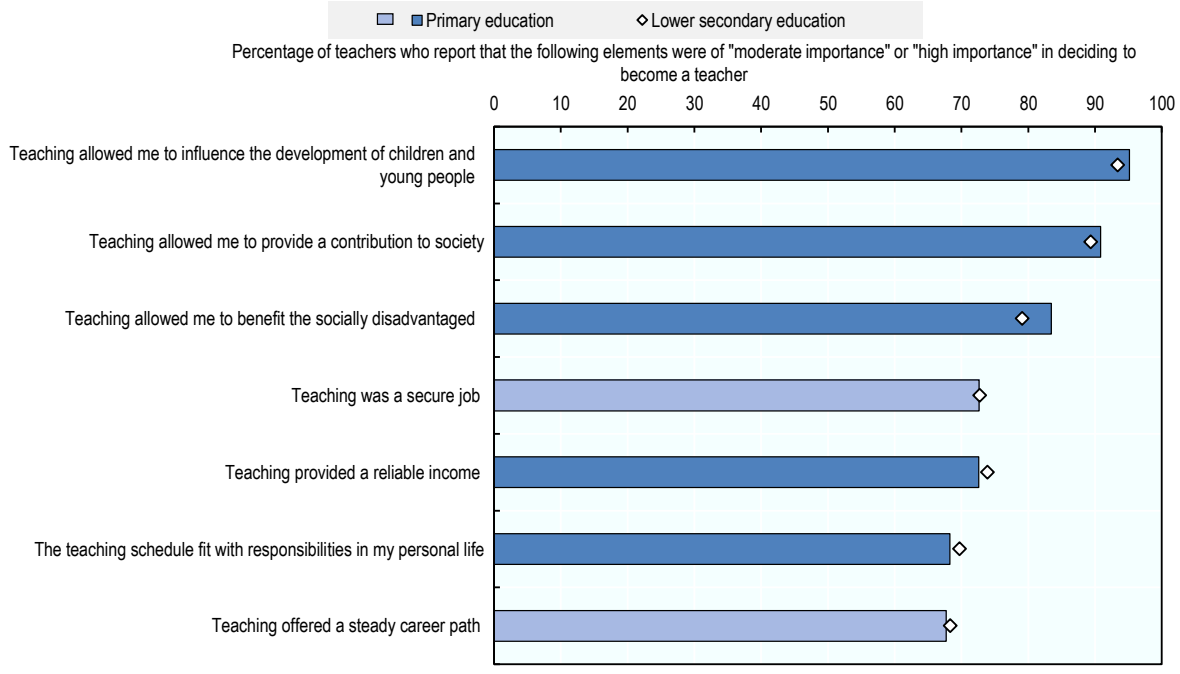
choosing teaching as their first career choice (odds ratio=0.73, as the analysis is based on teachers "not choosing teaching as a first career choice").

At this level, more female teachers (77%) reported teaching as a first choice than male teachers (71%). This is so in 8 out of 13 countries and economies with available data for primary education. In England (United Kingdom) (16 percentage points difference), CABA (Argentina) (15 percentage points difference) and Sweden (14 percentage points difference), gender differences are considerable, suggesting the particular attractiveness of the profession among women (Table 2.14).

One further interesting finding is that a smaller share of novice teachers considered teaching as a first choice compared to more experienced teachers (70% in contrast to 77% of more experienced teachers). When comparing teachers with five years or less of teaching experience to teachers with more than five years of experience, 6 percentage points separate the two groups in favour of the latter (Figure 2.3). This is true in 8 out of 13 countries and economies with available data for this level. Differences are strong in France (17 percentage points), CABA (Argentina) (16 percentage points), Sweden (14 percentage points) and Denmark (13 percentage points) (Table 2.14). While this could signal a loss in attractiveness of the teaching profession in recent years, as stated above, this does not necessarily mean that these novice teachers could not pursue another profession of their choice. It could also suggest that, in recent years, the teaching profession is attracting candidates with varied training and work experience who transition to it after having a previous (first-choice) professional experience. This can have the positive impact of diversifying the profession (Richardson and Watt, 2005[13]) but also points to the advantages of opening alternative entry paths when facing shortages.

Figure 2.4. Motivation to join the profession in primary and lower secondary education

Based on the responses from teachers (TALIS average)



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/q6irf1

When looking at the elements evaluated by teachers as being of "moderate importance" or "high importance" in deciding to become a teacher, one parameter is strikingly high and homogeneous: "teaching allowed me to influence the development of children and young people" (TALIS average: 95%) (Figure 2.4 and Table 2.13). Another highly regarded reason to become a teacher concerns its social value: "teaching allowed me to provide a contribution to society" (TALIS average: 91%). This was reported as an important reason by at least 90% of teachers in 9 out of 13 countries and economies with available data for primary education. Yet, in Denmark, this social aspect of teaching was not as important when deciding to become a teacher for almost one-quarter of teachers (23%) (Table 2.13).

The third most prominent aspect when considering to become a teacher is related to another potential social impact of teaching: "teaching allowed me to benefit the socially disadvantaged". An average of 83% of teachers in primary education reported this as an important reason (Table 2.13).

These results show the importance of the intrinsic and social values of the teaching profession in deciding to become a teacher. This has been addressed widely in the literature and it has been suggested that the social value of the profession is not only of high importance when evaluating reasons to join teaching as a career but it can be significant in maintaining motivation when teachers face the challenging demands of their profession (McLean, Taylor and Jimenez, 2019[4]; Watt and Richardson, 2007[25]).

The economic stability of the teaching profession also proves to be a solid argument for deciding to join the profession. Across participating countries and economies, almost three-quarters of teachers considered that "teaching provided a reliable income" and "teaching was a secure job" were important motivations to become a teacher (TALIS average: 73%, each) (Table 2.13).

Teaching as a secure job was regarded as important by over 90% of teachers in Japan, Korea and Viet Nam. Conversely, less than half of teachers in primary education gave this as a reason in Denmark (45%) and Spain (44%) and less than one-third in CABA (Argentina) (31%). This shows how job conditions and how they are perceived can differ in each system. Likewise, teaching as providing a reliable income was regarded as important by over 80% of teachers in Japan (89%), Viet Nam (89%), Korea (86%), the United Arab Emirates (86%), England (United Kingdom) (84%) and Turkey (84%). Here again, teachers in Spain (47%), Denmark (45%) and CABA (Argentina) (34%), show the lowest adherence to this criterion (Table 2.13).

Finally, the least regarded parameters for becoming teachers is that "teaching offered a steady career path" and "the teaching schedule fit with responsibilities in my personal life" (TALIS averages: 68%, each). In Viet Nam (98%) and the United Arab Emirates (92%), a large majority of teachers considered it important that teaching offered a steady career path. However, in Denmark (41%) and CABA (Argentina) (35%), this was regarded as important by a minority of teachers (Table 2.13).

Only in Viet Nam did over 90% of teachers consider that the teaching schedule fits with their responsibilities in their personal life. On the other hand, 50% or less of teachers reported this in France (50%), Spain (47%) and CABA (Argentina) (33%) (Table 2.13). This is an important indicator, given that matching teaching workload with personal life is often an influencing factor in being confident about having made the right career choice and staying in the teaching profession (Kyriacou and Kunc, 2007[8]). This is thus a relevant point for policy makers as it is also a motivation factor that is among the least cited by teachers in primary education participating in TALIS 2018.

Another important aspect for teacher motivation is their perception of value in the public eye. Across countries and economies with available data for primary education, about one-third of teachers believe that the teaching profession is valued in society (36%). Yet, there is considerable variation across countries. In France, the percentage of teachers in primary education who "agree" or "strongly agree" that the teaching profession is valued in society amounts to 4%. In Denmark (18%), Spain (12%) and Sweden (11%) and CABA (Argentina) (7%), significantly less than one-fifth of teachers believe this. At the opposite end of the spectrum, most primary school teachers in Viet Nam feel valued (95%) (Tables 2.18 and 2.19.

In the majority of countries (10 out of 13) there are no gender differences in the feeling of value of the profession (Table 2.19). Nevertheless, male teachers feel more valued than female teachers at primary level in Korea (10 percentage points difference) and the Flemish Community of Belgium (7 percentage points difference) while in the United Arab Emirates, female teachers feel more valued by society (6 percentage points difference).

Something similar can be seen when considering teachers' employment status. In primary schools, the TALIS average shows differences between part-time and full-time teachers: the former have a more positive view of how the profession is valued even if the difference is slim (2 percentage points). The difference is remarkable in Japan, where over half of part-time teachers in primary education (53%) consider that the teaching profession is valued in society but only 36% of those working full-time do. The same is seen in Spain even if the difference is significantly smaller (4 percentage points), However, in England the opposite is true, as more teachers working full-time believe the profession is valued in society than teachers working part-time (7 percentage points difference) (Table 2.19).

At this education level, however, novice teachers (with five years of experience or less) "agree" or "strongly agree" that the teaching profession is valued in society, more often than their more experienced peers (with more than five years of experience) (4 percentage points difference). The average difference between novice and more experienced teachers suggests an internal depreciation, a change between the perception outside the profession and, later on, inside the profession as novice teachers gain hands-on experience (Kyriacou and Kunc, 2007[8]). This difference can be seen in 6 out of 13 countries with available data. The inverse does not hold true in any country and economy as in the remaining 7 there are no differences between the two types of teachers in primary education (Table 2.19).

As discussed in previous TALIS 2018 reports, teachers' voice and influence can reach beyond the classroom walls. Effective upward feedback can influence policy makers and have an effect on education policy (OECD, 2019[5]).

Primary school teachers have a low appreciation of their relations with policy makers. On average, only 28% agree that they can have an influence on education policy and even less (23%) consider that their views are valued by policy makers in their country or region. However, in some countries teachers in primary education feel strongly valued and empowered. In Viet Nam, 87% of teachers believe their views are valued by policy makers and 89% believe they can influence education policy. Positive views are also seen in the United Arab Emirates, where over 60% believe their views are valued and they can influence education policy. At the opposite end, 10% of teachers or less feel valued and believe they have this kind of influence in Denmark, France and Sweden (Table 2.21).

Another element of teachers' perception of the professions' value lies in their views of how it is depicted by the media as, in certain contexts, it can have an important influence on the public image of the profession (Smak and Walczak, 2017[38]; OECD, 2005[2]). In primary education, slightly above one-quarter of teachers feel better appreciated by the media (TALIS average: 26%). Variations across countries range from 93% in Viet Nam and 73% in the United Arab Emirates to 35% in the Flemish Community of Belgium and less than 10% in Denmark, France and Japan (Table 2.21).

It is important to note that these analyses are based on teachers' reports before the COVID-19 pandemic. Education systems, and especially teachers, have been in the spotlight since. Therefore, it is possible that teachers' perceptions of value and influence have changed recently. For this reason, the conclusions drawn here must be taken with caution.

How do primary and lower secondary levels compare?

Primary school teachers come across as those with the highest match with their first choice when compared to lower secondary teachers. While 76% of teachers in primary education did choose teaching as a first career choice, 70% of lower secondary teachers did so (Table 2.13).

In some countries, the difference between the two levels is significant. In Spain, the difference between the two levels is the largest as 79% of primary school teachers chose teaching as a first choice while only 62% of lower secondary teachers did so. In England (United Kingdom) and Korea, the difference between both levels is of at least 10 percentage points (13 and 10 percentage points, respectively). Only in Turkey is the opposite true (4 percentage points difference) (Table 2.13).

Moreover, the social value of the teaching profession is more important among primary school teachers when deciding to join the profession. This is specially so when weighing the statement "teaching allowed me to benefit the socially disadvantaged". The TALIS average primary teacher considered this as a more important argument by 4 percentage points with respect to lower secondary teachers. Particularly strong differences can be seen in Sweden (9 percentage points difference), the Flemish Community (Belgium) (8 percentage points difference), France (8 percentage points difference) and Spain (8 percentage points difference) (Table 2.13).

Box 2.1. Difference in teachers' perceptions of being valued and having an influence over policy between primary education and lower secondary education – a gap decomposition analysis

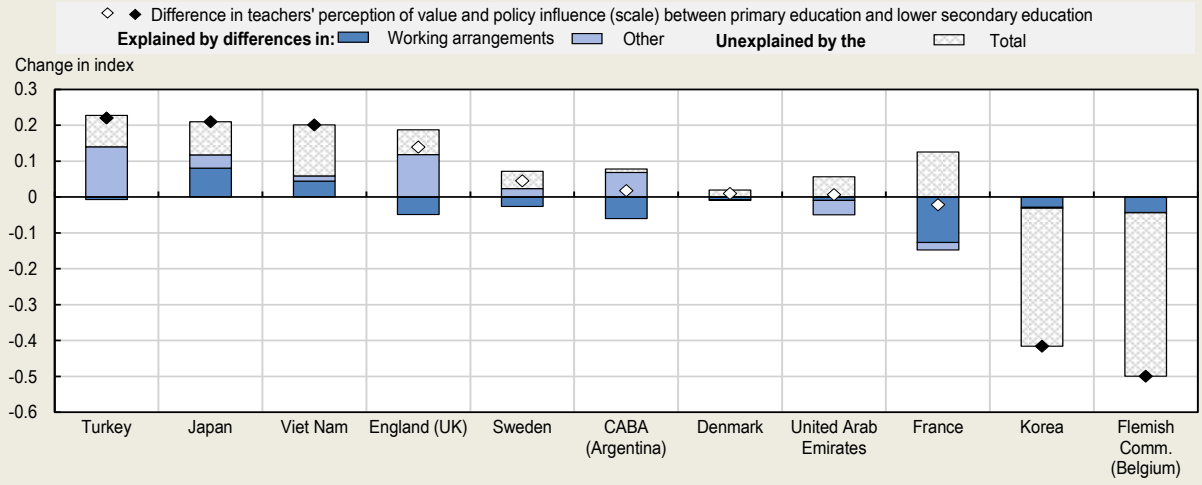
The TALIS scale of perception of value and policy influence measures teachers' views on how the teaching profession is depicted by the media and the extent to which they perceive having influence over policy and policy makers. The scale provides an insight on whether teachers feel visible and included in decision-making processes that are relevant for their daily work. TALIS data show that teachers' perceptions of such influence varies between primary and lower secondary education. Results show that, in Japan, Turkey and Viet Nam, the values for teachers' perceptions of their influence is higher among teachers in primary education than in lower secondary education. In contrast, in the Flemish Community of Belgium and Korea, these perceptions are higher for teachers in lower secondary than in primary (Figure 2.5 and Table 2.22).

What could explain these differences? To explore this further, a Blinder-Oaxaca decomposition of the gap in teachers' perception of value and policy influence has been used (Blinder, 1973[39]; Oaxaca, 1973[40]). This analysis helps to understand to what extent the observed gaps in teachers' perceptions, across levels of education, can be accounted for by differences in teachers' working arrangements, by differences in other variables of consideration (such as teachers' gender, experience, educational attainment and training) and school characteristics, or if they cannot be explained by such observable factors (Figure 2.5).

It is important to notice that most of the gaps cannot be explained by observable factors included in the model; this residual is represented by the white bars. As such, the results presented here should be interpreted cautiously: the main explanation for each gap might be found among variables that are unique to each education level, or to each education system, and which were not included in the survey or in the model.

Differences in working arrangements (which include their type of contract, working hours and class size) can account for a significant part of the gap in Japan and Viet Nam, where teachers in primary perceive their influence as higher compared to that of lower secondary teachers and, to a lesser extent, in Korea and the Flemish Community, where teachers in primary education perceive their influence as lower; in contrast, in Turkey, the gap appears mostly to be explained by differences in the demographic composition of the teacher population across primary and lower secondary levels. At least for the Flemish Community of Belgium, Japan, Korea and Viet Nam, the results support the idea that working arrangements are of great importance for teachers and that job satisfaction is closely related to adequate school and working conditions, which, ultimately, could be associated with policy decisions. Working arrangements that are perceived as inadequate might affect teachers' perspectives of their own relevance for decision makers, and whether they feel visible, heard and valued.

Figure 2.5. Differences in teachers' perceptions of being valued and having an influence over policy between primary education and lower secondary education



Notes: Predictors include teachers' gender (reference: male), highest educational attainment (reference: below ISCED level 5), participation in formal induction at current school, participation in effective forms of professional development, experience as a teacher and in non-education roles, teaching hours, having a permanent employment contract, class size, the share of students with special needs in the school and the share of students who come from disadvantaged homes in the school.
Statistically significant differences in the scale between primary education and lower secondary education are marked in a darker tone diamond.
Countries and economies are ranked in descending order of the difference in teachers' perception of being valued and having influence over policy between primary education and lower secondary education.
Source: OECD, TALIS 2018 Database.

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In Japan and Viet Nam, for example, there is a larger share of teachers in primary education working with permanent contracts than in lower secondary education and teachers have fewer working hours and operate in smaller classes (see Chapter 6, Tables 6.1, 6.9 and 6.14). Thus, better working conditions could explain the higher perception of value and influence in these countries. In other words, better working conditions make teachers feel more empowered.

Regarding the elements captured by the light blue bar, Table 2.22 shows that, besides working conditions, other factors might explain differences in certain countries and economies. For example, gender imbalance across teacher workforces (Table 2.9) could explain a part of the variance in two countries with significant differences: Japan and Turkey. In these two countries, gender seems to favour the gap in teachers' perceptions of value and policy influence for primary education.

Interestingly, in Viet Nam, gender favours the gap for lower secondary education, where gender balance is comparatively better than in primary education. In addition, teachers' experience (i.e. number of years working as a teacher) explains an important part of the significant difference in perception between primary and lower secondary teachers in Korea, Turkey, and Viet Nam. In the three cases, these effects correspond to the education level with the more experienced teachers. Indeed, the effect is the largest in Turkey, where teachers in primary education have significantly more experience in teaching than their lower secondary peers (Table 2.5).

Source: OECD, TALIS 2018 Database.

Teachers' motivations to join the profession and their perception of its value in upper secondary education

At the upper secondary level, 66% of teachers chose the teaching profession as a first career choice on average. In Croatia and Sweden, only 50% of teachers in upper secondary reported teaching as a first career choice, while in Viet Nam, 90% chose the profession as a first choice (Table 2.13).

As discussed previously, subject specialisation among some teachers at the upper secondary level can explain part of the reason why they may have more varied employment expectations and trajectories (Struyven and Vanthournout, 2014[19]). In addition to this, as has been shown, the TALIS average upper secondary teacher has four years of experience in roles other than teaching (Table 2.5).

As with primary education, teachers in upper secondary whose main motivation to enter the profession is to have a steady career path are 31% more likely to report that teaching was their first career choice (odds ratio=0.69, as the analysis is based on teachers "not choosing teaching as a first career choice"). Moreover, teachers whose motivation is to have a secure job are 25% more likely to make teaching their first career choice (odds ratio=0.75) (Table 2.17).

On the other hand, while teachers in primary education motivated by having a work schedule that would fit with their personal life are more likely to choose another career than teaching as a first choice, the picture among teachers in upper secondary is nuanced (Table 2.17). In Alberta (Canada), Brazil, Portugal and Slovenia, teachers that tend to be motivated by having this sort of matching between professional and personal life are less likely to select teaching as first choice. In the United Arab Emirates and Viet Nam, teachers motivated by this sort of matching would still have chosen teaching as their first choice. This shows how the perception of the motivations of the profession are probably related to the characteristics of teachers, schools and the profession in each context and have to be taken into consideration when assessing motivations to join the profession (see Box 2.1 for further analyses of the different factors that may be in play when assessing the value of the teaching profession).

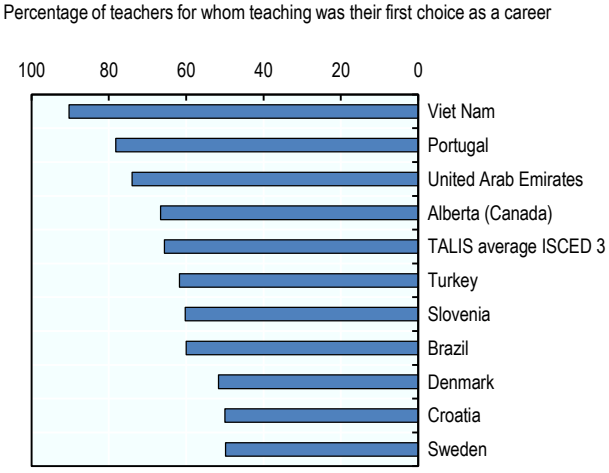
Teachers' and schools' characteristics show that in 10 out of 11 countries and economies with available data for upper secondary education, more female teachers reported choosing teaching as a first choice than male teachers (TALIS averages: 69% and 60%, respectively). In Brazil (17 percentage points difference), Slovenia (16 percentage points), Croatia (15 percentage points difference), Sweden (12 percentage points) and Denmark (8 percentage points difference), 50% or less male teachers chose the profession as a first choice. In all countries, over 50% of female teachers did. Only in the United Arab Emirates did more male teachers choose teaching as a first career choice than female teachers (2 percentage points difference) (Table 2.15).

As shown in Figure 2.6, across TALIS countries and economies with available data for upper secondary education, the proportion of novice teachers that considered teaching as a first choice (59%) is smaller than the proportion of more experienced teachers (67%). This is so in 7 of 11 countries with available data (Table 2.15). This suggests that novice teachers may have different appreciations of the teaching profession than their more experienced peers. This may signal potential challenges on the attractiveness of the teaching profession. Nonetheless, this could also signal that in recent years, the teaching profession is attracting more candidates with different profiles and experiences, consolidating alternative paths to the profession. At this level, not only subject specialty but the existence of professionalising pathways like VET programmes are attracting teachers with more diverse profiles.

On average across countries and economies with available data, when it comes to schools where VET programmes are taught, fewer teachers chose the teaching profession as a first choice when compared to teachers in schools with no VET programmes (8 percentage points difference). In Denmark, 60% of teachers in schools with no VET programmes chose teaching as a first career choice while in schools with VET programmes only 29% have. Other countries with differences beyond 10 percentage points are Slovenia (17 percentage points) and Croatia (14 percentage points) (Table 2.15).

Figure 2.6. Teaching as a first career choice in upper secondary education

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by teacher and school characteristics		
	Teacher with more than 5 years of experience - Up to 5 years	Full-time - Part-time	STEM field[1]
Viet Nam	-		
Portugal	-	+	+
United Arab Emirates	+	+	
Alberta (Canada)	-		
TALIS average ISCED 3	-	+	+
Turkey	-	-	
Slovenia	+	+	
Brazil	-	+	
Denmark	-	+	
Croatia	-		
Sweden	-	+	
Education systems with a positive difference	2	6	1
Education systems with no difference	0	3	8
Education systems with a negative difference	8	1	0

1. STEM: Science, technology, engineering and mathematics. A "STEM teacher" is someone who marked teaching at least one of the following subjects in the year of the survey implementation: mathematics, science and technology, and no other subject.

Countries and economies are ranked in descending order of the percentage of teachers in upper secondary for whom teaching was their first career choice.

Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/0vpbe2

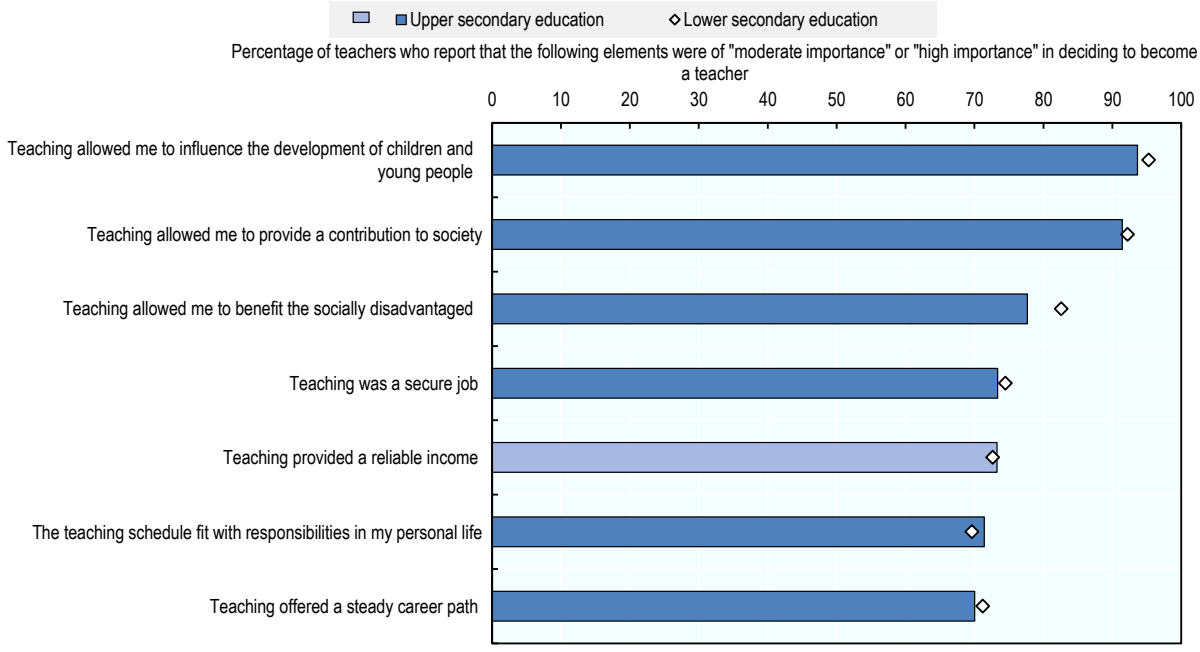
Interestingly, at upper secondary level, teachers teaching non-STEM fields chose the profession as first choice more often than teachers teaching STEM (TALIS average: 3 percentage points difference). While this average is driven mainly by three countries, the inverse difference does not hold true in any of the remaining countries. Differences of over 10 percentage points are seen in Denmark (14 percentage points) and Turkey (11 percentage points) (Table 2.15).

Moreover, at upper secondary level, the social value of the teaching profession was clearly the most valued aspect when weighing to join the profession, but this is not without some contrasts. Figure 2.7 shows that most teachers considered that the statement "Teaching allowed me to influence the development of children and young people" reflected a value of importance when making the decision (TALIS average: 94%). Across countries there is relatively low variation on this parameter, with no country under 86%. The

statement “teaching allowed me to provide a contribution to society” is of significant importance for 91% of teachers on average. The lowest importance was given to the statement “teaching allowed me to benefit the socially disadvantaged” among teachers in upper secondary (TALIS average: 78%). While a large majority of teachers in upper secondary considered this important when deciding to become teachers in Brazil (92%), Turkey (92%), Viet Nam (91%) and the United Arab Emirates (90%), about half of teachers in upper secondary in Slovenia considered this so (53%) and only 37% in Denmark (Table 2.13).

Figure 2.7. Motivation to join the profession in upper and lower secondary education

Based on the responses of teachers (TALIS average)



Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/4tyqlz

Other, more pragmatic reasons seem to have significant weight in several countries when deciding to become a teacher. On average, job security and a reliable income were regarded as important by 73% of teachers, each. These two criteria are very similar when looking at how teachers in each country granted them value. In Alberta (Canada), both criteria were important for at least 90% of teachers. In Denmark (50% and 55%) and Slovenia (55% and 54%), they were both central for about half of teachers (Table 2.13).

Other less regarded motivations concerned “the teaching schedule fit with responsibilities in my personal life” (71%) and “teaching offered a steady career path” (70%), on average. Again, the characteristics in each country seem to play important roles on how these criteria were regarded by teachers as differences across countries are important. In Viet Nam, 94% of teachers in upper secondary considered it important that the teaching schedule fit with responsibilities in their personal life but only 59% in Croatia and fewer than half in Slovenia (49%) thought the same (Table 2.13).

The fact that teaching may offer a steady career path was regarded as important by a large share of teachers at this level in Viet Nam (96%), the United Arab Emirates (91%) and Alberta (Canada) (88%).

Yet, in other countries, this criteria was not as relevant for about half of teachers, as in Croatia (57%), Slovenia (54%), Sweden (47%), and even less for teachers in Denmark (35%) (Table 2.13).

When looking at teachers in upper secondary' perceptions of value of the profession, above one-third (37%) "agree" or "strongly agree" that the teaching profession is valued in society (Table 2.18). Across countries and economies this view is shared by 10% of teachers in Slovenia and 11% in Brazil and Croatia, over half in Alberta (Canada) (55%) and up to 71% in the United Arab Emirates and 91% in Viet Nam. The sharp variations across countries suggest how strongly this vision depends on each context and its social, economic and cultural characteristics.

When looking at teacher and school characteristics, two aspects are to note. Gender differences show that across participating countries and economies a higher percentage of male teachers in upper secondary education consider that the teaching profession is valued in society as compared to female teachers (3 percentage points difference). This ranges from 12 percentage points in Portugal to 5 percentage points in Croatia. However, in the United Arab Emirates and Viet Nam, the share of female teachers who feel that the profession is valued in society is higher than that of male teachers in upper secondary schools (Table 2.20).

Likewise, novice teachers also tend to report more often that teaching is a valued profession than more experienced teachers (TALIS averages: 43% and 36%, respectively). While in 6 out of 11 countries this difference holds, there is no country or economy in which the opposite is observed. The difference is large in Portugal (22 percentage points), in Croatia (15 percentage points), Sweden (12 percentage points) and Denmark (11 percentage points) (Table 2.20).

Teachers in upper secondary have a low appreciation of their relationship with policy makers as only 23% consider they are valued by them. Nevertheless, teachers at this level feel in a better position to influence education policy (35%). This is the case in 8 out of 11 countries with available data. In Portugal, while only 5% of teachers feel valued by policy makers, over one-third (36%) believe they can influence policy in their country or region (Table 2.21). On the other hand, 29% of teachers in upper secondary feel valued by the media. While in Viet Nam this is the view of the majority of teachers (90%), in Croatia, Portugal and Slovenia less than 10% believe so (Table 2.21).

As with the primary education results, it is important to take these reports with caution as the data are from before the COVID-19 pandemic. The perception of value as discussed here is likely to have evolved due to the pandemic. It is also likely that its effects on teachers' perception of value are different across education levels.

How do upper and lower secondary levels compare?

A significantly smaller portion of upper than lower secondary teachers reported that the teaching profession was their first choice (TALIS average: 7 percentage points difference). This is the case in 9 of 11 countries with available data for both levels. Particularly strong differences are seen in Slovenia (21 percentage points difference), Croatia (17 percentage points difference) and Denmark (10 percentage points difference) (Table 2.13). Part of the explanation for this is that teachers at this level have more varied trajectories and often have experience in other non-education roles. Teachers in upper secondary have on average one year more experience in non-educational roles than their lower secondary peers. Differences can be seen in 6 out of 11 countries and economies (Table 2.5).

Concerning criteria that may be relevant for decisions to become a teacher, most of them are less important for teachers in upper secondary than for their lower secondary peers. When looking at the social value of the profession, in all cases teachers in upper secondary give less relevance to these aspects on average and across countries and economies. The largest difference concerns "teaching allowed me to benefit the socially disadvantaged" as 78% of teachers in upper secondary regarded this as important while 83% of lower secondary teachers did. In Denmark, the difference is particularly strong, going from 64% in lower

secondary education to 37% in upper secondary (Table 2.13). Among the more pragmatic criteria, the statement “the teaching schedule fit with responsibilities in my personal life” was comparatively more important for teachers in upper secondary than lower secondary teachers (2 percentage points difference), and especially so in Slovenia (10 percentage points difference).

Although the proportions of teachers are relatively low (slightly above one-third in all levels), the TALIS average shows that more teachers in upper secondary than lower secondary teachers believe that the profession is valued by society even if the difference is small (3 percentage points). In Denmark, the difference between teachers in both levels is striking as 38% of teachers in upper secondary believe the profession is valued in society while only 18% of lower secondary teachers feel so. While this sort of difference can be seen in 6 out of 11 countries and economies, in Alberta (Canada) the opposite is true: fewer teachers in upper secondary feel their profession is valued compared to lower secondary teachers (8 percentage points difference) (Table 2.18).

On the other hand, teachers’ self-reported value by the media is an area in which teachers in upper secondary feel more valued than teachers at the lower secondary level. Even if the TALIS average difference is small (1 percentage point), 7 countries out of 11 show larger differences, reaching 11 percentage points in Denmark. In Alberta (Canada) the inverse is true, lower secondary teachers feel more valued by the media, and the difference is large (14 percentage points) (Table 2.21).

Exploring the characteristics of students in schools

As societies change, schools change with them. Teaching and learning environments have to be highly adaptive and innovative but they also have to be sensitive to the different needs of the populations they attend to. Diversity and equity in schools affect a range of topics from gender and the socio-economic background of students to the movements of people across regions and borders. These all bring social, linguistic, cultural and ethnic diversity to schools.

In some countries, social segregation has effects on the concentration of disadvantaged and advantaged homes in specific neighbourhoods. This has, in turn, an effect on the social composition of schools in those neighbourhoods (Rowe and Lubienski, 2017[41]; Valenzuela, Bellei and De Los Ríos, 2013[42]). On the other hand, human mobility, such as the freedom of movement of European Union citizens among member states, has had an important effect for the social and cultural diversity in schools and workplaces across nations. Economic development, or lack of it, are among the other significant reasons behind people’s movement, just as is conflict. Recent humanitarian crises have had increasing numbers of refugees resettling in several OECD countries, especially between 2014 and 2016 (OECD, 2020[43]).

Education systems are becoming more complex as a result of social diversity and growing human mobility. These phenomena not only enrich social and cultural diversity, they also sometimes reflect social and economic inequities and tensions (Pinson and Arnot, 2007[44]). As reported in previous TALIS 2018 reports, ensuring high-quality learning experiences for a diverse student body deserves special attention. It is widely recognised that feeling like an outsider, facing linguistic difficulties, and living in disadvantaged conditions have important repercussions on students’ progress in school (Buhs, 2005[45]; Buhs and Ladd, 2001[46]; OECD, 2020[47]).

All these challenges can also represent a heavy burden for teachers, especially if they are not provided with enough support like specific professional development and training. As noted in previous TALIS 2018 reports, teachers often face difficulties when teaching in culturally or linguistically diverse classrooms (OECD, 2019[5]).

Strategies and policies for facing diversity-related challenges can vary across countries. Evidence shows that diversity in schools can be addressed by a variety of approaches. Practices that encourage children

to learn about different cultures while tackling discrimination are approaches that can increase respect and tolerance in settings characterised by student diversity (Thijs and Verkuyten, 2014[48]).

Most countries and economies with available data for primary and upper secondary education have identified the relevance of education in areas related to diversity to promote equity and a climate of respect and tolerance (Box 2.2 provides an overview of successful inclusive programmes in Slovenia). TALIS data allow for an analysis of teachers' working environment based on school and classroom compositions but also on the measures applied to make teachers' working environment more adaptive and adapted to teachers' and students' realities.

Box 2.2. Project for the Successful Integration of Roma Students in Schools in Slovenia (2008-15)

In 2008, the Ministry of Education, Science and Sports in Slovenia with the help of the European Structural Funds implemented the Project for the Successful Integration of Roma Students in Schools (2008-15). It aimed to share national best practices of inclusive teaching among kindergartens, schools and teachers in areas with little or no such experience. One of the most important measures was providing a Roma assistant in Roma settlements and schools attended by Roma pupils. Following promising results of this policy, the government later implemented a series of projects to expand support to Roma communities. The project on Raising the Social and Cultural Capital in Areas Inhabited by Members of the Roma Community (2011-13) aimed to work with Roma children, youth and parents in Roma settlements to increase the participation and success of Roma children in education. More recently, the Together for Knowledge (2016-21) programme aims to supply educational support in preschools for Roma communities through the inclusion of Roma parents in educational activities as well as coaching sessions and afterschool activities for children.

In terms of impact, the Project for the Successful Integration of Roma Students in Schools was identified by the Council of Europe as a demonstrated good practice (observing the Municipality of Murska Sobota). As reported by the Roma Union, results achieved by the end of 2010 included higher attendance of Roma children in educational institutions, improved co-operation between Roma parents and educational institutions, increased awareness among Roma of the importance of learning and education, and more successful co-operation between teaching assistants, teachers and Roma parents in the education of Roma children. The Council of Europe also identified the importance of the project on Raising the Social and Cultural Capital in Areas Inhabited by Members of the Roma Community (2011-13), particularly its contributions to the design of innovative and creative educational practices in Roma communities.

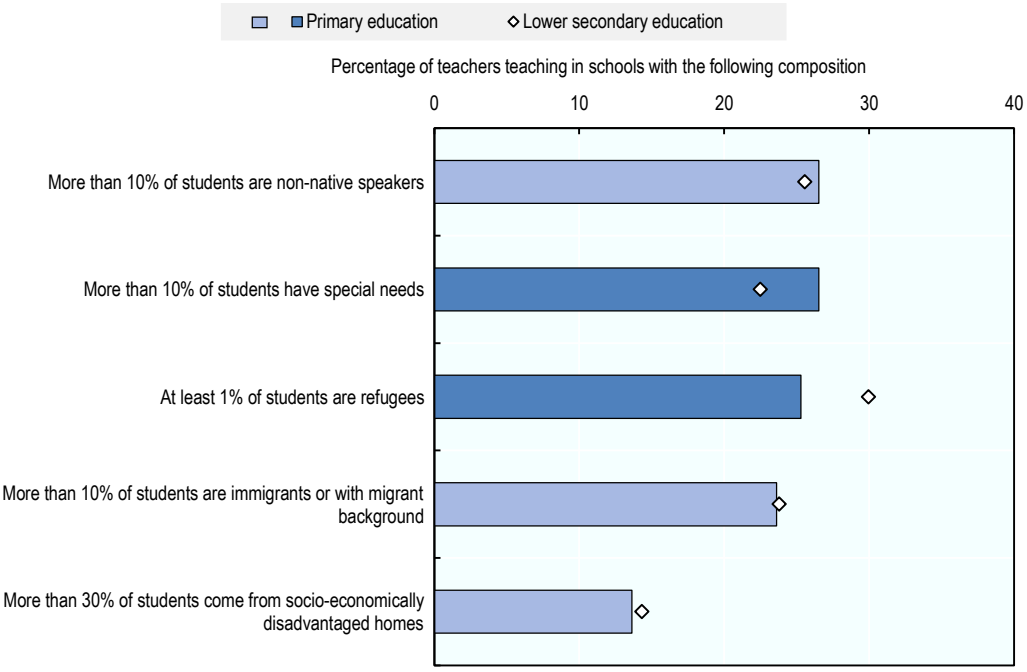
Source: OECD (2020[49]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://doi.org/10.1787/0a530888-en.

School composition, equity and diversity in primary education

When looking at school composition in primary education, principals were asked to estimate the broad percentage of students in their schools by their specific characteristics. Principals' reports show that slightly over one-quarter of teachers teach in schools where more than 10% of students are non-native speakers (27%); around one-quarter teach in schools where more than 10% of students are immigrants or with migrant background (24%) (hereafter referred to as "students with a migrant background") and 25% teach in schools where at least 1% of students are refugees (hereafter "schools with refugee students") on average (Figure 2.8 and Table 2.24).

Figure 2.8. School composition in primary and lower secondary education

Based on the responses of school principals (TALIS average)



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/uh74w3

When it comes to linguistic diversity, about half of teachers teach in primary schools where over 10% of students are non-native speakers in the Flemish Community of Belgium (50%) and Sweden (49%), slightly less so in England (United Kingdom) (44%) and the United Arab Emirates (44%), but less than one-tenth in CABA (Argentina) (7%), Korea (5%) and Japan (2%) (Table 2.24).

In Sweden, about half of teachers teach in primary schools where more than 10% of students have a migrant background (48%), and 66% work in schools with refugee students. In the Flemish Community of Belgium, the proportions are 38% and 53%, respectively and in Denmark 27% and 62%. In Turkey, while the proportion of teachers working in primary schools with refugee students is high (60%), only 10% of teachers teach in schools where more than 10% of students have a migrant background. Finally, in CABA (Argentina), 38% of teachers teach in the latter but only 9% teach in primary schools with refugee students (Table 2.24).

In addition to linguistic, cultural and ethnic diversity, classrooms are also diverse in terms of students' socio-economic backgrounds and learning abilities. Principals' reports show that 14% of teachers in primary education teach in schools where more than 30% of students come from socio-economically disadvantaged homes (Table 2.24). Across countries, about one-quarter of teachers teach in such schools in England (United Kingdom) (26%) and France (25%), around one-fifth in Sweden (20%) and CABA (Argentina) (19%) and less than 10% in Denmark (6%), the United Arab Emirates (5%), Japan (3%) and Korea (3%) (Table 2.24).

TALIS data also show that 27% of teachers in primary education teach in schools where more than 10% of students have special needs on average but 67% in England (United Kingdom), 59% in the Flemish

Community of Belgium and 49% in Sweden (Table 2.24). At the opposite end, in Viet Nam, only 4% of teachers teach in schools where 10% of students have special needs, and virtually none in Korea (Table 2.24). While countries differ in how and when special needs are diagnosed, results for primary education in most countries are in line with previous findings showing that teachers at lower levels of education are more likely to report greater proportions of students with special needs in their classrooms (OECD, 2014[50]). In recent years, policies on the inclusion of students with special needs have increased the level of presence of children with special needs in mainstream schools in several countries. This has influenced the need for staff with different sets of skills and training (OECD, 2019[1]) (Box 2.2 outlines an approach to online learning in Turkey which considers special needs education).

When looking at how schools address equity issues, 90% of school principals in primary education reported that in their school, teachers teach students to be inclusive of different socio-economic backgrounds on average. While across countries and economies this is largely the case, in three countries principals reporting the existence of such practice are comparatively low: in Sweden 81% of principals reported following this practice, in Japan 78% and in Viet Nam 54% (Table 2.25). In close connection with this, granting additional support for students from disadvantaged backgrounds was reported by 79% of school principals in primary education. Here again it is noted that important differences across countries and economies, ranging from virtually all principals in Viet Nam (99%) to 60% in Denmark, 49% in France and 41% in Sweden. Finally, 74% of school principals in primary education reported having in place explicit policies against socio-economic discrimination in their school, ranging from 90% in Korea to 60% in Sweden, 58% in Viet Nam and 48% in the Flemish Community of Belgium.

These results not only highlight what practices are in place in schools. they also show the importance placed on these issues to support student diversity in participating countries and economies. However, to interpret these findings correctly, it is important to take into consideration that explicit policies addressing equity and diversity are not always enforced within schools but are sometimes addressed through other sets of social policies. In Sweden, for example, support is administered to challenging schools and neighbourhoods and not to individual students in schools. The goal of such sort of equalising polices is to pursue better equity and to avoid stigmatisation.

Policies against gender discrimination are the second most relevant equity practice as 80% of principals reported having explicit policies against this sort of discrimination. Across countries and economies, the picture is quite diverse. While 98% of school principals in primary education reported having such policies in Korea, in Japan the share is 73%, 65% in France[1] and 42% in the Flemish Community of Belgium (Table 2.25).

In looking at how schools address diversity,[2] the percentage of teachers working in schools with diverse ethnic and cultural student background (i.e. teachers in schools with students from “more than one cultural or ethnic background” hereafter “diverse schools”) that teach students how to deal with ethnic and cultural discrimination amounts to 83% on average, based on reports from school principals in primary education. In 8 out of 13 countries and economies with available data, at least 90% of teachers teach in diverse schools with this practice in place. In Denmark, only 27% of teachers work in schools where this diversity-related practice is implemented (Table 2.26).

The percentage of teachers working in diverse schools that adopt teaching and learning practices that integrate global issues throughout the curriculum amounts to 82% on average. This ranges from 98% in England (United Kingdom) and 96% in CABA (Argentina) to 63% in France and 55% in Japan (Table 2.26).

While these findings are positive, comparatively fewer teachers work in diverse schools that support activities encouraging students’ expression of diverse ethnic and cultural identities. On average, 64% of teachers work in such diverse schools. However, there are strong variations across countries and economies with available data. While in Viet Nam, virtually all teachers work in such schools and 94% of teachers in the United Arab Emirates, 45% do so in the Flemish Community of Belgium, 38% in Sweden, 34% in Japan and 13% in Denmark (Table 2.26).

Finally, 61% of teachers in primary education work in diverse schools that organise multicultural events on average. While this practice concerns 97% of teachers in primary education working in diverse schools in the United Arab Emirates, it concerns 36% of such teachers in France, 35% in Sweden and 18% in Denmark (Table 2.26).

How do primary and lower secondary levels compare?

There are no average differences across levels when it comes to the linguistic, cultural and ethnic diversity of schools. This is to be expected as students with diverse linguistic, cultural and ethnic background go through all compulsory levels of education and are taught by teachers at all levels over the course of their time in school, just as any other student. However, in some countries, reports of primary and lower secondary principals differ to important extents. In Sweden, for example, fewer primary school teachers teach in schools with more than 10% of non-native speaker students than lower secondary teachers (6 percentage points difference). There is also a significant difference between the two levels when it comes to teachers that teach in schools with more than 10% of students with a migrant background (4 percentage points difference). Similarly, in the United Arab Emirates, the same differences amount to 3 and 5 percentage points, respectively. Conversely, in France, significantly more teachers in primary education teach in schools with more than 10% of students that are non-native speakers with respect to lower secondary teachers (9 percentage points difference) (Table 2.24).

One further interesting difference between the two levels concerns refugee students. The average difference between primary and lower secondary education is important, going from 25% of teachers in primary education teaching in schools with refugee students to 30% of lower secondary teachers (5 percentage points). In some countries, these differences are quite strong. In England (United Kingdom) and France, the differences are larger than 20 percentage points between the two levels (24 and 22 percentage points, respectively). In Sweden, which is the country with the largest proportion of teachers teaching in primary schools with refugee students (66%) across countries with available data, the proportion rises to 84% of teachers in lower secondary education (Table 2.24).

The different patterns described here are likely to be linked to migration flows of humanitarian refugees, asylum-seekers and isolated minors within these countries, which vary through time but increased between 2014 and 2016 in several countries (OECD, 2020[43]).

Concerning other students' characteristics, the average difference between primary and lower secondary levels is significant when it comes to schools where more than 10% of students have special needs as the proportion of primary school teachers that teach in such schools is larger (4 percentage points). In England (United Kingdom), this difference reaches 13 percentage points, and in Japan 17 percentage points. Conversely, in Sweden and Turkey, the proportion of teachers in primary education teaching in these schools is smaller with respect to lower secondary education (3 and 1 percentage points difference respectively) (Table 2.24).

Finally, regarding the percentage of teachers in primary education that teach in schools where more than 30% of students come from socio-economically disadvantaged homes, while there is no average difference between levels, in France, the percentage of teachers in primary education teaching in such schools is significantly lower than in lower secondary education, rising from 25% to 42% (16 percentage points difference). Differences on how students are registered at each education level and how the information on students' socio-economic background is systematised at higher education levels could account for part of this difference. In the Flemish Community of Belgium, Viet Nam and Sweden the opposite is true, as fewer teachers in primary education teach in such schools than lower secondary teachers (6 to 5 percentage points difference) (Table 2.24).

Across countries and economies with available data for both levels, three equity domains show no difference on average: having explicit policies against gender discrimination, teaching students to be inclusive of different socio-economic backgrounds and having explicit policies against socio-economic

discrimination. This is a relevant issue given the importance of teaching equitable behaviours and practices to students at early ages, especially so since primary schools are as diverse as lower secondary schools in several countries and economies.

Nonetheless, in some countries the differences are important. In Viet Nam, teaching students to be inclusive of different socio-economic backgrounds is significantly less prevalent in primary education than in lower secondary education (54% and 78%, respectively), according to principals' reports. Likewise, with respect to explicit policies against gender discrimination, in France, 65% of principals reported having such polices in their school in primary education compared to 89% in lower secondary education. The opposite pattern is observed in Japan with 73% of school principals in primary education reporting such policies against gender discrimination compared to 63% for their lower secondary peers (Table 2.25).

When it comes to having additional support for students from disadvantaged backgrounds, the same two countries show marked differences across levels of education. In France, just under half of principals reported such support in primary education (49%) while a majority of lower secondary principals reported this (86%). Japan shows the opposite pattern again with 79% of school principals in primary education reporting this support for students compared to 68% of lower secondary principals (Table 2.25).

When looking at diversity policies and actions pursued by teachers, there are no differences in the percentages of primary and lower secondary teachers working in diverse schools and reporting supportive activities or organisations encouraging students' expression of diverse ethnic and cultural identities, teaching how to deal with ethnic and cultural discrimination and adopting teaching and learning practices that integrate global issues throughout the curriculum.

However, across countries and economies with available data for the two education levels, some interesting differences emerge. With respect to supporting activities or organisations encouraging students' expression of diverse ethnic and cultural identities, there are significant differences in 7 out of 13 countries and economies. In Denmark, fewer teachers work in diverse primary schools that implement such practice than in diverse lower secondary schools (11 percentage points difference). Conversely, in Korea, the opposite pattern is true and more teachers in primary education work in such schools (13 percentage points difference) (Table 2.26).

Moreover, on average, more teachers in primary education work in diverse schools that organise multicultural events than their lower secondary peers (5 percentage points difference). In some countries and economies, the differences can be quite large. In Korea, while 78% of teachers in primary education work in diverse schools that organise multicultural events, only 54% do so at the lower secondary level. Similar strong differences can be seen in England (United Kingdom) (18 percentage points), CABA (Argentina) (15 percentage points) and Viet Nam (15 percentage points). In the Flemish Community of Belgium, the opposite pattern is found with fewer primary than lower secondary teachers working in diverse schools that organise multicultural events (13 percentage points difference) (Table 2.26).

Box 2.3. The Turkish education system's initial response to the COVID-19 pandemic

Following an initial week of full closure after the pandemic was declared, Turkey launched a national programme of online education via the official national digital education platform (EBA), which provides interactive and subject-specific digital content for students and teachers across Turkey from pre-school to upper secondary education.

With initially 1 600 courses and over 20 000 interactive activities, the platform continued to develop throughout the period of closures, introducing the capacity for teachers to host live synchronous classes (with priority to those teaching national examination candidates), and machine learning-powered adaptive support tools. Online learning was supplemented by a programme of educational broadcasting across six national public television channels with content for children from early childhood education

and care (ECEC) to upper secondary level. Information packs, promotional brochures and videos were prepared for students selecting upper secondary general and vocational courses.

To facilitate the period of online education, Turkish Internet providers committed to supplying all students with between 5 and 8GB of free data during the period of school closures. The Ministry of National Education launched a mobile application providing targeted content for students with special educational needs and their parents and teachers, complementing the content already published on the EBA. Provincial call centres were established across the country to enable teachers to support and communicate with children with special educational needs and their families.

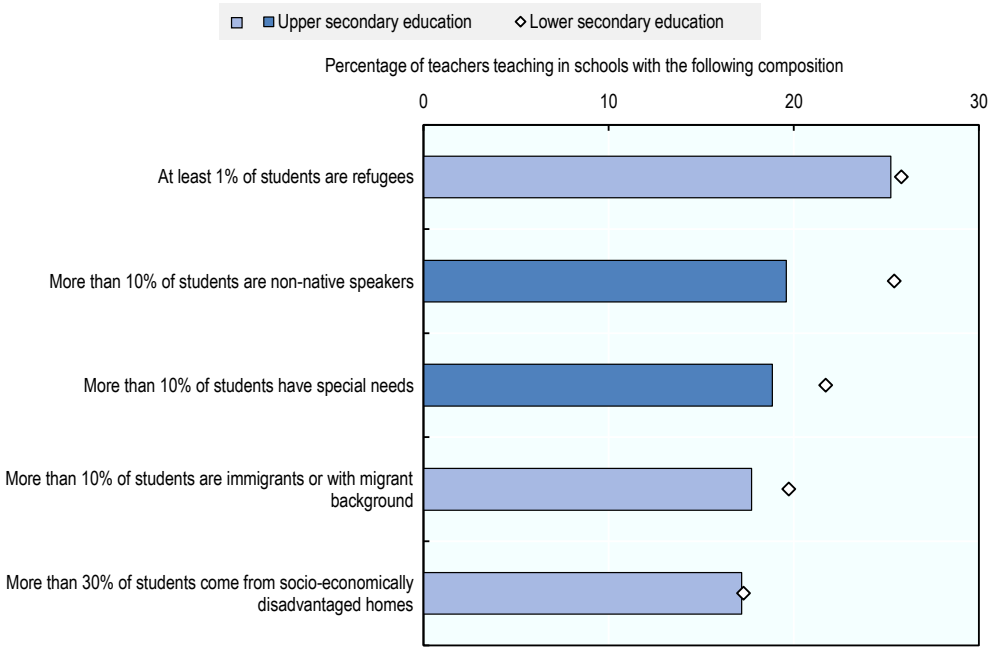
Source: OECD (2020[51]), *Education Policy Outlook: Turkey*, www.oecd.org/education/policy-outlook/country-profile-Turkey-2020.pdf.

School composition, equity and diversity in upper secondary education

In upper secondary education, TALIS data on average school composition show that 20% of teachers teach in schools with substantial linguistic diversity (i.e. schools where more than 10% of students are non-native speakers), and 18% teach in schools with ethnic or cultural diversity (i.e. schools where more than 10% of students have a migrant background. Moreover, principals' reports show that one-quarter of teachers in upper secondary teach in schools with refugee students (TALIS average: 25%) (Figure 2.9 and Table 2.24).

Figure 2.9. School composition in upper and lower secondary education

Based on the responses of school principals (TALIS average)



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

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Across countries and economies, when it comes to linguistic diversity, almost half of teachers teach in upper secondary schools where over 10% of students are non-native speakers in Alberta (Canada) (46%) and 61% of teachers do so in Sweden. Conversely, in Portugal this concerns 5% of teachers at this level, while in Brazil and Croatia the proportion is only 1% (Table 2.24).

Sweden is the only country with available data for upper secondary education in which more than half of teachers teach in schools with ethnic or cultural diversity (64%). Also in Sweden, the proportion of teachers teaching in schools with refugee students is the highest, concerning 77% of teachers at this level (Table 2.24). This is not surprising as large numbers of humanitarian refugees were admitted to Sweden between 2014 and 2016 (OECD, 2018[52]).

Alberta (Canada) and Denmark are two other countries where at least half of the teachers teach in schools with refugee students (52% and 68%, respectively) even if less so teach in upper secondary schools with more than 10% of students with a migrant background (43% and 26%, respectively) (Table 2.24). In contrast, less than 10% of teachers in upper secondary teach in schools with refugee students in Brazil, Croatia and Slovenia, while no teacher at this level reported this in Viet Nam. Likewise, less than 10% of teachers in upper secondary in Brazil, Slovenia, Turkey and Viet Nam teach in ethnically or culturally diverse schools, while none reported this in Croatia (Table 2.24).

Regarding other student characteristics, principals' reports show that less than one-fifth of teachers in upper secondary (19%) teach in schools where more than 10% of students have special needs. Nonetheless, across countries and economies, there are important contrasts. In Alberta (Canada) over half of teachers (59%) report this, while in Sweden (36%), Denmark (26%), Slovenia (26%) and Portugal (21%), the share of teachers teaching in schools where more than 10% of students have special needs is between one-fifth and over one-third. In Viet Nam, this concerns only 2% of teachers at this level (Table 2.24).

Moreover, according to principals' reports, 17% of teachers in upper secondary teach in schools where more than 30% of students come from socio-economically disadvantaged homes on average. But across countries and economies participating in TALIS this ranges from 39% of teachers in upper secondary in Portugal and 33% in Brazil to only 5% in Viet Nam (Table 2.24). In connection with this, 86% of school principals in upper secondary reported that students in their school are taught to be inclusive of different socio-economic backgrounds. Yet, in three countries, principals reporting the existence of such practice are relatively low: Viet Nam (67% of principals reported this), Denmark (66%) and Sweden (63%) (Table 2.25). Perhaps related to the relatively low share of teachers in schools with high concentrations of students from socio-economically disadvantaged homes, explicit policies against socio-economic discrimination at this level are the least prevalent (TALIS average: 77%) but there are important variations across countries. While over 90% of principals reported this sort of policy in their school in Slovenia (92%) and Brazil (91%), 58% reported this in Alberta (Canada) and 51% in Sweden.

In addition to this, granting additional support for students form disadvantaged backgrounds is a type of equity school policy reported by 83% of school principals in upper secondary. But while virtually all principals reported having this type of support in their school in Viet Nam, 67% reported this in Denmark and 37% in Sweden (Table 2.25). As mentioned before, explicit policies addressing disadvantaged students are not in place in countries like Sweden as support is designed to address challenging schools and neighbourhoods rather than individual students.

In what concerns practices addressing diversity, the percentage of teachers in upper secondary working in diverse schools (i.e. schools that include students from "more than one cultural or ethnic background"), that adopt teaching and learning practices that integrate global issues throughout the curriculum amounts to 82% on average. This ranges from 95% in the United Arab Emirates, 94% in Sweden and 92% in Brazil to 66% in Denmark and 61% in Turkey (Table 2.26).

As far as teaching how to deal with ethnic and cultural discrimination is concerned, 80% of teachers in upper secondary do so, according to principals. While the share is over 90% in Portugal (94%), the United Arab Emirates (93%) and Viet Nam (92%), it concerns 22% of teachers in upper secondary in diverse upper secondary schools in Denmark (Table 2.26).

On average, 69% of teachers in upper secondary work in diverse schools that support activities or organisations encouraging students' expression of diverse ethnic and cultural identities. However, there are strong variations across countries and economies with available data. While these policies and practices addressing diversity are very prevalent in Viet Nam (97% of teachers in upper secondary work in such schools), the United Arab Emirates (94%) and Alberta (Canada) (92%) they are less so in Croatia (47%), Sweden (37%) and Denmark (17%) (Table 2.26).

Finally, 61% of teachers in upper secondary work in diverse schools that organise multicultural events on average. But while this practice is nearly universal in the United Arab Emirates (concerning 97% of teachers working in diverse upper secondary schools) and Brazil (90%), it concerns 38% of such teachers in Sweden, 37% in Turkey, 32% in Croatia and 29% in Denmark (Table 2.26).

How do upper and lower secondary levels compare?

Two indicators on school composition show differences between the two levels of education. The share of teachers teaching in linguistically diverse schools show that, on average, more teachers teach in such schools in lower secondary than in upper secondary education (TALIS average difference: 4 percentage points). In 3 out of 11 countries and economies with available data, the difference is large. In Turkey, the difference reaches 10 percentage points (from 21% in lower secondary to 11% in upper secondary education). However, in Sweden, the opposite pattern is found, with more upper secondary school teachers teaching in schools with over 10% of non-native speakers among students (6 percentage points difference, from 55% to 61%) (Table 2.24).

Likewise, the percentage of teachers who teach in schools where more than 10% of students have special needs shows that fewer teachers teach in such schools in upper secondary than in lower secondary education (TALIS average difference: 4 percentage points). This holds true in 5 out of 11 countries and economies with available data for the two levels. In Portugal and Sweden the differences between the two levels are significant (12 and 17 percentage points) (Table 2.24).

Regarding policies and practices addressing equity and diversity, the only significant differences are seen in teaching students to be inclusive of different socio-economic backgrounds. Fewer school principals in upper secondary reported doing so compared to lower secondary principals (TALIS average difference: 5 percentage points). This average is based, however, on only three countries with strong differences. In Denmark and Sweden, the differences between the two levels are large (18 and 20 percentage points difference, respectively). In Viet Nam, the difference reaches 11 percentage points. As pointed out before, these three countries have the lowest shares of school principals in upper secondary that reported that they teach students to be inclusive of different socio-economic backgrounds in their schools (Table 2.25).

As was the case for primary and lower secondary comparisons, no differences can be seen in the percentages of upper and lower secondary teachers working in diverse schools in which diversity practices are implemented, with one exception: the share of teachers working in diverse schools that organise multicultural events. At the upper secondary level, slightly more teachers work in such schools on average (3 percentage points difference). In some countries and economies, however, the differences can be quite large. In Portugal, while 73% of teachers in upper secondary work in diverse schools that organise multicultural events, 51% do so at lower secondary level. Similar strong differences can be seen in Viet Nam (17 percentage points) and Alberta (Canada) (14 percentage points). Conversely, in Croatia, fewer upper secondary than lower secondary teachers work in such schools (14 percentage points difference) (Table 2.26).

Looking at relationships and working climate in schools

The type and quality of interactions and relationships established between teachers and students at schools can be important to various extents. Students' personalities and attitudes towards adults may shape the type of interactions they establish with teachers. Yet, these relationships are often constructed mutually, with students and teachers equally responsible for establishing solid bonds (Sabol and Pianta, 2012[53]). Good student-teacher relationships may have a positive effect on students' feelings of confidence in the classroom and allow them to learn more on their own, with their teacher's support (O'Connor and McCartney, 2007[54]). Indeed, positive teacher-student relations based on mutual trust have shown to lead to positive learning outcomes (O'Connor and McCartney, 2007[54]). Moreover, studies suggest that the effects of positive teacher-student interactions go beyond these individual interactions. They likely improve relations among students themselves, thus improving the school environment (Hughes, Cavell and Willson, 2001[55]).

In order to measure teacher-student relations, TALIS 2018 asked school teachers if they "agree" or "strongly agree" that in their school: "teachers and students usually get on well with each other", "most teachers believe that the students' well-being is important", "most teachers are interested in what students have to say" and "if a student needs extra assistance, the school provides it".

Teacher-student relations are also pertinent for teachers' appreciation of their own work. When the scale of teacher-student relations is higher (i.e. the scale measures teachers' attitudes about these interactions based on the four dimensions described above), teachers tend to report better views on how the teaching profession is valued in society. On average, teachers in primary education that reported better student-teacher relations are 13% more likely to report teaching to be valued in society (odds ratio=1.13), and teachers in upper secondary are 17% more likely to do so (odds ratio=1.17) (Tables 2.27 and 2.28).

While teachers' assessments of the value of the profession is undoubtedly influenced by external factors (e.g. media attention or policy influence), these results reinforce the idea that there may also be a sense of value picked up from within the school and in teachers' daily practice, including good interactions and relationships with students, and other relationships influencing those (e.g. teacher-parent interactions and relationships with colleagues) (Skaalvik and Skaalvik, 2011[56]; OECD, 2005[2]).

Teacher-student relations and peer support in primary education

When it comes to teacher-student relations in primary education, most teachers (at least 90%) believe they usually get on well with students (98%), believe that students' well-being is important (98%), are interested in what students have to say (96%) and if a student needs extra assistance, the school provides it (90%) (Table 2.29).

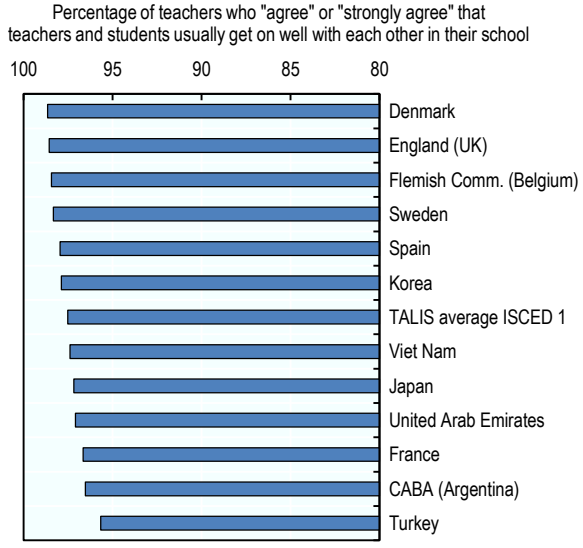
Across countries, the first three items show little variation. The 13 countries and economies with available data for primary education are all close together with high percentages between 93% and 100%. Interestingly, there is more variation when it comes to the extra assistance provided to students if they need it. This is of course relative to the fact that in 11 of 13 countries and economies, at least 90% of teachers agree on this. Yet, in Denmark 66% of teachers in primary education believe so and 77% in Sweden, signalling that despite the overall homogeneity, in these two countries, between one-third and one-quarter of teachers believe schools do not readily provide extra assistance to primary students when needed (Table 2.29).

Moreover, in addition to the teacher-student interactions and relations observed here, TALIS 2018 asked teachers about teacher-teacher interaction and relations, and how they felt about mutual reliance. On average across participating countries and economies, a large majority of teachers "agree" or "strongly agree" that teachers can rely on each other (92%), ranging from 84% in Turkey to 97% in Viet Nam (Table 2.29). This observation complements the analysis on student-teacher relations with insight into how

peer reliance and collegiality can help teachers in primary education address issues arising from their relationships with students.

Figure 2.10. Teachers' perceptions of teacher-student relations in primary education

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference between primary education and lower secondary education		
	Most teachers believe that the students' well-being is important	Most teachers are interested in what students have to say	Teachers can rely on each other
Denmark		+	
England (UK)		+	+
Flemish Comm. (Belgium)	+	+	+
Sweden		+	+
Spain	+	+	
Korea	+	+	+
TALIS average ISCED 1	+	+	+
Viet Nam	+	+	
Japan	+	+	+
United Arab Emirates	+	+	
France	+	+	+
CABA (Argentina)		+	
Turkey	+	+	
Education systems with a positive difference	8	12	6
Education systems with no difference	4	0	6
Education systems with a negative difference	0	0	0

Countries and economies are ranked in descending order of the percentage of primary education teachers who "agree" or "strongly agree" that teachers and students usually get on well with each other.
Source: OECD, TALIS 2018 Database.

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How do primary and lower secondary levels compare?

Interestingly, teachers in primary education in 9 out of 13 countries and economies with data for these two levels agree more often that teachers and students usually get along well with each other and that students' well-being is important compared to lower secondary teachers. In Korea, the difference between the two levels is the largest, with 4 percentage points for both areas (Table 2.29).

Moreover, as shown in Figure 2.10, in all countries and economies with available data for both levels, more teachers in primary education believe that teachers are interested in what students have to say compared

to their lower secondary peers. In Spain (5 percentage points), Japan (4 percentage points) and Korea (4 percentage points), the difference between the two levels is the largest (Table 2.29).

Regarding teachers' belief that when a student needs extra assistance, the school provides it, while there are no average differences between the two levels, in 3 out of 7 countries and economies where the differences are significant, fewer primary than lower secondary teachers reported this. In Denmark, the difference is large (9 percentage points difference) (Table 2.29). On the other hand, of the 4 countries where the opposite is true, teachers in primary education in Korea and Spain reported the highest differences with respect to their lower secondary peers (4 and 3 percentage points, respectively).

Finally, on average, more teachers in primary education than lower secondary teachers believe they can rely on each other, even if the difference is small (2 percentage points). The difference is significant in 7 out of 13 countries with available data for the two levels. The largest differences are seen in Japan (6 percentage points), Korea (6 percentage points) and France (5 percentage points). In no country or economy did fewer teachers in primary education than lower secondary teachers report that they can rely on each other (Table 2.29).

Teacher-student relations and peer support in upper secondary education

At this level, when it comes to teacher-student relations, most teachers (at least 90%) believe they usually get along well with students (96%); believe that students' well-being is important (96%), feel that if a student needs extra assistance, the school provides it (91%); and are interested in what students have to say (90%) (Table 2.29).

Across countries and economies, similar shares of upper secondary and lower secondary teachers agreed with these statements. Only in Brazil (83%), Croatia (84%), Slovenia (85%) and Turkey (87%) the shares of teachers in upper secondary who reported that they are interested in what students have to say are below 90%. Likewise, in Brazil (74%), Sweden (85%) and Turkey (87%), less than 90% of teachers in upper secondary reported that if a student needs extra assistance, the school provides it (Table 2.29).

When looking at teachers' beliefs that they can rely on each other, on average 86% of upper secondary school teachers agree with this, ranging from 76% in Turkey and 77% in Croatia and Portugal to 95% in Alberta (Canada) and Viet Nam (Table 2.29).

How do upper and lower secondary levels compare?

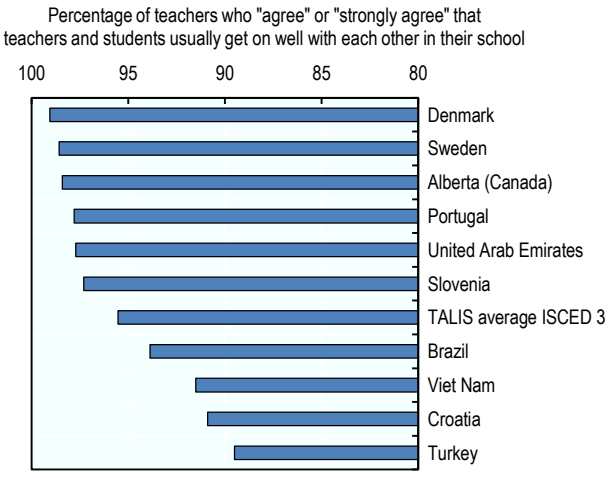
Three areas of teacher-student relations show that fewer teachers in upper secondary reported good relations compared to their lower secondary peers. Yet, these differences have to be interpreted with caution as they are, on average, quite small. The three areas are: teachers and students usually get on well with each other (1 percentage point); they believe that students' well-being is important (1 percentage point difference); and most teachers are interested in what students have to say (2 percentage points difference) (Table 2.29).

While in the majority of countries and economies in which there is a difference between the two levels, teachers in upper secondary show lower percentages, the low magnitude of the differences suggests that student-teacher relations at both levels are on average quite similar.

When it comes to teachers' beliefs that when a student needs extra assistance, the school provides it, the TALIS average difference suggests that more teachers in upper secondary than lower secondary teachers feel this is true by a very small margin (1 percentage point). Interestingly, this average is heavily influenced by a strong difference in Denmark (18 percentage points) and Sweden (8 percentage points), mainly. Yet, teachers in upper secondary reported less agreement with this statement than lower secondary teachers in 6 out of the 9 countries and economies in which the difference between the two levels is significant, ranging from 5 percentage points in Brazil to only 1 in Viet Nam (Table 2.29).

Finally, as shown in Figure 2.11, fewer teachers in upper secondary reported they can rely on other teachers than their lower secondary peers (2 percentage points difference). This is true also in 6 out of 11 countries with available data for the two levels, ranging from 6 percentage points of difference in Croatia, Slovenia and Turkey, to 2 in Viet Nam. Conversely, in Denmark and the United Arab Emirates, more upper secondary than lower secondary teachers believe they can rely on their colleagues even though the difference is small (2 percentage points, each) (Table 2.29).

Figure 2.11. Teachers' perceptions of teacher-student relations in upper secondary education



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

Difference between upper secondary education and lower secondary education		
Most teachers believe that the students' well-being is important	Most teachers are interested in what students have to say	Teachers can rely on each other
		+
-	-	
		+
-	-	-
-	-	-
-	-	-
-		-
-	-	-
-	-	-

Education systems with a positive difference	0	0	2
Education systems with no difference	4	5	3
Education systems with a negative difference	6	5	5

Countries and economies are ranked in descending order of the percentage of teachers in upper secondary who "agree" or "strongly agree" that teachers and students usually get on well with each other.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/erdup1

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Notes

[1] The French translation of the question “In this school, are the following policies and practices implemented? Explicit policies against gender discrimination” failed to attain the full scope of the questionnaire item. Therefore, any international comparisons of French principals’ responses to this item are not relevant.

[2] In TALIS, “diversity” is understood as the recognition of and appreciation for differences in the backgrounds of students and staff. In the case of cultural diversity, it refers, most notably, to cultural or ethnic backgrounds.

3 Preparing teachers and school leaders as expert professionals

This chapter describes the educational background of teachers and school leaders in primary and upper secondary education and preparation for their teaching roles. The chapter discusses different profiles of teachers based on the subjects they teach. Finally, it examines how teachers execute their core task, i.e. classroom instruction based on how they spend time in the classroom and use different teaching practices.

Highlights

Primary education

- The most common educational qualification completed by teachers in primary education is a bachelor's degree or equivalent, reported, on average, by 68% of teachers across the participating countries and economies.
- Eighty-six percent of teachers, on average, received comprehensive formal training, that is, their formal training included all of the three core areas: training in content, pedagogy and classroom practice in some or all the subjects taught by the teacher.
- Forty-six percent of teachers, on average, cited receiving formal training in facilitating transitions from early childhood education to primary education. However, a slightly smaller share of teachers (38%) said they felt well or very well-prepared in this area.
- Teachers in primary education spend about three-quarters of an average lesson on actual teaching and learning (76%) on average across the participating countries and economies. About one-quarter of teachers' time is spent on non-instructional work – i.e. keeping order in the classroom (16%) and administrative tasks (8%).
- Compared to lower secondary education, teachers in primary education spend a significantly greater share of lesson time keeping order in the classroom. More teachers in primary education reported using classroom management practices frequently or always.

Upper secondary education

- The most common qualification pathway for teachers is a regular concurrent teacher education programme. In upper secondary education, 61% of teachers reported this, followed by 25% of teachers who trained through a regular consecutive teacher education programme. Alternative pathways for teacher education are growing in prominence, such as fast-track or specialised education programmes. Some 7% of teachers reported having completed their formal training through this pathway.
- Twenty-two percent of the workforce in upper secondary education can be identified as science, technology, engineering, and mathematics (STEM) teachers, i.e. teachers who exclusively teach science, technology, engineering and mathematics.
- Teachers reported spending 80% of their time in a typical lesson on actual teaching and learning; 11% of their time on keeping order in the classroom; and 8% on administrative tasks. However, novice teachers spend less time on actual teaching and learning in a lesson compared to experienced teachers (an equivalent of 3 minutes less per 60-minute lesson).
- Among the cognitive activation teaching practices used by teachers in upper secondary education, the most prominent ones are giving students tasks that require them to think critically and letting students use information and communication technology (ICT) for projects or class work as reported by 65% and 60% of teachers, respectively.

Introduction

Education systems face a variety of challenges in terms of recruiting a highly skilled and motivated teaching workforce. They must ensure that they have enough teachers to meet demand and make sure all teachers are adequately trained and qualified for their job (OECD, 2005[1]). At the time of recruitment, education systems can determine the quantity and quality of the workforce through minimum educational qualification requirements for specific roles at each educational level. And, once candidates are recruited into teacher education, it is up to education systems to determine how these candidates are prepared with the necessary knowledge, skills and mindsets to effectively carry out their roles.

Teachers and school leaders' preparation for their roles or their pre-service training is the first step in the continuum of teacher development. It extends into in-service learning opportunities during the course of their careers. Training before starting an occupation is fundamental in any profession. For teachers, pre-service training constitutes a building block towards their instructional and professional practices in the first few years of teaching, but also defines their work stream for the rest of their careers; for example, in the subjects or grades teachers teach. The knowledge and skills that teachers learn from experience and continuous professional development activities builds on this initial training that teachers receive before they start their first teaching assignment.

This chapter describes the initial education of teachers and school leaders, including years of post-secondary education and training, as well as the content of their teacher education programmes, in defining the profile of teaching professionals in primary and upper secondary education. The results on teacher preparation opportunities should be interpreted with consideration that each education level puts forth different curricular and instructional demands for its teachers and caters to specific age groups and socio-emotional contexts of students. Further, the chapter describes the level of preparedness of teachers in the different areas related to their instructional tasks. The second part of this chapter describes what teachers do in their core tasks – including the subjects they teach in primary and upper secondary education, opportunities to learn in the classroom based on teachers' reports of actual time spent on teaching and learning vis à vis other activities, and the different types of teaching practices they incorporate in their lessons.

Research indicates that the following features of teacher education matter for setting teachers up for a strong start: inclusion of content and pedagogical knowledge in a comprehensive manner; opportunities to develop practical skills linked to theoretical knowledge; and alignment of teacher education with school contexts. However, it is not necessarily so that they matter in the same way for all kinds of teachers – i.e. teachers teaching different grades, age groups and levels of education. These features may lie in one or more elements of initial teacher education, curriculum, certification, in-school practicum and induction (OECD, 2019[2]).

Teachers' educational backgrounds and preparation for their roles

The quality measure of teachers entering the workforce can be driven by a combination of factors: the social and educational background of candidates in the profession; the structure and time spent on teaching qualifications, as well as the competencies they learn during their formal training. Teachers' and school leaders' educational backgrounds define the profile of the teaching workforce in a country. The educational backgrounds of teachers and school leaders entering the profession not only provide an initial understanding of the knowledge and skills they possess but also an indication of the choice of individuals with certain qualifications to enter into teaching compared to other professions.

The research evidence on the relationship between a teacher's post-graduate education (a master's degree or higher) and their students' educational achievement is mixed. The value-added effects of a teacher's master's degree may be driven by the subject taught by the teacher or the subject majored in

(Horn and Jang, 2017[3]). These issues matter from a policy point of view to inform licensing requirements for teachers entering the profession with a given educational qualification but also to identify targeted professional development. (Harris and Sass, 2011[4])find that undergraduate education may not yield added teacher productivity but there may be positive effects of graduate studies. Several studies indicate that teachers in primary education with a bachelor's degree may not be very different from those with a master's degree in terms of their productivity and practices (Betts, Zau and Rice, 2003[5]; Collier, 2013[6]; Croninger et al., 2007[7]; Harris and Sass, 2011[4]; Henry et al., 2014[8]; Jepsen, 2005[9]; Rivkin, Hanushek and Kain, 2005[10]). In contrast, at the upper secondary level, some evidence indicates the positive effects of a master's degree on student achievement among science and mathematics teachers (Horn and Jang, 2017[3]). Sahlberg (2015[11]) also notes that the educational attainment of teachers may be related to raising the prestige of the teaching profession – a master's degree requirement in Finland helped to attract highly talented and motivated candidates to apply for teaching jobs.

A key question from a policy point of view is whether pre-service training adequately prepares teachers to start strong and effectively. The content of teachers' initial education is of particular policy interest as it defines the profiles of the workforce entering the profession, and education systems aim to attract the best candidates into teaching (Ainley and Carstens, 2018[12]). The different topics covered under initial education constitute teachers' "opportunities to learn", which build a teacher's knowledge base that is related to student achievement through their instructional actions in the classroom (Ainley and Carstens, 2018[12]). Teachers' opportunities to learn through hands-on and practical experiences such as classroom teaching or opportunities to engage in actual teaching practices, and the quality of teaching methods experienced by teachers are important considerations for teacher education to be impactful (Boyd et al., 2009[13]).

This section presents the results on teachers' educational attainment in primary and upper secondary education based on teachers' and principals' reports. A description of teachers' qualification pathways then follows, which gives an idea of the structure and time spent on their formal teacher preparation. Lastly, the section discusses the content of teachers' preparation, which is the core indication of what teachers actually learn in terms of knowledge and skills before starting their jobs.

Teachers' educational attainment in primary education

The Teaching and Learning International Survey (TALIS) asked teachers about the highest level of formal education they completed using the 2011 International Standard Classification of Education (ISCED-2011). A large majority of teachers in primary education participating in TALIS completed a bachelor's degree or equivalent level of education (ISCED level 6) (Table 3.2). Sixty-eight percent of teachers in primary education on average across the 13 participating countries and economies reported their highest educational qualification at this level, which typically has a duration of three to four years full-time study at tertiary/post-secondary level, and provides students with intermediate and/or professional knowledge, skills and competencies (UNESCO-UIS, 2012[14]).[1] More than 90% of teachers completed at least a bachelor's degree equivalent or higher in Denmark, England (United Kingdom), the Flemish Community of Belgium, Japan, Korea, Turkey and United Arab Emirates (Figure 3.1). The prevalence of a high share of teachers in these countries with an ISCED level 6 qualification or higher could point to this level as the minimum qualification to enter the profession in these countries at the primary education level (see Annex A for country background information) (OECD, 2020[15]).

The initial education of teachers in primary education is longer and more in-depth in some countries where a substantial share of teachers completed a graduate/master's degree or equivalent (ISCED level 7);[2] these are France (38%), Sweden (36%), Korea (31%), and the United Arab Emirates (20%) (Table 3.2). Through ISCED level 7 programmes, these teachers have gained advanced academic or professional knowledge, skills and competencies. As an exception, in Ciudad Autónoma de Buenos Aires (henceforth CABA [Argentina]), a large majority of teachers (60%) completed short-cycle tertiary education at best

(ISCED level 5)[3] compared to 13% of teachers on average across the participating countries in primary education.

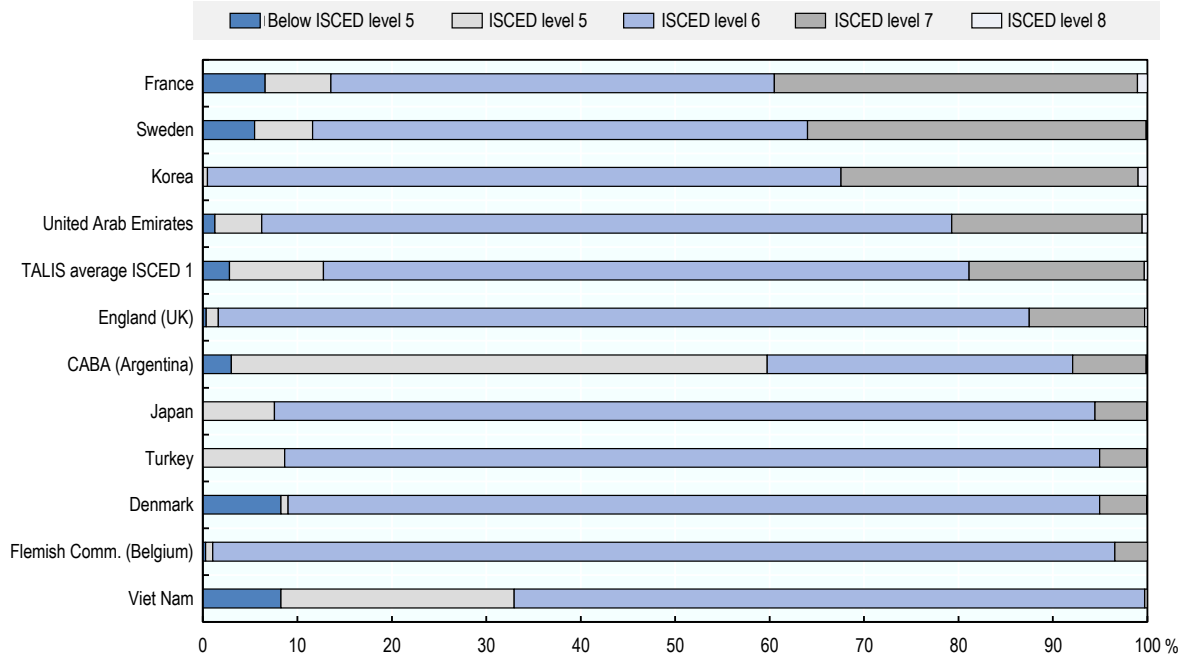
How do primary and lower secondary levels compare?

Compared to lower secondary teachers in participating countries, teachers in primary education' formal educational qualifications are significantly lower across all the participating countries and economies. Eighty-seven percent of teachers have a bachelor's degree or higher in primary education while 93% of teachers attained this level of education in lower secondary education. Fewer teachers in primary education completed a bachelor's degree or equivalent in CABA (Argentina) (23 percentage points difference) in Viet Nam (13 percentage points) and in Turkey (6 percentage points); fewer teachers in primary education completed a master's degree or equivalent in Sweden (29 percentage points), France (27 percentage points), and by smaller margins in England (United Kingdom) (12 percentage points) and by less than 10 percentage points in CABA (Argentina), Denmark, England (United Kingdom), the Flemish community of Belgium, Japan, Korea and the United Arab Emirates (Table 3.2).

It is important to note that the gap between primary and secondary levels of education not only lie in educational attainment, but also, often in the share of teachers who hold teaching certifications and licensure. Given the lower attainment of teachers in primary education, systems could introduce substantial requirements for pedagogical training and content coursework in teacher certification programmes (Ingersoll, 2007[16]). The next section discusses these issues in further detail.

Figure 3.1. Teachers' educational attainment in primary education

Percentage of teachers, by highest level of formal education completed



Countries and economies are ranked in descending order of the percentage of teachers in primary education whose highest level of formal education is either ISCED level 7 or ISCED level 8.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/sq3vgw

Qualification pathways for teachers in primary education

TALIS also asked teachers whether they completed their teacher education via a regular programme (concurrent or consecutive) or other pathway such as fast-track or specialised teacher education programme, education or training in another pedagogical profession or subject-specific education. In addition to regular teacher education programmes traditionally in place in many countries and economies, education systems have also created alternative and fast-track pathways for entry into teaching to attract a diverse profile of candidates such as those with existing expertise from other fields; the goal of these pathways is also to meet shortages in teacher supply (Musset, 2010[17]).

Regular concurrent teacher education programmes where academic subjects are studied alongside educational and professional studies (Musset, 2010[17]) are the most common form of teacher certification in primary education, as reported by 71% of teachers in primary education on average (Table 3.4 and Figure 3.2). While these programmes allow for an integrated learning experience, there is less flexibility for candidates to enter the teaching profession from other subject-streams (Musset, 2010[17]).[4] The prevalence of concurrent teacher qualification in primary education indicates that these teachers decide on their occupation at an early stage in their post-secondary education. The largest shares of teachers having completed their formal training through concurrent programmes are found in the Flemish community of Belgium (98%), Viet Nam (96%), CABA (Argentina) (83%) and Korea (82%). However, a relatively low share of teachers in primary education completed their teacher education through these programmes in England (United Kingdom) and France (respectively, 40-41%) and in the United Arab Emirates (52%).

Twenty percent of teachers, on average, in primary education reported qualifying through a regular consecutive programme, which is typically longer with courses in pedagogy separate from subject-matter courses (Table 3.4). However, a large share of teachers received formal training through consecutive programmes in England (United Kingdom) (52%) and France (40%). While consecutive programmes for teacher education spent less time on strengthening teachers' pedagogical skills, these programmes allow teachers to build a stronger content expertise which is also important for them to set a strong foundation for students in early grades (Jensen et al., 2016[18]).

Other teacher certification programmes cater to a small number of teachers to enter the profession at the primary education level – fast-track or specialised teacher education programme (3%), education or training in another pedagogical profession (1%) and subject-specific education only (2%) (Table 3.4). Nonetheless, a small share of teachers (1%) on average across participating countries and economies in primary education have had no formal qualification. The highest share of teachers who do not have any formal teacher education qualification in primary education is found in France (4%) and the United Arab Emirates (3%).

Fast-track or specialised teacher education programmes for teachers in primary education are rather prevalent in three countries and economies – the United Arab Emirates (17%), France (8%) and England (5%) (Table 3.4). Male teachers are more likely to go through a fast-track or specialised programme than female teachers in primary education in England, the Flemish Community of Belgium and the United Arab Emirates (Table 3.5). In England and the United Arab Emirates, full-time teachers are more likely to have gone through fast-track or specialised programmes than part-time teachers. In the United Arab Emirates, fast-track programmes are 12 percentage points more prevalent in cities than in rural areas. They are also less common among teachers (8 percentage points less) working in socio-economically disadvantaged schools than others. In England (United Kingdom) and France, fast-track programmes seem to have gained prevalence for recruiting teachers in recent years as a higher share of their novice teachers (more than 10%) received their teaching qualification through these programmes compared to teachers with more than five years of experience in these countries.

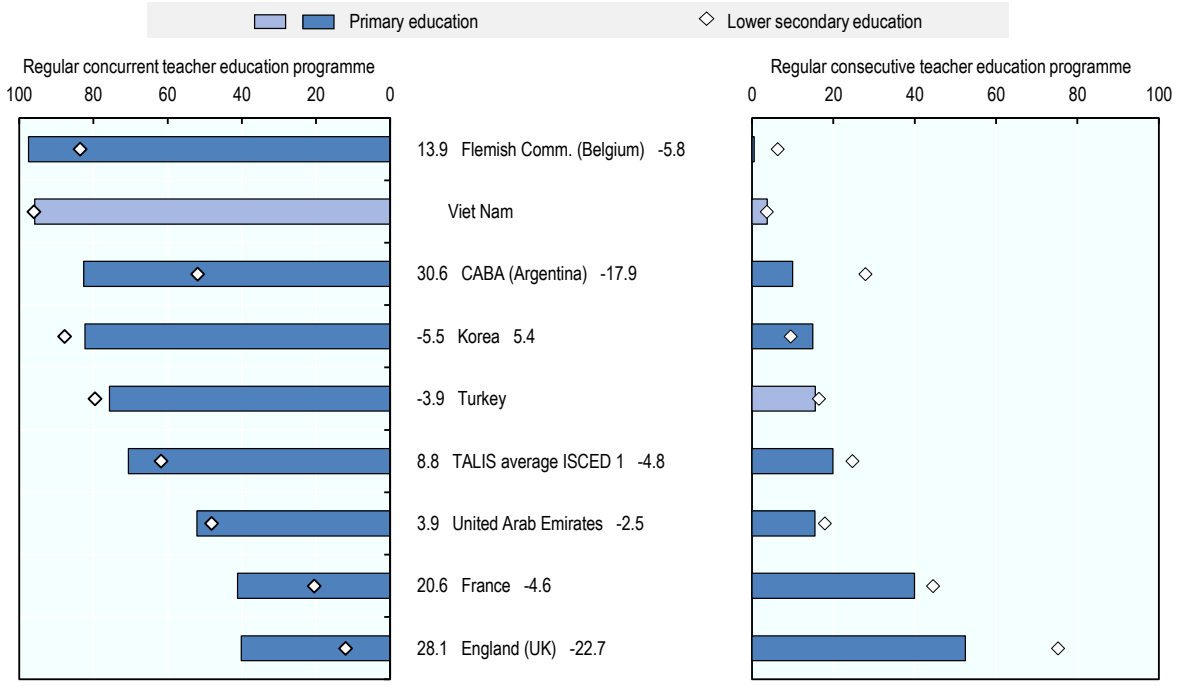
How do primary and lower secondary levels compare?

A higher share of teachers in primary education received regular concurrent teacher education compared to lower secondary teachers. The highest difference is observed in CABA (Argentina) (31 percentage points difference), England (28 percentage points) and France (21 percentage points). These results could highlight the priority placed by education systems on the specific skillset and learning objectives for their teachers in primary education. The results could also be explained by individuals' decisions to pursue concurrent education more often as a pathway into teaching in primary education.

Fast-track or specialised programmes for preparing teachers in primary education are more prevalent in primary education in France (8% of teachers in primary education versus 4% of lower secondary teachers). On the other hand, these programmes are less common in primary education in the Flemish Community of Belgium (8 percentage points difference), and by smaller margins in England (United Kingdom) and CABA (Argentina) (2-3 percentage points).

Figure 3.2. Type of teacher certification in primary and lower secondary education

Percentage of teachers who received the following type of teacher education



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers in primary education who received training through a regular concurrent teacher education programme.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/c4b8l7

Teachers' educational attainment in upper secondary education

On average across the 11 participating countries and economies in upper secondary education, about half of the teachers completed a master's degree or equivalent (ISCED level 7) (52%) (Table 3.2). While less

than 25% of teachers in upper secondary completed this level of education in Alberta (Canada), Brazil, Turkey and Viet Nam, 90% or more teachers have a master's degree in Croatia and Portugal. However, teachers' highest educational qualification being a bachelor's degree or equivalent (ISCED level 6) is also quite common in upper secondary education, as reported by 42% of teachers on average. It is the most common level of educational completion for teachers in upper secondary in Brazil (83%), Turkey (81%), Alberta (Canada) (79%) and Viet Nam (79%). The educational qualifications of the upper secondary teaching workforce in Sweden, Denmark and the United Arab Emirates is more distributed.

For a small share of the workforce in upper secondary education, their highest educational qualifications are below a bachelor's degree or equivalent (4% on average across participating countries and economies). For example, 19% of teachers in upper secondary in Sweden, 10% of teachers in Denmark, and 7% of teachers in Slovenia have a short-cycle tertiary education or post-secondary non-tertiary education at best.[5] This implies that these teachers have gone through shorter post-secondary education with less time spent on building professional knowledge and expertise, and integrating practical experience compared to what they would have learnt in a bachelor's, master's or doctoral education. A plausible explanation for these results is the relatively higher share of teachers in vocational education and training (VET) in these countries, who are less likely to hold a master's or bachelor's degree compared to general education teachers (OECD, 2021[19]). Therefore, in-service training for teachers in upper secondary in these countries could focus on enhancing teachers' knowledge and skills expertise given the complex subject expertise demanded from teachers at higher levels of education.

How do upper secondary and lower secondary levels compare?

A higher share of teachers in upper secondary education completed a master's degree or equivalent on average across the participating countries and economies (11 percentage points difference), and a slightly higher share of teachers have completed a doctoral degree (1 percentage point) (Table 3.2). These differences could correspond to the more restrictive and competitive entry requirements for teachers to teach at higher levels of education (OECD, 2020[15]). The largest differences between the educational qualification of teachers in upper secondary and lower secondary teachers can be seen in Denmark (65 percentage points), Viet Nam (19 percentage points), Slovenia (12 percentage points) and Turkey (11 percentage points), where the share of teachers with a master's degree or equivalent is higher among teachers in upper secondary education. On the contrary, teachers in upper secondary education in Sweden completed lower levels of education – i.e. the share of teachers with a bachelor's degree equivalent and a master's degree equivalent is less compared to their counterparts in lower secondary education (10 percentage points).[6]

Qualification pathways for teachers in upper secondary education

The most commonly pursued teacher qualification pathway in upper secondary education is a regular concurrent teacher education programme, as reported by 61% of teachers in upper secondary education on average (Table 3.4). TALIS defines concurrent teacher education programmes as those that grant candidates a single credential for studies in subject-matter content, pedagogy, and other courses in education during the first period of post-secondary education. These programmes typically take the form of bachelor's university degrees. The high share of teachers gaining qualifications through these programmes indicates that these candidates decided to become teachers early on, i.e. at the beginning of their post-secondary studies. The highest share of teachers having completed this form of qualification are observed in Viet Nam (96%) and Brazil (74%) whereas fewer teachers at the upper secondary level completed their qualifications through concurrent programmes in Alberta (Canada) (40%). For the remaining countries and economies participating at the upper secondary level, about half of the teaching workforce (50-60%) completed their formal training through a concurrent programme – Croatia, Portugal, Slovenia, Turkey and the United Arab Emirates

About one-fourth of the upper secondary teaching workforce on average completed pre-service training through a regular consecutive teacher education programme (25%) (Table 3.4), which are typically longer and involve specialised training in content and pedagogy (Musset, 2010[17]). TALIS defines consecutive teacher education programmes as those that require candidates to complete two phases of post-secondary education – university education with a focus on subject matter and a second phase focussed on pedagogy and practicum. A relatively high share of the upper secondary workforce in some countries and economies completed training through consecutive programmes – this is the case in Alberta (Canada) (56%), Portugal (38%) and Turkey (37%). This distribution of teacher qualification pathways indicates the presence of flexible entryways into teaching from diverse disciplines in these countries.

Alternate pathways for teacher qualification are also prominent in upper secondary education, which constitutes 13% of teachers on average across participating countries and economies – among this, 7% of teachers received pre-service training through a fast-track or specialised teacher education programme and 3% received a subject-specific education only (Table 3.4).

Fast-track or specialised education programmes are prominent in preparing teachers in upper secondary education in Croatia (35%), the United Arab Emirates (17%) and Slovenia (12%) (Table 3.4). These programmes are increasing in popularity as alternate or supplementary certification programmes, initially introduced to meet shortages in teacher supply in specific contexts but now also as a means to attract highly skilled candidates with diverse professional backgrounds and experiences into the teaching profession (Caena, 2014[20]; Owings et al., 2006[21]). Specialised teacher education can also take the form of supplementary education programmes or professional qualification courses, which allow students of different disciplines to extend their studies to train in pedagogical education (Boeskens, Nusche and Yurita, 2020[22]).

Teachers who work in schools offering a vocational education and training (VET) programme (hereafter, VET schools) are more likely to be trained through a fast-track programme or specialised teacher education programme compared to their counterparts in schools that do not offer a VET programme (non-VET schools) in four countries – Croatia (27 percentage points difference), the United Arab Emirates (9 percentage points), Portugal and Slovenia (Table 3.6). Fast-track or specialised teacher education programmes are also more common among novice teachers, male teachers, full-time teachers and teachers working in challenging schools (i.e. schools with more than 30% of students coming from disadvantaged homes). Fast-track teacher education programmes can be a pertinent pathway for male teachers compared to female teaching candidates to enter into the profession in some countries and economies – Croatia (12 percentage points), Portugal (3 percentage points) and Slovenia (5 percentage points). The higher prevalence of qualification through fast-track teacher education programmes among novice teachers compared to experienced teachers in some countries indicates their growing popularity in recent years for aspirants to enter into teaching – Portugal (17 percentage points), Croatia (11 percentage points) and the United Arab Emirates (5 percentage points) (Table 3.6). The entry of new male teachers into the workforce also reflects in the reduced share of female novice teachers in the workforce (see Chapter 2). Given the increasing prominence of fast-track programmes for new candidates to enter teaching, it must be noted that the quality of these fast-track programmes may vary across education systems and training service providers (McConney, Price and Woods-McConney, 2012[23]). Therefore, further enquiry into the preparedness and effectiveness of novice teachers who graduated through these programmes is needed in order to support these teachers, especially in their early years.

How do upper secondary and lower secondary levels compare?

Even though regular concurrent teacher education programmes are the most common form of training in upper secondary education, fewer teachers pursued training through these programmes at this level compared to their peers in lower secondary education (8 percentage points on average) (Table 3.4). The difference is the largest in Slovenia and Turkey (21 percentage points difference each), and smaller but

notable in Croatia (17 percentage points) and Portugal (9 percentage points). On the other hand, other teacher qualification pathways are more prevalent for teachers in upper secondary education compared to lower secondary education – regular consecutive teacher education programmes (3 percentage points) and fast-track or specialised teacher education programmes (4 percentage points).

Notable differences are observed for Croatia where fast-track or specialised teacher education programmes are more prevalent in upper secondary education (28 percentage points difference) and Slovenia (10 percentage points). In Turkey, regular consecutive teacher education programmes are more prevalent for teachers in upper secondary education (20 percentage points), which also makes up for the lower prevalence of concurrent teacher education programmes at this level.

Content of teacher preparation in primary education

Educational backgrounds and teacher qualification pathways can provide an indication about the structure of the programmes and time spent on knowledge and skill building. But, irrespective of the pre-service teacher training pathway, it is imperative to look at the topics included in a teacher's initial pre-service training. TALIS asked teachers whether their formal training included a range of teaching-related topics. Three topics are described as the core areas of teacher preparation – content, pedagogy and classroom practice of some or all the subjects taught by the teacher. Teachers' reports on their inclusion into pre-service training are used to describe whether they received comprehensive training or not. Other topics that teachers were asked whether they were included in their formal education or training are: general pedagogy; teaching in a mixed ability setting; teaching in a multicultural or multilingual setting; teaching cross-curricular skills; use of ICT for teaching; student behaviour and classroom management; and monitoring students' development and learning.

Classroom management has been identified as a key factor for teacher performance, job-related stress and an important pre-condition for student learning (Lewis et al., 1999[24]). Training in classroom management not only adds value to their skills in this area but also helps them manage their stress over the long term (Dicke et al., 2015[25]). Given that teachers in primary education particularly face classroom management-related challenges in their work, their level of preparedness is an important indicator in assessing the level of support needed for teachers in pre-service and in-service training.

The questions asked by TALIS on the content of teachers' education allow a better understanding of their opportunities to learn spanning the diverse teacher certification programmes or other formal qualifications or degrees that teachers have obtained. It is also worth examining these factors as they can be affected through policy interventions.

It is desirable that teachers receive all-round training before entering the classrooms. However, it is essential that teachers' initial training includes the core elements of training – i.e. content, pedagogy and classroom practices in some or all the subjects taught by them. On average in primary education, 86% of teachers reported that they received training in all the three core areas, indicating that they received a comprehensive pre-service education fundamental to starting their work (Table 3.14).The share of teachers who received comprehensive formal training ranges from 72% in Spain to 90% and above in CABA (Argentina), England (United Kingdom), the Flemish Community of Belgium and Korea, and 99% in Viet Nam.

TALIS data show that part-time teachers in some countries may particularly lack a comprehensive education. In five countries and economies, a lower share of part-time teachers cited that their formal training included all three core elements (content, pedagogy and classroom practice) compared to their full-time counterparts – the United Arab Emirates (9 percentage points), Denmark and Japan (8 percentage points) and Sweden (6 percentage points) (Table 3.15).

In addition to information on the content of teachers' training, teachers' reports on their sense of preparedness in these areas is an important starting point for education systems to assess whether the

training teachers receive meets the demands put forth by their jobs. Teachers' reports that they felt "well" or "very well" prepared are also the highest in the core areas of teacher training – content, pedagogy and classroom practice in some or all the subjects taught by teachers. On average across the participating countries and economies, the share of teachers who reported that they felt well or very well-prepared is 77% in content, 76% in general pedagogy, and 74% in subject-specific pedagogy and classroom practice (Table 3.13). Comparing this to the average share of teachers who reported receiving training in these areas (more than 90% in each area, Table 3.7), teachers could be supported more to feel better prepared in these areas.

Other areas of teachers' preparation also deserve attention as a large part of teachers' work involves interacting with students and managing them, which is especially intensive for teachers in primary education. For example, training in behaviour management is imperative at the primary level. On average across the participating countries and economies in primary education, about 79-80% of teachers who received training reported that it included student behaviour and classroom management, and monitoring students' development and learning (Table 3.7).

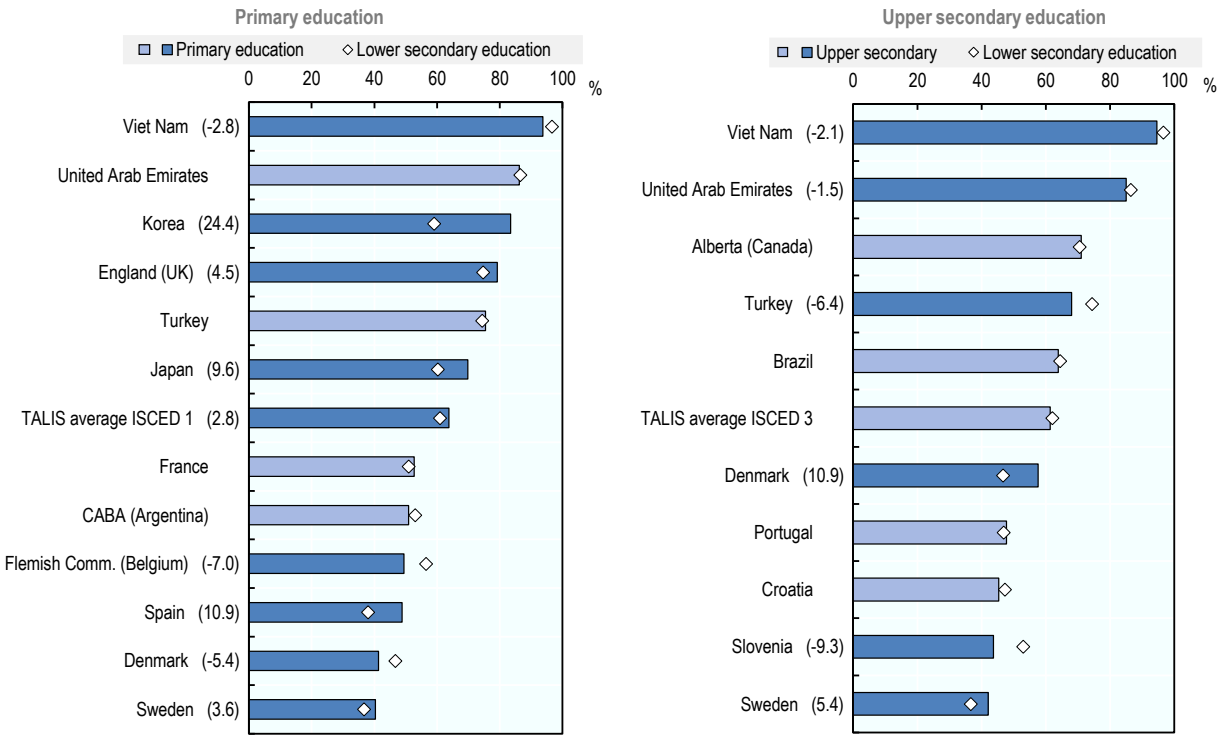
About three-quarters of the trained teaching workforce reported that they received training in teaching in a mixed-ability setting in their formal teacher education (73%) and teaching cross-curricular skills (76%) (Table 3.7). Training in teaching in a multicultural or multilingual setting is relatively uncommon in teacher preparation in primary education as, on average, 44% of teachers reported that they received training in this area across the participating countries and economies. However, this topic seems of high importance in a few countries where the largest share of teachers reported that it was included in their teacher preparation – the United Arab Emirates (76%) and England (United Kingdom) (72%). On the other hand, only 14% of teachers received training in this area in France.

Training in the use of digital technology is an important dimension identified by many education systems. It has further grown in importance in the context of the COVID-19 pandemic with the sudden shift to remote teaching in many countries in an attempt to contain the spread of the virus. Even before the pandemic, the purpose of including this topic in the formal training of teachers both in terms of pre-service and in-service education was not only to encourage increased use of ICTs by teachers in the classroom but also for more guided, relevant and purposeful use (Spiteri and Chang Rundgren, 2020[26]) such that digital technology enhances the learning experiences of students and leads to improved student outcomes. Research evidence from the primary education context indicates that teachers' use of technology is shaped by four factors – teachers' knowledge, skills, attitudes and school culture (Hermans et al., 2008[27]). TALIS indicators on teacher training in ICT use in their teaching lie at the intersection of three of these factors, i.e. knowledge, skills and attitudes. The inclusion of training in ICTs in teachers formal training can also shape teachers' openness towards technology integration in the classroom (Rehmat and Bailey, 2014[28]) as it is in the early years when teachers begin to develop their instructional approaches. The COVID-19 pandemic has added new urgency to examining the need and content of teachers' training in ICT as digital technologies are not a supplementary aid for classroom-based teaching anymore, instead ICTs have become a mainstream tool for delivering instruction.

The use of ICTs for teaching was included in teachers in primary education' formal education for about 64% of teachers on average (Table 3.7). However, less than half of the primary teaching workforce received formal training in this area in the Flemish Community of Belgium (49%), Spain (49%), Denmark (41%) and Sweden (40%). On the contrary, the largest shares of teachers who reported having received formal training in using ICT for teaching are observed in Viet Nam (94%), the United Arab Emirates (86%) and Korea (83%).

Figure 3.3. Training in use of ICT for teaching

Percentage of teachers for whom ICT use for teaching was included in their formal education or training



Note: Statistically significant differences between education levels are marked in darker tones.
Countries and economies are ranked in descending order of the percentage of teachers in primary education (left panel) and teachers in upper secondary (right panel) for whom information and communication technology (ICT) use was part of their training.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/t3pmrw

How do primary and lower secondary levels compare?

Comparing teachers in primary education' reports of the content of their initial training against that of lower secondary teachers, a higher share of teachers from primary education reported that they received training in all of the areas except one (content of some or all of the subjects taught by the teacher) covered by TALIS (Table 3.7). On average across the participating countries and economies, the largest differences are seen in the content areas of teaching cross-curricular skills, monitoring students' development, and training and teaching in a mixed-ability setting, where a higher share of teachers in primary education' reported receiving training compared to lower secondary teachers' reports.

Teachers' profiles reveal differences in training for classroom practice between primary and teachers in upper secondary. In Spain and France, the share of teachers in primary education who received pre-service practicum training is higher than lower secondary teachers in these countries by 19 and 13 percentage points respectively (Table 3.7). The same pattern is also discerned in CABA (Argentina), the Flemish Community of Belgium, Korea and Sweden (differences of 2-6 percentage points). However, practicum training is less common for teachers in primary education compared to lower secondary teachers in Denmark (89% vs 92%).

On average, a comprehensive pre-service training appears more prevalent in primary education compared to lower secondary education (5 percentage points), with positive significant differences in eight countries and economies. The largest gaps can be observed in Spain (25 percentage points) and France (12 percentage points). Other countries with significant gaps are CABA (Argentina), England (United Kingdom), the Flemish Community of Belgium, Korea, Turkey and Viet Nam. Denmark is the only exception to this pattern, where fewer teachers in primary education reported that their pre-service training covered all three areas (3 percentage points) (Table 3.14).

Teachers in primary education' training and preparedness in facilitating transitions and play

This report allows special emphasis to be placed on issues that are specific to primary education. One of the novel items in the TALIS questions on primary education asked whether teachers in primary education received training in facilitating students' transition from early childhood education (ECE) to primary education and whether they received training in facilitating play. Additionally, it also asked teachers whether they felt prepared in these two areas after their formal education.

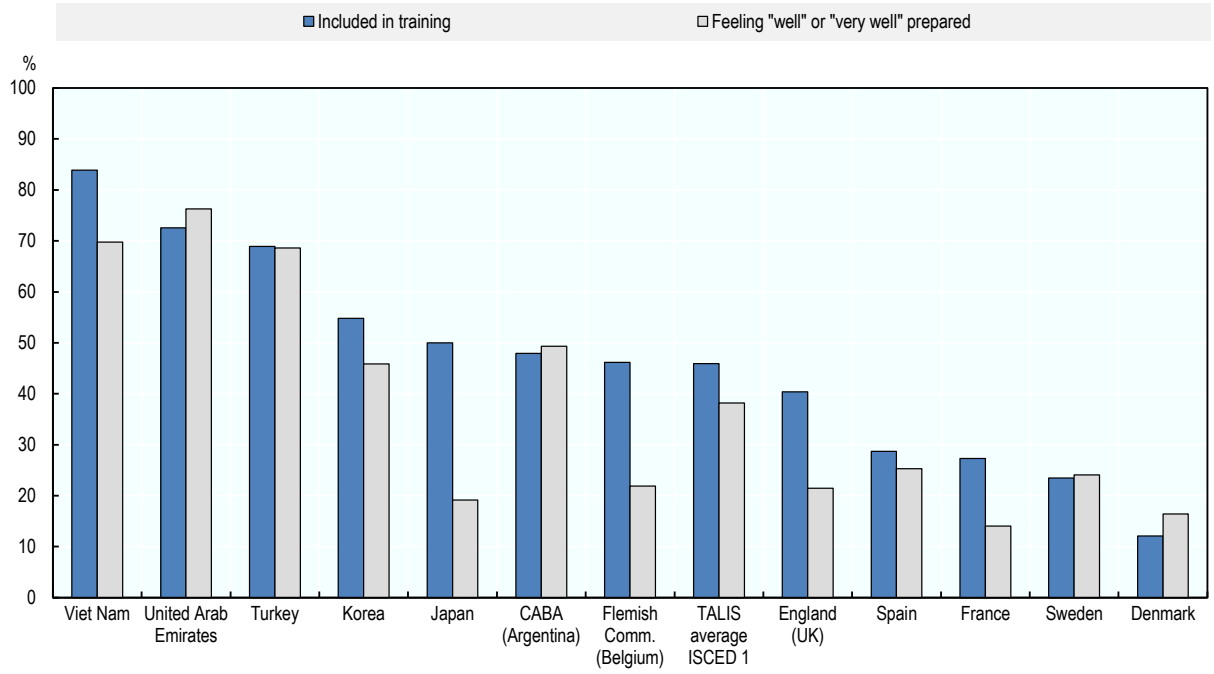
The transition of children from pre-primary education to primary schooling is considered a major milestone. A positive experience for children during this milestone can determine their future success in terms of social, emotional and educational outcomes (O'Kane, 2016[29]). Teachers in primary education play a reception role for students entering from pre-primary education. The challenges that children can face during transitions include disruption in their learning processes from play-based to more formal pedagogical experiences, disruption in social circles etc. Education systems/policies that prioritise the transitions from pre-primary to primary education aim to ensure alignment between the two education levels through continuity in learning approaches, for example, interactive, play-based learning in both pre-primary and primary levels (O'Kane, 2016[29]). Training for teachers in facilitating transitions can include guidance on collaboration between teachers and parents, forming meaningful relationships with students, etc. (Skouteris, Watson and Lum, 2012[30]).

In particular, facilitating play as a "positive intervention" is important for students in early grades to develop their social, emotional and intellectual skills in ways beyond the scope of formal classroom instruction (Smilansky, 1971[31]; Tarman and İlknur, 2011[32]). Teachers can play a role in children's play by helping them choose well-planned and varied learning activities to enhance learning potential and cognitive skill building through play. Often, play-based learning is a focus in pre-primary schooling but it remains critical in the early grades of primary school, where children usually between six to eight years old are still in the important phase of human and cognitive development. Therefore, play-based learning needs to continue while academic learning is introduced in primary education (UNICEF, 2018[33]). Training teachers to facilitate learning through play can include pedagogical guidance and creating consciousness on learning materials for facilitating play (Nilsen, 2021[34]).

Results from TALIS indicate that teachers could be better prepared and supported to facilitate students' transitions into primary education. While 46% of teachers on average across the participating countries and economies reported that their formal education included training in facilitating transitions from ECE to primary education, a smaller number of teachers (38%) reported feeling well or very well-prepared in this area (Table 3.10). It is worth noting the large gaps in the share of teachers who reported having received training in this area in some countries but a considerably low share of teachers reporting that they feel prepared. This is the case for Japan (50% of teachers receiving training in this area vs 19% of teachers feeling prepared), the Flemish Community of Belgium (46% vs 22%) and England (United Kingdom) (40% vs 21%).

Figure 3.4. Training and preparedness in facilitating transitions from ECE to primary education

Percentage of teachers for whom the following were included in their formal education or training



Note: ECE refers to early childhood education.
Countries and economies are ranked in descending order of the percentage of teachers in primary education for whom transitions from ECE to primary education were included in their formal education or training.
Source: OECD, TALIS 2018 Database.

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Likewise, while training in facilitating play was cited by 67% of teachers in primary education on average across the participating countries and economies, a smaller share – 56% of teachers on average – reported feeling well or very well-prepared in this area (Table 3.10). Once again, large gaps can be observed (more than 10 percentage points) in the overall share of teachers who received training in this area and those who feel well or very well-prepared – this is the case for England (United Kingdom), the Flemish Community of Belgium France, Japan, Korea and Spain.

TALIS data show differences between the share of male and female teachers' reports on whether they received training in facilitating transitions (3 percentage points, on average) (Table 3.11). In four countries and economies, fewer male teachers than female teachers reported this, including England and Sweden (8 percentage points), Japan (6 percentage points) and Viet Nam (4 percentage points).

Training in facilitating transitions is also higher among novice teachers than experienced teachers in three countries and economies (the Flemish Community of Belgium (13 percentage points difference), England (United Kingdom) (11 percentage points) and Denmark (4-5 percentage points each). As novice teachers have completed their teacher education programmes more recently compared to experienced teachers, this observation suggests that training in this area may be a more recent inclusion in teacher education programmes. However, in Korea, the opposite pattern is observed with more experienced teachers have received training in this area compared to novice teachers (9 percentage points).

Teachers' preparation in facilitating play also differs by gender in some countries and economies but whether it favours male or female teachers depends on the country. A higher share of female teachers

reported that their formal training included facilitating play in England (United Kingdom) (10 percentage points difference), Japan and the United Arab Emirates (5 percentage points) (Table 3.12). In contrast, a larger share of male teachers reported they had this kind of training in the Flemish Community of Belgium (13 percentage points), Turkey (5 percentage points) and Spain (4 percentage points) (Table 3.12). A higher share of novice teachers reported receiving training in this area in England (United Kingdom) and the Flemish Community of Belgium (7-8 percentage points). In three countries, more teachers in rural schools reported that their initial teacher training included facilitating play than teachers in city schools – Sweden (14 percentage points), Turkey (10 percentage points) and the United Arab Emirates (4 percentage points).

The likelihood of teachers in primary education' training in facilitating transitions and play varies according to the qualification pathway they pursued. Teachers are more likely be trained in facilitating transitions when they received training through a regular concurrent teacher education programme compared to those who did not receive any formal training or qualification and those who qualified through a regular consecutive teacher qualification or other types of qualifications. This is true for France and Turkey as well as on average for countries and economies participating at this level, controlling for teachers' age, gender and working status (Table 3.36). On the other hand, teachers who were qualified through programmes other than regular consecutive and concurrent programmes are more likely report being trained in facilitating transitions. These results point to the need to create more opportunities for teachers to receive training in facilitating both transitions and play across all teacher education programmes and particularly through in-service training for those who have never received training in these areas and need it the most.

Content of teacher preparation in upper secondary education

The content of teachers' initial education is of particular policy interest as it defines the profiles of the workforce entering the profession and education systems aim to attract the best candidates into teaching (Ainley and Carstens, 2018[12]). The different topics covered under initial education constitute teachers' "opportunities to learn", which build a teachers' knowledge base that is related to student achievement through their instructional actions in the classroom (Ainley and Carstens, 2018[12]). Teachers' opportunities to learn through hands-on and practical experiences such as classroom teaching or opportunities to engage in actual teaching practices, and the quality of teaching methods experienced by the teachers are important considerations for teacher education to be impactful (Boyd et al., 2009[13]). Classroom management has been identified as a key factor for teacher performance, job-related stress and an important pre-condition for student learning (Lewis et al., 1999[24]). Training in classroom management can not only add value to their skills in this area but also help teachers manage their stress in the long run (Dicke et al., 2015[25]).

The questions asked by TALIS on the content of teachers' education allow a better understanding of their opportunities to learn, spanning diverse teacher certification programmes and other formal qualifications or degrees that teachers have attained.

The key question from a policy point of view is also whether pre-service training adequately prepares teachers to start as strong and effective educators. In addition to information on the content of teachers' training, teachers' reports on their sense of preparedness in these areas is an important starting point for education systems to assess whether the training teachers receive meets the demands of their work.

Looking at the content of teacher education from a comprehensiveness point of view, on average across the participating countries and economies in upper secondary education, 75% of teachers reported that their formal education or training included all three core areas – content, pedagogy and classroom practice in some or all the subjects taught by them (Figure 3.5 and Table 3.14). This share ranges from 60% in Slovenia to 85% in Alberta (Canada) and the United Arab Emirates, and 98% in Viet Nam.

Some teachers' formal training may be more rounded than others' in upper secondary education. TALIS data reveal that a lower share of teachers in upper secondary reported that they received training in all the three core areas (content, pedagogy and classroom practice in some or all the subjects taught by them) among those teaching in schools with a VET programme (7 percentage points difference, on average); those with less than five years of experience (6 percentage points); those working part-time (3 percentage points) and male teachers (2 percentage points) (Table 3.16).

The formal training of teachers teaching in VET schools was less comprehensive compared to that of teachers teaching in schools where no VET programmes are taught in five countries and economies – Denmark (30 percentage points difference), Croatia (20 percentage points), Slovenia (13 percentage points), Sweden (12 percentage points). In contrast, teachers' pre-service training was more comprehensive for those teaching in VET schools in the United Arab Emirates (4 percentage points difference) (Table 3.16).

In the same vein, a lower share of teachers who teach STEM subjects compared to those who teach other subjects reported that their training included the three core areas – content, pedagogy and classroom practice in some or all the subjects taught in Croatia (8 percentage points), Slovenia (7 percentage points) and Turkey (6 percentage points). The opposite pattern is observed for STEM teachers in Sweden (12 percentage points) (Table 3.16).

In four countries and economies, a higher share of teachers with more than five years of experience reported that their training included the three core elements of teacher preparation compared to novice teachers: Sweden (30 percentage points difference), Denmark (17 percentage points), Brazil (8 percentage points) and the United Arab Emirates (7 percentage points).

Lastly, gender-based differences in the comprehensiveness of initial teacher preparation can be observed in some countries and economies where fewer male teachers than female teachers reported that their formal training included the three core elements (content, pedagogy and classroom practice) – this is the case in Croatia, Denmark, Portugal, Slovenia and Sweden (4-8 percentage points difference). However, the opposite pattern is observed for male and female teachers in the United Arab Emirates (4 percentage points difference).

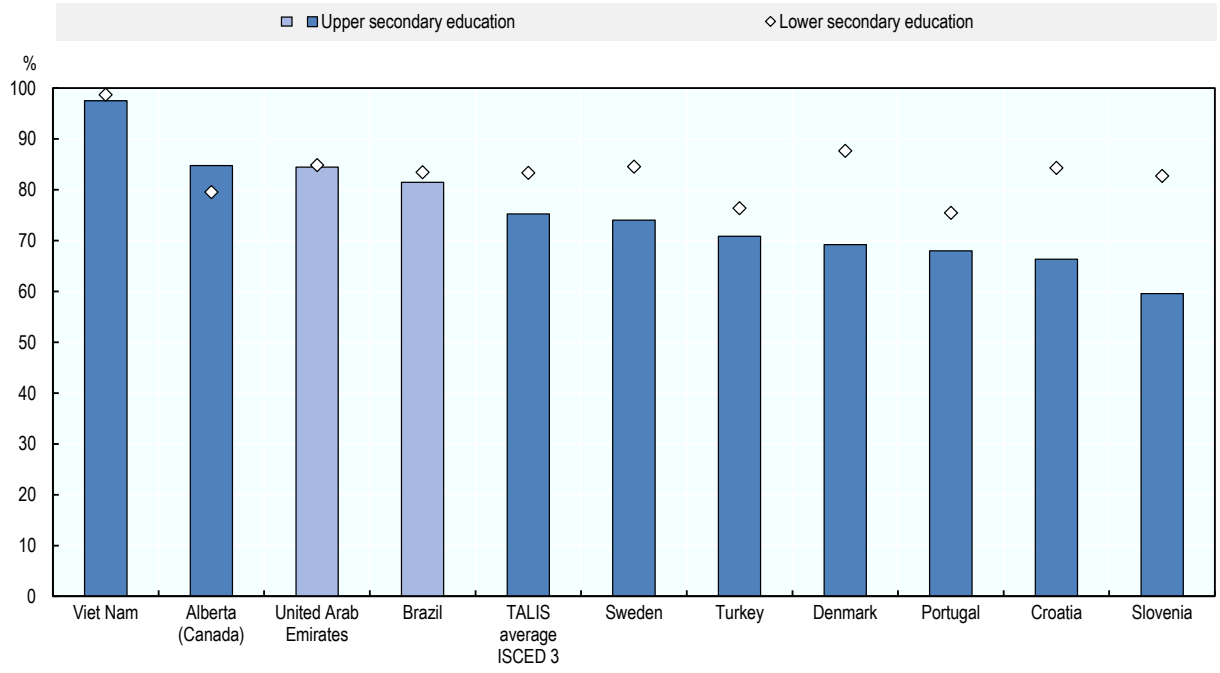
Other areas in teachers' initial education are also growing in popularity and rightly so, considering the new learning contexts that teachers find themselves teaching in (OECD, 2019[35]). However, a snapshot from TALIS data reveals that teachers' preparation in these areas is not universal, especially as these areas were not a part of pre-service programmes for teachers who joined the profession a long time ago. On average across countries and economies from upper secondary education, almost three-fourths of the teaching workforce received pre-service training in student behaviour and classroom management (75%); monitoring students' development and learning (74%); and teaching cross-curricular skills (71%). A smaller share of teachers received pre-service training in teaching in a mixed-ability setting (63%), and using ICT for teaching (61%), and less than half of the teaching workforce received pre-service training in teaching in a multicultural or multilingual setting (38%) (Table 3.7).

Once again, teachers' responses about their level of preparedness in different areas related to teaching is an important indicator to assess the gaps in initial teacher education and priority areas for in-service training. On average across the participating countries and economies, the areas where the highest share of teachers reported feeling well or very well-prepared are content of some or all subjects taught (88% compared to 91% of teachers who received training in this area), general and subject-specific pedagogy and classroom practice (78-79%, compared to 87-91% of teachers receiving training in this area) (Tables 3.7 and 3.13). A high share of teachers also expressed feeling well-prepared to deal with student behaviour or classroom management (70%) and monitoring students' development and learning (69%). About 58% of teachers reported feeling well-prepared in using ICT for teaching after completing their teacher education programme while the lowest share of teachers expressed feeling well or very well-prepared to teach in a multicultural or multilingual setting (36%). In light of the COVID-19 pandemic,

it could be expected that teachers may find themselves even less prepared to teach in diverse classrooms in a virtual setting.

Figure 3.5. Comprehensiveness of initial teacher education in upper and lower secondary education

Percentage of teachers for whom content, pedagogy and classroom practice in some or all subjects taught were included in their formal education or training



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers for whom content, pedagogy and classroom practice in some or all subjects taught were included in their formal education or training in upper secondary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/pt40m7

Teachers' reports on their sense of preparedness in using ICT for teaching are an indication of the challenges they could have faced teaching in virtual environments in the 2020/21 school year as a result of the COVID-19 pandemic. While less than half of the teaching workforce felt well or very well-prepared in this area upon completion of their initial teacher training in Croatia (38%), Portugal (44%), Alberta (Canada) (43%) and Sweden (43%), a higher share of teachers expressed feeling well or very well-prepared in using ICT for teaching in the United Arab Emirates (86%), Viet Nam (77%), Turkey (68%), Brazil and Slovenia (66%) (Table 3.13). These findings should be interpreted in light of the demographics of the workforce in participating countries. In some countries, teachers' feelings of preparedness reflects reports of older teachers who trained a long time ago, while in others, it reflects the views of a younger workforce who finished their initial training recently.

TALIS results also indicate that there may have been certain shifts in the content of teacher preparation programmes in recent years in some countries and economies. The introduction and increased focus on some topics such as teaching in multicultural or multilingual settings and use of ICTs for teaching corresponds to a decreased focus on core and traditional topics such as content, pedagogy and classroom

practice. This is inferred by observing significant differences in the elements of formal training as reported by the share of novice teachers (who recently completed a teacher education programme) and experienced teachers (who completed their formal education more than five years ago). More novice than experienced teachers received pre-service training in ICT skills for teaching, teaching in a mixed ability setting, teaching in a multicultural and multilingual environment and teaching cross-curricular skills (3-12 percentage points difference, on average) (Table 3.9). Whereas fewer novice teachers received training in content, pedagogy, classroom practice and student behaviour and classroom management (2-5 percentage points). A higher share of novice teachers reported that their pre-service training included ICT skills for teaching compared to experienced teachers (12 percentage points, on average). These differences are observed in almost all the participating countries and economies, with the largest difference in Portugal (24 percentage points), Alberta (Canada; 22 percentage points), Croatia (22 percentage points) and Slovenia (21 percentage points).

How do upper secondary and lower secondary levels compare?

On average, teachers who received initial training all the core areas (content, pedagogy and classroom practice) is less prominent in upper secondary education compared to lower secondary education (8 percentage points) (Table 3.14). The largest gaps can be observed in Slovenia (23 percentage points difference), Croatia and Denmark (18 percentage points), and Sweden (10 percentage points). Other countries where this gap exists (less than 10 percentage points) include Portugal, Turkey and Viet Nam. The only exception is Alberta (Canada) where a higher share of teachers in upper secondary education reported that their initial training included all these core areas (5 percentage points difference).

Teachers' sense of preparedness in specific areas related to teaching is generally lower in upper secondary education – general and subject-specific pedagogy (2-3 percentage points difference), and classroom practice in some or all subjects taught by the teacher (2 percentage points) (Table 3.13). Notable gaps are observed in Croatia (4-8 percentage points in these areas), Denmark (9 percentage points in general pedagogy), Slovenia (4-6 percentage points in general and subject-specific pedagogy) and Viet Nam (2-5 percentage points in pedagogy and classroom practice). On the other hand, more teachers in upper secondary express preparedness in ICT for teaching and student behaviour and classroom management than their lower secondary counterparts (2 percentage points differences on average).

Box 3.1. Chile: Tutors for Chile (*Tutores para Chile*)

Chile's Tutors for Chile (*Tutores para Chile*) network brings together participants in initial teacher education to facilitate tutorials for school students that support schools and teachers in the provision of distance learning. The nature of these tutorials is determined by the host school in liaison with the teacher training institution and the trainee teacher. Tutorials may be carried out on line or in person (once schools reopen) but a supervisor must be present to monitor the work, and give a final evaluation. The tutorials will cover a period of three to four months and will focus on critical levels in education such as final-year or transition-year students. They will last one hour and take place weekly with one tutor supporting up to three students. In this way, tutors will support the work of schools in helping students overcome learning gaps created or exacerbated by the COVID-19 crisis. At the same time, tutors are able to continue their own training, gaining the practical experience and professional guidance required for qualification.

Source: OECD, (2020[36]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://dx.doi.org/10.1787/0a530888-en.

Principals' profiles and preparation for their roles

Principals play an important role in setting up schools for success. The role principals play can be shaped by effectively training them with the necessary guidance and skills to perform their leadership roles. While it is important for education systems to be particularly selective in recruiting principals rather than open enrolment, principals can be effective from the very beginning with strong pre-service programmes which involve peer networks, focusing on leadership of instruction (Darling-Hammond et al., 2007[37]). TALIS asks principals about the areas in which they received formal training before taking up leadership responsibilities. The results help examine whether school principals built skills in teaching, instructional leadership and administration.

Pre-service training for principals in primary education

Most principals in education systems across the world are former teachers. Therefore, it is not surprising that 96% of principals on average in primary education had formal teacher training or completed a teacher education programme (Table 3.17). Furthermore, about 90% of principals on average across the participating countries and economies cited that their preparation included a school administration or principal training programme or course. Finally, 86% of principals on average reported that their preparation included instructional leadership training or course.

While the inclusion of teacher training or teacher education programme is consistent for principals across all countries (ranging from 87% in France to 100% in England (United Kingdom), the Flemish Community of Belgium and Viet Nam), there is some variation in the share of principals who received formal training in school administration and instructional leadership across participating countries and economies (Table 3.17).

Principals who received school administration or principal training ranges from 80% or less in Turkey (68%), England (United Kingdom) (79%) and Denmark (80%) to more than 99% in Japan, Korea and Viet Nam. On the other hand, principals who received training in instructional leadership range from less than 80% in Spain (69%), England (United Kingdom) (72%), Turkey (74%), Sweden (76%) and the Flemish Community of Belgium (79%) to 98% or higher in Japan, Korea and Viet Nam (Table 3.17).

How do primary and lower secondary education levels compare?

There are a few differences in principals' preparation for their roles in primary and lower secondary education. In five countries and economies, training in at least one of the areas of principals' preparation differs between the two education levels. Training in school administration and instructional leadership is more common for principals in primary education in CABA (Argentina) (differences of 8 and 15 percentage points respectively). Training in school administration is more common for principals in primary schools in the Flemish Community of Belgium (11 percentage points) whereas it is less common for principals in primary schools in France (10 percentage points). In England (United Kingdom) and Korea, more principals in primary education received teacher training or a formal teacher education (8 and 5 percentage points respectively) (Table 3.17).

Pre-service training for principals in upper secondary education

Ninety-one percent of principals on average across the 11 participating countries and economies in upper secondary education have had formal teacher training. While this is a common feature in principal training across participating countries and economies in upper secondary education, a relatively low share of principals have received this training in Croatia (77%) and Portugal (78%) (Table 3.17).

Eighty-four percent of principals received instructional leadership training and 80% of principals received school administration and principal training on average across the countries and economies in upper

secondary education. Training in school administration and principal programme or course ranges from less than 80% of principals in Croatia (42%), Denmark (58%), Turkey (77%) and Portugal (78%) to more than 90% in the United Arab Emirates (94%), Slovenia (95%) and Viet Nam (97%). Training in instructional leadership ranges from less than 80% of principals in Croatia (55%), Sweden (74%) and Portugal (77%) to more than 90% of principals in Slovenia (93%), Alberta (Canada) (94%), Viet Nam (96%) and the United Arab Emirates (97%).

How do upper secondary and lower secondary education levels compare?

There are a few differences in principals' preparation for their roles in upper secondary and lower secondary education. Notably, in Denmark, principals' training in teacher education, and school administration is less common for principals in upper secondary education (differences of 7 and 15 percentage points, respectively); and in Portugal, training in school administration is less common in upper secondary education (9 percentage points). Minute differences are observed in Viet Nam as less principals in upper secondary education received training in instructional leadership compared to lower secondary principals (Table 3.17).

Teachers' subject specialisation

Teachers in primary education often teach more subjects than one. Whereas, teachers at higher levels of education are often subject-specific experts, based on their qualifications, skills and experience of teaching a particular subject or domain. The advantages of teaching multiple subjects are that it allows teachers to have more time to engage with students and build strong relationships that can be beneficial to their social and emotional well-being (Elliott, 1985[38]). Teaching multiple subjects can also give teachers the opportunity to use innovative practices and encourage interdisciplinary learning and collaboration between students. However, a growing body of research emphasises the need for teachers in primary education to develop subject-specific experience and expertise (Jensen et al., 2016[18]). Teachers' effectiveness may also vary across the different subjects they teach (Cohen, Ruzek and Sandilos, 2018[39]).

Identifying the profiles of teachers by different subject areas is relevant for a number of reasons – first, the content that teachers teach in the classroom is mainly determined by the subject areas they are assigned to teach. Second, teachers' pre-service and in-service training may differ in education systems depending on the subjects taught. Understanding teachers' professional knowledge by their instructional roles can help education systems determine that students have equitable opportunities to learn and excel in all areas. Subject-matter knowledge and expertise is an important consideration in the development of teachers as professionals (Jensen et al., 2016[18]; Shulman, 1986[40]).

This section defines the teaching profiles of education professionals based on the different subjects they teach and the training they received in these areas.

Different teaching profiles in in primary education

Teachers in primary education teach multiple subjects. It is interesting to look at the distribution of subjects taught by teachers in primary education. Among the five main subjects (reading, writing and literature, mathematics, science, social science and technology), 36% of teachers teach more than three subjects; 30% of teachers teacher 2-3 subjects; and 13% reported teaching only one subject on average across the participating countries and economies in primary education (Table 3.21). The share of teachers who teach only one subject among the five core subjects is rather high in Denmark (39%), the United Arab Emirates (26%), CABA (Argentina) (17%) and Sweden (13%). In contrast, multiple subject teaching in primary education is most prevalent in England (United Kingdom), France and Korea, where more than half of the workforce reported teaching more than three out of five subjects.

On average across the participating countries and economies, 65% of teachers taught reading, writing and literature during the year the survey was administered. The share of reading teachers in primary education ranges between 46% in the United Arab Emirates to 86% in England (United Kingdom), the Flemish Community of Belgium and France (Table 3.18).

Sixty-two percent of teachers teach mathematics; 47% teach science; 45% teach social studies; and 31% of teachers teach technology on average across the participating countries and economies in primary education. The share of teachers teaching mathematics ranges from 35% in the United Arab Emirates to just above 85% in England (United Kingdom), the Flemish Community of Belgium and France. The share of teachers teaching science in primary education ranges between 31% in Denmark to more than 75% in England (United Kingdom) and France.

Even though subject-specific expertise may not be demanding in primary education, teacher training in the content areas they teach at lower levels of education can be important for students to have a strong foundation in the subject, and is a characteristic of high-performing education systems (Jensen et al., 2016[18]). Among teachers who teach reading and/or mathematics, about 87% of teachers have received formal training in these subjects. Among teachers who teach social studies and/or science, about 80-81% received formal training in these subjects. However, training in technology stands out as an exception as only 61% of teachers who teach this subject received formal training in it (Table 3.20).

In some countries and economies, there is a wide gap between the share of teachers who teach a subject and those who received formal training in it. The largest gaps can be observed in Denmark, France, Turkey and the United Arab Emirates, where more than one-fourth of teachers teaching a subject did not receive formal training in it in four out of five subjects under investigation – mathematics, science, social science and technology. On the other hand, subject-specific training is more prevalent in England (United Kingdom) and Korea with the highest share of teachers who received formal training in the subjects they teach ranging from 80-97% (Table 3.20).

This report also permits us to assess the share of STEM teachers in primary education. Learning in STEM (science, technology, engineering and mathematics) is an important area to consider for teaching professionals in primary education. Well-trained teachers can ensure that students develop early interest and appropriate experience in this area. Teaching multiple subjects in primary education could be one of the barriers to the development of teachers as subject-specific experts at this level (Jensen et al., 2016[18]). Teachers develop their expertise with experience in teaching a subject consistently; therefore, it is important to identify if any teachers in primary education exclusively teach STEM subjects.

For the purpose of TALIS, a STEM teacher is identified as one who exclusively reported marked teaching one or more of the subjects math, science and technology. The share of teachers in primary education who exclusively teach STEM subjects is fairly low. On average across participating countries and economies, 4% can be identified as STEM teachers (Table 3.22). The results for the different participating countries range from less than 1% of teachers in the Flemish Community of Belgium and France to 7% in CABA (Argentina) and 10% in the United Arab Emirates. Once again, these results highlight the prominence of multiple-subject teaching in primary education. Given small numbers, one implication is that, further examining the demographics of STEM teachers in primary education by breaking down the results by teacher and school characteristics is not feasible.

TALIS results show that teachers' self-efficacy, one of the key outcomes of interest measured in TALIS, varies depending on the number of subjects taught by a teacher. Self-efficacy refers to teachers' reports on how confident they feel in different areas related to their teaching such as classroom management, instruction and student engagement (see Chapter 5). It is an important indicator of teacher quality. Regression analyses show that teachers who teach three or more subjects out of the five main subjects (reading, writing and literature, mathematics, science and social science) reported higher levels of self-efficacy in some countries and economies participating from primary education compared to teachers who teach only one or two subjects, controlling for teachers' age, gender, working status and class size

(Table 3.38). Countries where this relationship is observed are CABA (Argentina), the Flemish Community of Belgium, Spain, Sweden and Turkey. An exception to this pattern is the United Arab Emirates where teachers who teach two subjects compared to those who teach only one of the core subjects express lower levels of self-efficacy.

Different teaching profiles in upper secondary education

Teachers in upper secondary are less likely to teach multiple subjects. Among the five main subjects (reading, writing and literature, mathematics, science, social science and technology), almost half of the teaching workforce (48%) reported teaching only one subject; 17% of teachers teach two to three subjects; and 3% teach more than three out of five subjects on average across the participating countries and economies in upper secondary education (Table 3.21). The share of teachers who teach multiple subjects is the highest in Alberta (Canada) (7% of teachers teach more than three subjects and 42% teach two to three subjects) and Viet Nam (6% of teachers teach more than three subjects and 16% teach two to three subjects).

On average across the participating countries and economies, 23% of teachers teach reading, writing and literature; 21% of teachers teach science; another 21% of teachers teach social studies; 18% of teachers teach mathematics; and 16% of teachers teach technology (Table 3.18).

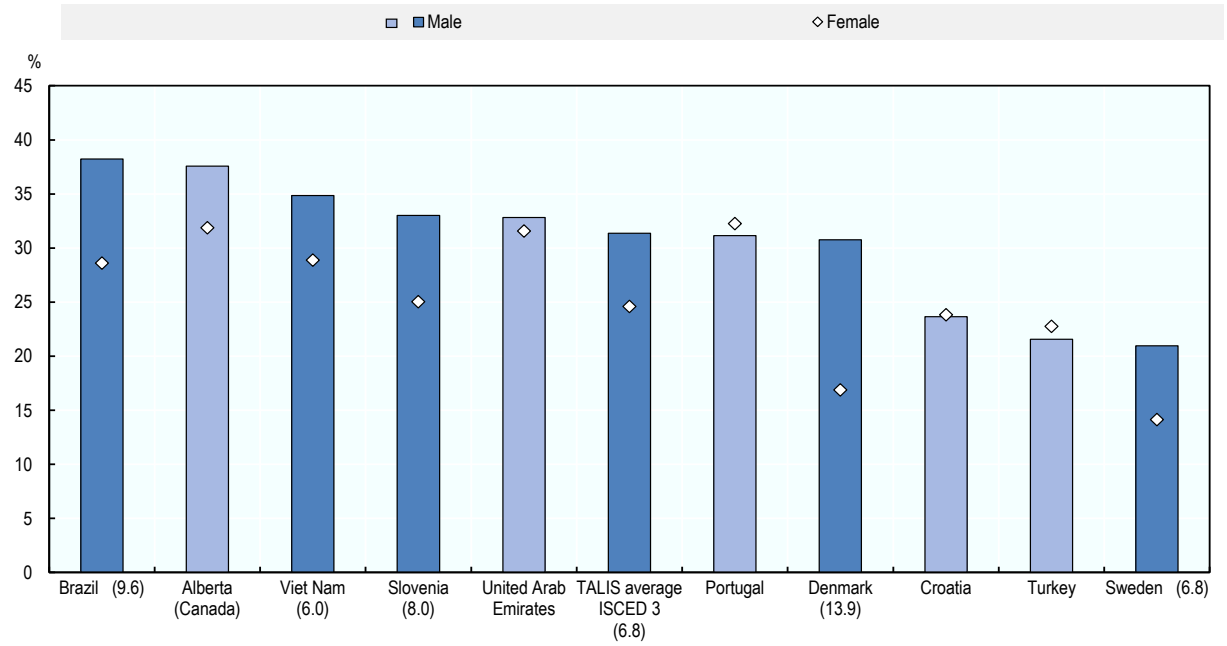
Teachers in upper secondary education are also quite likely to receive formal training in the subjects that they teach. However, there is still a small share of teachers in upper secondary education who were not formally trained in the subjects they teach. Among the teachers who teach reading, writing and literature, mathematics, science and social science, about 78-83% received formal training in each of these subjects they taught on average across the participating countries and economies (Table 3.20). However, only 68% of teachers teaching technology reported that this subject was included in their formal training.

This report also permits us to identify the share of STEM teachers in upper secondary education. For the purpose of TALIS, a STEM teacher is identified as one who exclusively reported marked teaching one or more of the subjects math, science and technology. On average across the participating countries and economies, 22% of teachers are STEM teachers. The share of STEM teachers in upper secondary education ranges from 15% in Sweden to more than 25% Brazil, Portugal and the United Arab Emirates (Table 3.23).

The composition of STEM teachers in upper secondary education differs by gender. A higher share of male teachers (31%) teach STEM compared to the share of female teachers (25%). These differences are observed in several countries and economies – Denmark (14 percentage points), Brazil (10 percentage points), Slovenia (8 percentage points), Sweden (7 percentage points) and Viet Nam (6 percentage points). However, in Alberta (Canada), Croatia, Portugal, Turkey and the United Arab Emirates, no significant difference is observed in the share of STEM teachers by gender (Table 3.23).

Figure 3.6. STEM teachers in upper secondary education, by gender

Percentage of STEM teachers



Notes: STEM refers to science, technology, engineering and mathematics. A "STEM teacher" is someone who marked teaching at least one of the following subjects in the year of the survey implementation: mathematics, science and technology; and no other subject.
Statistically significant differences between male and female teachers are marked in a darker tone and are shown next to the country/economy name.
Countries and economies are ranked in descending order of the percentage of upper secondary male teachers who teach exclusively one or multiple STEM subjects.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/or7p85

Another noteworthy finding with respect to STEM teachers is that there are fewer STEM teachers in schools with a VET programme compared to non-VET schools (3 percentage points difference, on average), and in four countries and economies – Denmark (13 percentage points), and Croatia and Turkey (5-6 percentage points). However, the share of STEM teachers is higher in VET schools in Viet Nam compared to non-VET schools (a difference of 8 percentage points).

A higher share of STEM teachers work full-time compared to working part-time (4 percentage points difference on average). This is true for four countries and economies – Portugal (11 percentage points), and Croatia, Denmark and Turkey (5-7 percentage points).

TALIS results show that the likelihood of a teacher exclusively teaching STEM subjects varies according to the qualification pathway they pursued to become a teacher. On average across the participating countries and economies in upper secondary education, teachers who pursued a regular consecutive teacher education programme are more likely to only teach mathematics, science and/or technology compared to teachers without any formal qualification or teachers who were trained through a regular concurrent teacher education programme (Table 3.35).

VET teachers

Vocational education and training (VET) is a unique form of education that focuses on practical skills and hands-on experience (OECD, 2021[19]), and is generally a part of upper secondary education. Teachers who teach VET programmes are expected to have both pedagogical and occupational knowledge and experience. These teachers are expected to cater to the particular learning needs of students who are being prepared to enter the labour market with job-related and interpersonal skills.

TALIS enables the analyses of vocational and technical education environments in two ways – teachers who teach in VET schools (i.e. schools that offer a VET programme) and teachers who reported teaching practical and vocational skills in the year they took the survey as VET teachers.

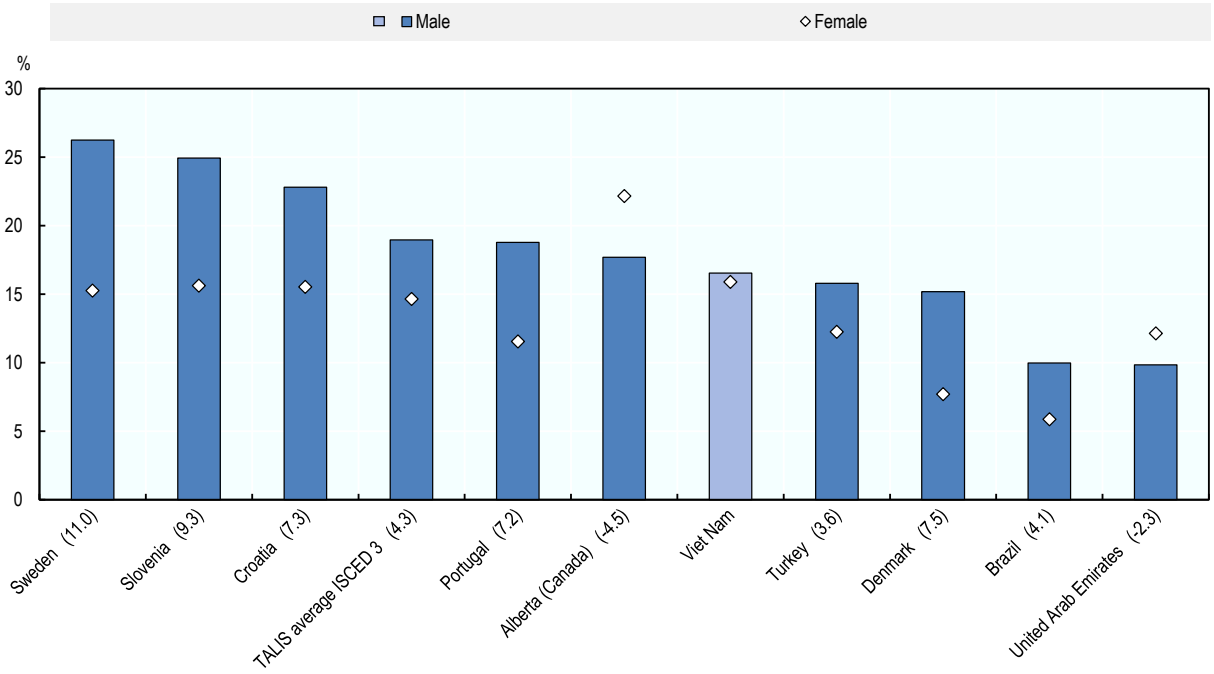
The first approach indicates the distribution of the teaching workforce across schools that offer a VET programme and those that do not, and highlights the prevalence of vocational and technical education opportunities in countries' education systems. Based on the first approach, 51% of teachers in upper secondary education teach in VET schools, i.e. schools where a VET programme is taught. Countries where the highest share of the teaching workforce teaches in VET schools include Portugal (86%), Croatia (80%), Sweden (66%), Slovenia (64%), Alberta (Canada) (58%) and Turkey (53%), whereas a lower share of the workforce teaches in VET schools in Brazil (28%), the United Arab Emirates (28%), Denmark (25%) and Vietnam (10%) (Table 3.25).

Based on the second approach, on average across the participating countries and economies, 16% of the workforce are VET teachers, i.e. teachers across all schools that reported teaching practical and vocational skills during the year the survey was administered. The share of VET teachers ranges from 8% in Brazil to 20% in Alberta (Canada) and Sweden. Findings indicate an unequal distribution of VET teachers by gender. On average across the participating countries and economies, 19% of male teachers taught practical and vocational skills during the year they took the survey compared to 15% of female teachers who were VET teachers (4 percentage points difference) (Figure 3.7 and Table 3.24). The largest gender gaps can be seen in Sweden (11 percentage points), Slovenia (9 percentage points), Croatia, Denmark and Portugal (7 percentage points). However, a higher share of females are VET teachers in Alberta (Canada) (4 percentage points) and the United Arab Emirates (2 percentage points). The smaller presence of female VET teachers in upper secondary education can be concerning for two reasons: women may lack employability in teaching VET subjects and students in VET programmes may not have enough female role models.

VET teachers are, on average, less experienced as teachers compared to non-VET teachers. On average across the participating countries and economies, the share of VET teachers who have less than five years of teaching experience is larger than the share of experienced VET teachers by 5 percentage points, with the biggest differences in Portugal (14 percentage points), Slovenia and Sweden (11 percentage points each).

Figure 3.7. VET teachers in upper secondary education, by gender

Percentage of VET teachers



Notes: VET refers to vocational or technical education programmes. "VET teachers" refers to teachers who reported teaching practical and vocational skills this year.
Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone and are shown next to the country/economy name.
Countries and economies are ranked in descending order of the percentage of upper secondary male teachers who teach practical and vocational skills.
Source: OECD, TALIS 2018 Database.

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Teachers' use of classroom time

One of the goals of effective teaching is to maximise instructional time for teachers in the classroom, thereby maximising time for student learning (Slavin, 1994[41]). Teachers' distribution of classroom time between instruction and management-related tasks can be an important indicator of teacher quality. It can also help identify the challenges faced by primary and teachers in upper secondary in their instruction and define their working environment.

TALIS asked teachers about the share of time they spend in an average lesson on three tasks – actual teaching and learning, keeping order in the classroom (maintaining discipline) and administrative tasks (e.g. recording attendance, handing out school information or forms). The distribution of teachers' time across these tasks in a typical lesson signals how efficient teachers are; that is, that they spend less time on administrative tasks and keeping order in the classroom, and more time for student learning.

Managing and maximising instructional time can require new adjustments for teachers teaching in virtual working environments during the COVID-19 pandemic as well as in a post-COVID educational context. This is because time spent on actual teaching and learning in virtual learning set-ups can be shaped by

factors such as time spent on managing digital technology and logistics, and different forms of student engagement and classroom management.

Distribution of classroom time in primary education

Teachers reported spending about three-fourths of an average lesson on actual teaching and learning (76%) on average across the participating countries and economies in primary education (Table 3.26). About one-fourth of teachers' time is spent on non-instructional work – keeping order in the classroom (16%) and administrative tasks (8%). The share of time spent on actual teaching and learning based on teachers' reports remains largely consistent across all the participating countries and economies in primary education – ranging between 71-80%. The only country that stands out as an exception is Viet Nam where teachers reported spending 85% of their time in an average lesson on actual teaching and learning.

Teachers' time spent on keeping order in the classroom reflects how teachers grapple with disciplinary issues during their instructional time. The range of time spent on keeping order in the classroom ranges between 9% in Viet Nam and 12% in England (United Kingdom) to 18-20% in CABA (Argentina), France, Spain and Turkey. While disciplinary issues shape teachers' time spent on keeping order in the classroom, the variation in this time also reflects different teachers' ability to bring their classroom to order and create a conducive learning environment. While time spent on keeping order in the classroom to some extent may be beneficial for teachers to engage their students before starting to teach, spending too much time on this can also be detrimental to student learning time and teachers' stress (see Chapter 6). The range of time spent on administrative tasks in a typical lesson across countries and economies in primary education is between 6-9%.

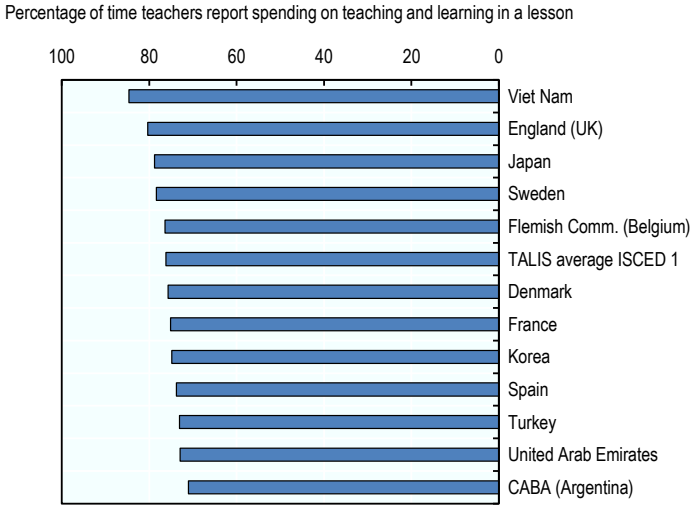
Identifying the distribution of time spent on actual teaching and learning across teacher and school characteristics can help support teachers in specific contexts to maximise student learning time. TALIS data reveal that experienced teachers reported more time spent on instruction (77%) in a typical lesson compared to novice teachers (72%) on average across participating countries and economies (a difference equivalent to 3 minutes per 60-minute lesson) (Table 3.27). Other conditions where maximising instructional time appears to be a hindrance include teaching by part-time teachers (five countries and economies); teaching in schools with a high share of students from socio-economically disadvantaged backgrounds (seven countries and economies); and teaching in urban schools (in five countries and economies). These results mirror the findings from Volume I of the TALIS 2018 results. They reflect the overarching need to support teachers in these contexts to gain more teaching time in lessons with efficient classroom management and lighter administrative loads (OECD, 2019[35]).

Novice teachers spending less time on instruction compared to experienced teachers is observed across all the participants from primary education except for Viet Nam (where no significant difference is observed). The largest differences are in France, Japan and Denmark (7-8 percentage points) (Table 3.27). Novice teachers, especially in primary education, can face specific challenges related to managing disciplinary issues in the classroom. This could reflect in less time spent on instruction among novice teachers. These issues are particularly observed in CABA (Argentina), France, Spain and Turkey where novice teachers reported spending less than 70% of their time on teaching and learning in a typical lesson. The concerns raised by these results can be understood better if this loss of instructional time per lesson is magnified, i.e. loss of instruction across instructional hours during an entire school year. However, previous TALIS results also find that novice teachers often teach in more challenging classrooms (i.e. those that comprise a higher share of students from disadvantaged backgrounds, students with special needs and students from migrant and refugee backgrounds). Therefore, part of the differences in time spent on teaching and learning between novice and experienced teachers is attributable to the characteristics of the students they teach (OECD, 2019[35]).

Teachers reported spending less time on actual teaching and learning in challenging working environments, i.e. schools with more than 30% of students from socio-economically disadvantaged

backgrounds (3 percentage points difference, on average) (Table 3.27 and Figure 3.8). This difference holds true for seven countries and economies participating from primary education, and notably, stands out in Spain and the United Arab Emirates with differences of 7-8 percentage points between teachers teaching in the two contexts. Once again, these differences are concerning when viewed through the lens of cumulative loss of student learning time in a year, especially in schools with a high concentration of students from socio-economically disadvantaged backgrounds. For example, in Spain, out of 792 compulsory instruction hours per year in primary education, teachers' reports on time spent on actual teaching and learning in a typical lesson translates into 60 fewer teaching hours in disadvantaged schools compared to other schools.[7]

Figure 3.8. Average proportion of time teachers in primary education report spending on teaching and learning in a lesson



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

Difference by teacher and school characteristics	
Teacher with more than 5 years of experience - Up to 5 years	High - Low concentration of students from disadvantaged homes[1]
	-
+	
+	
+	-
+	-
+	-
+	
+	-
+	
+	-
+	-
+	-
+	

Education systems with a positive difference	11	0
Education systems with no difference	1	2
Education systems with a negative difference	0	7

1. Socio-economically disadvantaged homes refer to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care.

Countries and economies are ranked in descending order of the percentage of time teachers report spending on teaching and learning in a lesson.

Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/clha80

Looking at teachers working full-time compared to those working part-time in primary education, full-time teachers spend more time on actual teaching and learning in a typical lesson in five countries and economies with the largest differences observed in Korea and the United Arab Emirates (7 percentage points each). However, Japan is an exception as part-time teachers reported spending a higher share of time in a typical lesson on actual teaching (84%) compared to their full-time colleagues (79%).

In four countries and economies, male teachers reported spending a greater share of time in a typical lesson on actual teaching and learning compared to female teachers, ranging from 2-5 percentage points. These differences are observed in France, Turkey, the United Arab Emirates and Spain. However, in Viet Nam, female teachers reported spending a greater share of time on teaching and learning compared to their male colleagues.

Time spent on actual teaching and learning in a typical lesson also varies by location of the schools where teachers teach. In three countries and economies (England (United Kingdom), Spain and Sweden, teachers spend less time on actual teaching and learning in a typical lesson in schools in cities compared to their counterparts in rural schools (differences of 3-5 percentage points). On the contrary, in the United Arab Emirates, teachers in schools in cities reported spending more time on teaching and learning in a typical lesson compared to teachers in rural schools (3 percentage points).

How do primary and lower secondary levels compare?

Teachers in primary education spend less time on actual teaching and learning in a typical lesson and more time on keeping order in the classroom (1-2 percentage points on average) (Table 3.26). Country-specific patterns reveal that the time spent on actual teaching and learning, i.e. instructional time is significantly less in six countries and economies, with the largest differences in CABA (Argentina) and Denmark (6 percentage points), and smaller differences in Korea, Spain, Sweden and the United Arab Emirates.

Time spent on keeping order in the classroom is higher in primary education, based on teachers reports in eight countries and economies, with the largest differences in Denmark (7 percentage points) and smaller differences (less than 5 percentage points) in CABA (Argentina), France, Korea, Spain, Sweden, the United Arab Emirates and Viet Nam (Table 3.26). An exception to this pattern is observed in the Flemish Community of Belgium (1 percentage point difference). The challenge for teachers in primary education who spend more time on disciplinary issues in their lessons and consequently less time on actual teaching and learning could arise from the fact that younger children often have shorter attention spans compared to students in lower secondary education who belong to a higher age group (Case, 1987[42]). However, these findings should be interpreted with care as teachers in primary education also spend a greater number of working hours teaching compared to lower secondary teachers (see Chapter 6), which could balance out less time spent on actual teaching and learning in a typical lesson.

How does time spent on actual teaching and learning differ by subject taught?

On average across the participating countries and economies in primary education, time spent on actual teaching and learning is significantly lower in reading, writing and literature classes compared to time spent on teaching and learning in other subjects (mathematics, science, social studies and technology) as reported by teachers, and controlling for teachers' age, gender, working status and class size (Table 3.39). This is observed in CABA (Argentina), Korea, Spain and the United Arab Emirates. On the contrary, in Japan and Spain, teachers' time spent on teaching and learning in mathematics classes is significantly higher than that of their peers in other subjects. With respect to social studies, time spent on actual teaching and learning in these lessons is significantly higher compared to other subjects in Denmark but significantly lower in the United Arab Emirates. The inequalities in learning time by subject could be driven by several factors such as syllabus or content of the subjects, training of teachers in specific subjects, pedagogical

demands of subject taught, etc. These results warrant further enquiry into conditions that prevent maximising learning time in different subjects.

Distribution of classroom time in upper secondary education

The distribution of classroom time in upper secondary education not only signals quality of teaching and learning but also defines the working context of teachers in upper secondary education.

On average across the participating countries and economies, teachers reported having spent 80% of their time in a typical lesson on actual teaching and learning; 11% of their time on keeping order in the classroom; and 8% on administrative tasks (Table 3.26).[8]

Maximising instructional time in upper secondary education seems to be a challenge in Brazil with the least time spent on teaching and learning (70%) compared to other countries, and in Turkey where less than three-fourths of a typical lesson is spent on instruction (74%). In both these countries, keeping order in the classroom seems to be particularly time-consuming for teachers as more than 15% of their classroom time is spent on it. Teachers in Brazil also reported spending the most time on administrative tasks (11% of a typical lesson) in the classroom compared to other countries, which also reduces instructional time. As noted in the previous section, more time spent on maintaining order in the classroom can not only impede teaching time but also be a cause of stress for teachers in upper secondary education, as in the case of Brazil with half of teaching workforce citing this as a source of stress (see Chapter 6).

TALIS data on upper secondary education indicates that teachers in specific contexts face barriers in maximising instructional time in their classrooms. This is particularly true for novice teachers and teachers teaching in schools where a VET programme is taught. Smaller differences are also observed for part-time teachers compared to full-time teachers, non-STEM teachers and teachers teaching in schools with a high share of students from disadvantaged backgrounds.

As observed for primary and lower secondary education, novice teachers in upper secondary education also reported spending less time on actual teaching and learning in a typical lesson compared to experienced teachers (76% vs 81%) (Table 3.28). The largest differences can be seen in Portugal and Slovenia (7-8 percentage points), and smaller differences are observed across all participants except Brazil and Viet Nam (where no significant difference is observed).

Teachers in VET schools reported spending less time on actual teaching and learning in a typical lesson compared to their counterparts in schools where no VET programme in taught (2 percentage points on average). This is true for seven countries and economies – Denmark (6 percentage points), Portugal and Slovenia (5 percentage points), Sweden and Turkey (4 percentage points) and Croatia (2 percentage points). However, the opposite pattern is observed for teachers in VET schools in Brazil (6 percentage points) and the United Arab Emirates (3 percentage points).

Interestingly, STEM teachers also reported spending a greater share of time in a typical lesson on actual teaching and learning compared to non-STEM teachers (a difference equivalent to almost 2 additional minutes per 60-minute lesson). This significant difference is observed across all participating countries and economies in upper secondary education except in Slovenia.

In a few countries, part-time teachers in upper secondary education also reported spending less time on actual teaching and learning in a typical lesson compared to full-time teachers in Portugal, the United Arab Emirates, Viet Nam and Croatia (differences ranging from 2-5 percentage points).

How do upper secondary and lower secondary levels compare?

In upper secondary education, time spent in a typical lesson on actual teaching and learning is higher than in lower secondary education. This is true for seven countries and economies, with the highest differences in Denmark and Portugal (5 percentage points) (Table 3.26). More time spent on instruction directly

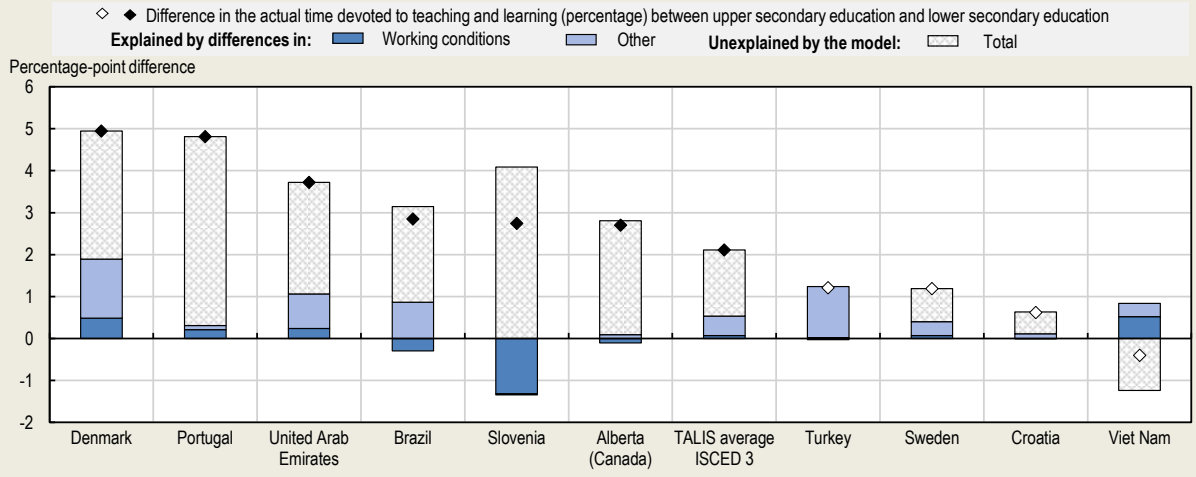
corresponds with less time spent on keeping order in the classroom in upper secondary education. This is true for nine countries and economies with the highest differences in Denmark and Portugal (4-5 percentage points). Box 3.2 presents a gap decomposition analysis in order to understand what could be some of the factors explaining the differences across levels.

Box 3.2. Difference in share of time spent on teaching and learning in a lesson between upper and lower secondary education – a gap decomposition analysis

Maximising the learning time of students during classroom instruction is an important policy goal. In a typical lesson, teachers usually distribute their time across teaching and learning activities, managing classroom discipline and student behaviour and administrative tasks. Based on teachers' reports, the share of time spent on teaching and learning in a typical lesson in upper secondary education is higher than that in lower secondary education in most countries.

A Blinder-Oaxaca decomposition of the differences in the proportion of time teachers spent on actual instruction between education levels has been used to explore possible factors behind these relations (Blinder, 1973[43]; Oaxaca, 1973[44]). This type of analysis is able to discern whether observable differences between two groups on a variable of interest reflect underlying differences in factors known to be associated with that variable. As the dependent variable, the proportion of time teachers spent in actual instruction was selected. Figure 3.9 (Table 3.42) shows the gap decomposed three components: the difference attributed to the working conditions (class sizes, type of contract, working hours), differences attributed to other variables of considerations (such as teachers' gender, experience and school characteristics) and differences that cannot be attributed to variables included in the model.

Figure 3.9. Difference in the share of time spent on teaching and learning in a lesson between upper and lower secondary education



Notes: Predictors include teachers' gender (reference: male), highest educational attainment (reference: below ISCED level 5), participation in formal induction at current school, participation in effective forms of professional development, experience as a teacher and in non-education roles, teaching hours, having a permanent employment contract, class size, the share of students with special needs in the school and the share of students who come from disadvantaged homes in the school.
Statistically significant differences in the scale between upper secondary education and lower secondary education are marked in a darker tone diamond.
Countries and economies are ranked in descending order of the difference in the actual time devoted to teaching and learning between upper secondary and lower secondary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/bgwjd4

The figure shows that in Alberta (Canada), Brazil, Denmark, Portugal, Slovenia and the United Arab Emirates, the proportion of time teachers spend in actual teaching and learning is significantly higher in upper secondary education than in lower secondary education.

It is important to note that most of the differences cannot be explained by factors included in the model; this residual gap is represented by the white bars. As such, the results presented below should be interpreted cautiously: the main explanation for each gap might be found among variables that are unique to each education level, or to each education system, and which were not included in the survey or in the model.

Difference in the working arrangements (dark blue colour) between lower secondary and upper secondary explain only a small part of the gap in the amount of time devoted to actual teaching, in particular in Denmark, Portugal and the United Arab Emirates. Working arrangements include weekly working hours, class size and permanent employment status of teachers. In these countries, positive working arrangements in upper secondary education explain the higher time spent by teachers on learning at this level. However, in Slovenia, working conditions are less favourable in upper secondary education, and, therefore, the large difference in teaching time between the two levels (in favour of upper secondary education) cannot be attributed to such differences.

Working conditions do not seem to be a relevant factor for other systems such as Alberta (Canada) or Brazil (Table 3.42). In the case of Brazil, the differences in education and training between teachers in upper secondary and lower secondary education explain a considerable part of the variation observed across levels. In the case of Alberta (Canada), none of the variables included in the model seem to provide an explanation of what is driving these differences. These predictors are reflected as part of the "other" predictors shown in the figure (light blue colour).

Source: OECD, TALIS 2018 Database.

How does time spent on actual teaching and learning differ by subject taught?

On average across the participating countries and economies in upper secondary education, teachers from mathematics classes reported a significantly greater amount of time spent on actual teaching and learning in a typical lesson compared to their counterparts teaching other subjects (reading, writing and literature, science, social studies, technology, and practical and vocational skills). This is true for Portugal, Turkey and the United Arab Emirates (Table 3.40). However, the opposite is true for Viet Nam – teachers in mathematics classes reported a significantly lower share of time spent on actual teaching and learning compared to teachers in other classes. With respect to practical and vocational skills, teachers in these classes reported significantly less time spent on actual teaching and learning in a typical lesson compared to teachers in other classes. This is true for Denmark, Portugal, Slovenia and Sweden while the opposite is true for Brazil. These results could be shaped by several factors such as the content and pedagogy of subjects taught or training and educational backgrounds of the different subject teachers. Further analysis is warranted to understand the conditions under which instructional time is maximised such that teachers of all subject domains can be suitably supported to increase student learning time.

Teaching practices

Teaching practices or classroom instruction is the core task of teachers. It encapsulates what teachers do in the classroom directed at student learning. While student learning is influenced by a range of background factors such as family resources, expectations, motivation and behaviour, what teachers do in the

classrooms has the strongest direct school-based influence on student achievement and long-term outcomes (Hattie, 2009[45]; OECD, 2005[1]).

The TALIS survey asks teachers to report on the frequency and use of effective teaching practices in their classroom as part of its goal to generate knowledge on teaching quality. These are multidimensional practices that have been found in research literature to be positively associated with student learning outcomes and are grouped into four strategies: classroom management, clarity of instruction, cognitive activation and enhanced activities (OECD, 2019[35]) (Table 3.1).

Classroom management practices include actions that teachers undertake to establish an orderly environment in the classroom and effective use of time during lessons (van Tartwijk and Hammerness, 2011[46]). Practices pertaining to clarity of instruction include actions that help set clear and comprehensive learning goals, usually at the beginning and but also throughout the lesson. These help students engage in new learning (Kyriakides, Campbell and Gagatsis, 2000[47]; Scherer and Gustafsson, 2015[48]; Seidel, Rimmele and Prenzel, 2005[49]). Cognitive activation practices consist of instructional activities that allow students to evaluate, integrate and apply knowledge within the context of problem solving (Lipowsky, 2009[50]).

Table 3.1. Teaching practices examined under TALIS 2018

	Teaching practices
Classroom management	Tell students to follow classroom rules
	Tell students to listen to what I say
	Calm students who are disruptive
	When the lesson begins, tell students to quieten down quickly
Clarity of instruction	Present a summary of recently learned content
	Set goals at the beginning of instruction
	Explain what I expect students to learn
	Explain how new and old topics are related
	Refer to a problem from everyday life or work to demonstrate why new knowledge is useful
	Let students practise similar tasks until I know that every student has understood the subject matter
Cognitive activation and enhanced activities	Present tasks for which there is no obvious solution
	Give tasks that require students to think critically
	Have students work in small groups to come up with a joint solution to a problem or task
	Ask students to decide on their own procedures for solving complex tasks
	Give students projects that require at least one week to complete
	Let students use ICT for projects or class work

Teaching practices in primary education

The use of classroom management practices is widespread in primary education. On average, across the participating countries and economies, 82% of teachers tell students to follow classroom rules; 79% tell students to listen to what the teacher says; 76% of teachers calm students who are disruptive; and 71% of teachers tell students to quieten down quickly when the lesson begins (Table 3.29).

The use of cognitive activation practices as reported by teachers in primary education is relatively less widespread. The most widespread practice among cognitive activation practices in primary education is having students work in small groups to come up with a joint solution to a problem or task. This is reported by 64% of teachers on average in primary education (Table 3.31). Less common cognitive activation practices in primary education include giving students projects that require at least a week to complete (26%); presenting tasks to students for which there is no obvious solution (37%); and letting students use ICT for projects or class work (40%).

How do primary and lower secondary levels compare?

Compared to lower secondary education, more teachers in primary education reported using classroom management practices frequently or always. This is reflected in a higher share of teachers in primary education reporting this across all four classroom management practices: tell students to follow classroom rules and calm students who are disruptive (7 percentage points difference on average); tell students to listen to what the teacher says (6 percentage points); and tell students to quieten down quickly when the lesson begins (3 percentage points) (Table 3.29). The use of classroom management practices by teachers in primary education as well as the greater share of time spent in a typical lesson keeping order in the classroom points to classroom management as a pivotal tool for quality instruction in primary education for both behaviour management and student engagement.

Box 3.3. The Netherlands: Catch-up programme (*Inhaal en ondersteuningsprogramma*) – Multi-year recovery programmes from 2020-23

The Netherlands identified COVID-19 induced education challenges for students at different levels of education such as loss of foundational learning for students in primary education that could result in a cumulative loss of learning in high school, loss of internships and training opportunities for students in vocational education, disruptions to cognitive and social-emotional development of students of different age groups. In response to these challenges, the Netherlands is investing almost an additional EUR 8.5 billion in education in multi-year recovery programmes. The programmes include subsidy scheme for primary and secondary general education, and secondary VET to provide extra support to students.

Schools also automatically receive extra financial support to design and carry out their own school programmes, be they cognitive or social-emotional, aimed at resolving school closure-related delays in the next two school years. In designing these school programmes, schools can choose from a “menu” of evidence-based initiatives, provided by the ministry. This menu contains research summaries to support programme design. These initiatives are aimed at increasing the quantity and/or the effectiveness of regular education. The initiatives may take the form of after-school programmes, catch-up programmes during school holidays, or extra support during the school day. Students from teacher training courses and pedagogical studies can assist teachers in delivering these initiatives The ministry has also ensured that practical information is provided regarding how to select students, prioritise learning goals and monitor students’ progress. Eligible students include: those with learning gaps caused by school closures; those who have experienced delays in their studies or practical training as a result of COVID-19; and those who do not speak Dutch in the home and may need language support.

In upper secondary vocational education schools and in universities, the programme runs for a slightly shorter time (2021-23). Furthermore, the schools and universities are allowed to use alternative measures to those in the “menu” if they can substantiate the necessity and effectiveness of those actions. In upper secondary vocational education and in higher education, a number of specific subsidies have also been prolonged and extended for the duration of the programme. The most important being additional subsidies for learning companies to coach students in jobs with work-based learning and to further the provision of those jobs, apprenticeships and subsidies to facilitate the transition from school to the workplace.

A further EUR 3.8 million has been allocated for the new school year to provide digital equipment to students forced to study at home who do not have a laptop or tablet. In 2021, in upper secondary vocational education, additional funding is available for schools to provide digital devices for students.

All students in VET and higher education programmes unable to graduate in 2019/20 due to institutional closures and who need to re-enrol and graduate in the next academic year will receive funding for approximately three months of tuition fees. In addition, all students enrolled in upper secondary vocational education and higher education are granted a fifty percent reduction of their tuition fees this academic year (2021/22).

Source: Ministerie van Onderwijs, Cultuur en Wetenschap (2021[51]), "Nationaal programma onderwijs: Steunprogramma voor herstel en perspectief [National education programme: Support programme for recovery and perspective]", https://www.nponderwijs.nl/documenten/kamerstukken/2021/02/17/np-onderwijs; OECD, (2020[36]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://dx.doi.org/10.1787/0a530888-en.

Teaching practices in upper secondary education

The most common teaching practices in upper secondary education as reported by teachers are those pertaining to clarity of instruction. On average across the participating countries and economies, 89% of teachers reported that they explain to students what they expect them to learn and how old and new topics are related frequently or always; 79-82% of teachers refer to a problem from everyday life or work to demonstrate why new knowledge is useful, set goals at the beginning of instruction, and present a summary of recently learnt content; and finally, 71% of teachers reported letting students practise similar tasks until they know that every student has understood the subject matter (Table 3.30).

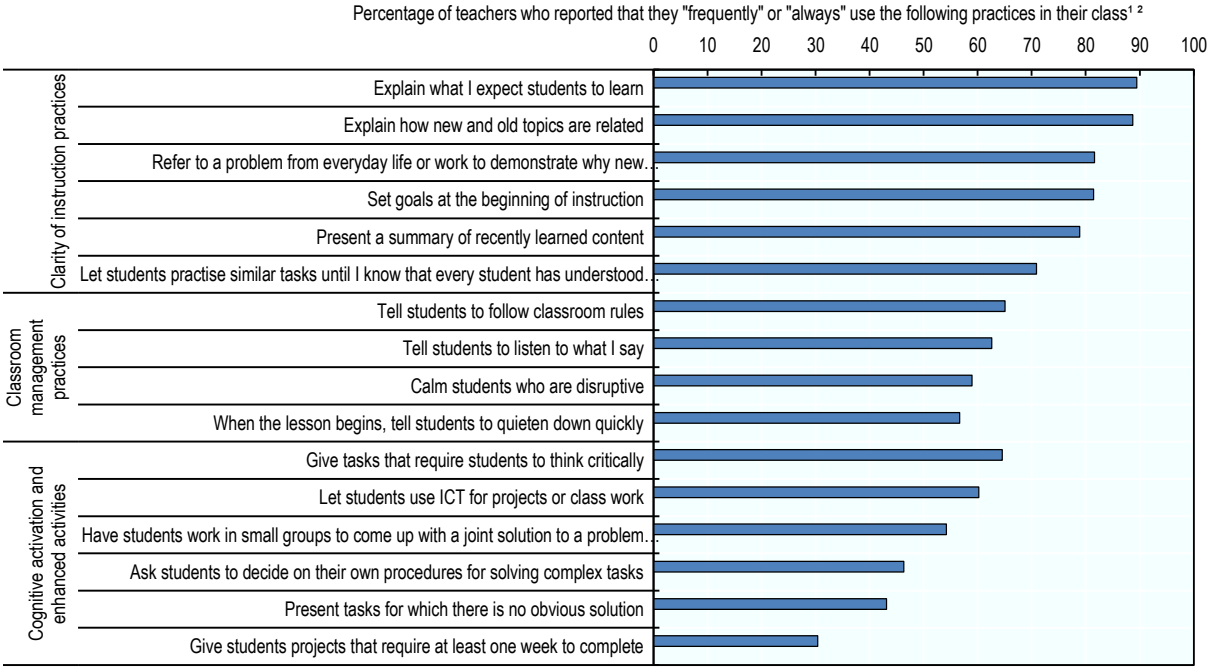
The use of classroom management practices among teachers in upper secondary education is between 57-65% on average across the participating countries and economies (Figure 3.10). However, in some countries and economies, less than half of the teachers reported using these practices frequently or always – Sweden (38-47%), Denmark (36-44%) and Croatia (24-47%) (Table 3.29). These are among the countries where teachers reported the greatest amount of time spent on actual teaching and learning in a typical lesson.

The most prevalent cognitive activation practices in upper secondary education are giving students tasks that require them to think critically and letting students use ICT for projects or class work as reported by 65% and 60% of teachers, respectively, on average across the participating countries and economies (Table 3.31). A less common cognitive activation practice in upper secondary education is giving students projects that require at least a week to complete (30%). The cognitive activation practices reported by the highest share of teachers indicate that teachers consider these activities to be important for the learning and development of their students.

There are two particular cognitive activation practices whose use differs according to whether teachers teach in VET schools or not: having students work in small groups to come up with a joint solution to a problem or task; and asking students to decide on their own procedures for solving complex tasks. On average across the participating countries and economies in upper secondary education, the use of these cognitive activation practices differs between teachers in VET schools compared to teachers in schools without a VET programme (differences of 4 and 7 percentage points, respectively). The most prominent differences are observed in Denmark where more teachers in VET schools use the practice of asking students to decide on their own procedures for solving complex tasks compared to their counterparts in non-VET schools (22 percentage points) whereas fewer teachers in VET schools have students work in small groups to come up with a joint solution or task (a difference of 15 percentage points). Other countries and economies where a higher share of teachers in VET schools use these practices include Portugal and Turkey (Table 3.33).

Figure 3.10. Classroom practices in upper secondary education

Based on the response of teachers (TALIS average)



Note: ICT refers to information and communication technology.
1. The analysis is restricted to teachers reporting that their teaching in the target class is not directed entirely or mainly at special needs students.
2. These data are reported by teachers and refer to a randomly chosen class they currently teach from their weekly timetable.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/ou08i7

How do upper secondary and lower secondary levels compare?

Teachers in upper secondary education place more importance on using ICTs for projects or classwork and giving tasks that demand critical thinking from students (Table 3.31). A greater share of teachers in upper secondary education compared to teachers in lower secondary education reported frequently or always letting students use ICT for projects or classwork in Portugal (13 percentage points), Viet Nam (11 percentage points), Brazil (9 percentage points), Slovenia (7 percentage points), Sweden and Croatia (5 percentage points) and the United Arab Emirates (4 percentage points). Giving tasks that require students to think critically is reported by bigger share of teachers in upper secondary education than their lower secondary counterparts in Sweden and Portugal (10-11 percentage points) and Viet Nam (5 percentage points).

In some countries and economies, the use of cognitive activation practices as reported by teachers is less common in upper secondary education than in lower secondary education. This is true for Alberta (Canada) and Denmark, where fewer teachers reported frequently or always using 2-3 cognitive activation practices in upper secondary education (differences ranging from 6 to 11 percentage points).

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Notes

[1] ISCED level 6 programmes, including the bachelor's programme, licence or first university cycle, are often designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. They may include practical components and/or involve periods of work experience as well as theoretically-based studies. They are traditionally offered by universities and equivalent tertiary educational institutions (OECD, 2015[53]).

[2] Programmes at ISCED level 7 or master's or equivalent level, are often designed to provide participants with advanced academic and/or professional knowledge, skills and competencies, leading to a second degree or equivalent qualification (OECD, 2015[52]).

[3] Programmes classified at ISCED level 5 may be referred to in many ways; for example: higher technical education, community college education, technician or advanced/higher vocational training, associate degree, bac+2. For international comparability purposes, the term "short-cycle tertiary education" is used to label ISCED level 5 (OECD, 2015[54]).

[4] The TALIS questionnaire defines concurrent teacher education programmes for respondents as those that grant candidates a single credential for studies in subject-matter content, pedagogy and other courses in education during the first period of post-secondary education. Consecutive programmes are two-stage post-secondary education – university education with a focus on subject matter and second phase focused on pedagogy and practicum.

[5] The duration of a short-cycle tertiary education is usually about two years. Yet, in some countries, like Slovenia, this study programme can last three years and is equivalent to a bachelor's degree.

[6] These results could be explained by the high share of VET teachers in upper secondary education in Sweden who have fewer educational attainments and requirements compared to general education teachers (OECD, 2021[19]).

[7] Data are based on Indicator D1.1 on average hours per year of compulsory instruction time in 2018 from *Education at a Glance 2020* (OECD, 2020[15]).

[8] The amount of time spent in an average lesson may not add up to 100% for each TALIS cycle because some answers that did not add up to 100% were accepted.

4 Enabling lifelong learning of teaching professionals through in-service opportunities

This chapter explores three different forms of professional in-service training and support for teachers and school leaders in primary and upper secondary education. First, it explores induction and mentoring activities, which play a crucial role in helping teachers succeed in their new working environments. Second, teachers' engagement in continuous professional development and scope of further need are examined. Lastly, it looks at the different ways in which teachers receive feedback about their practice and how they think it impacts their work.

Highlights

Primary education

- Teachers' participation in induction activities in primary education is limited. An average of 41% of teachers reported that induction was offered neither in their first employment nor at their current school.
- Induction tends to be limited in certain contexts, such as schools in rural areas and among part-time teachers, as seen in lower teacher participation in these contexts, though participation in induction was higher among novice teachers and in schools with a high share of students from socio-economically disadvantaged backgrounds, in some countries and economies.
- Some 40% of teachers, on average across the participating countries and economies, reported participating in professional development through online courses and seminars in the 12 months prior to the survey.
- The most common form of continuous professional development (CPD) in primary education are in-person courses and seminars. However, this form of CPD is rarely associated with higher levels of self-efficacy. Neither is it associated with teachers in primary education frequently using cognitive activation practices.
- Some 56% of teachers in primary education received feedback based on at least four different channels. This is a higher share than among lower secondary education teachers.

Upper secondary education

- Two-thirds of the teaching workforce in upper secondary education took part in induction either during their first employment or at their current school, on average across the 11 participating countries and economies. However, 33% of the workforce at this level reported no induction activities at all. In 7 out of the 11 countries with available data, there is a higher share of teachers in upper than lower secondary education who participated in induction at their school.
- Planned meetings with principals and/or experienced teachers is the most common form of induction. This was reported by 82% of the teachers who participated in induction. However, induction in this form is rarely associated with higher levels of teacher self-efficacy when other induction activities are assumed to be constant.
- Continuous professional development in the form of educational conferences where teachers and researchers present their research or discuss educational issues is significantly associated with teachers' self-efficacy and cognitive activation practices across several countries and economies in both primary and upper secondary education.
- Training in teaching students with special needs and using information and communication technology (ICT) for teaching are the most cited areas of training need for CPD.
- Feedback based on student surveys of teachers' teaching is commonly used in upper secondary education as reported by an average of 60% of teachers. This type of feedback is used significantly more in upper secondary than lower secondary education in seven countries and economies.

Introduction

The importance of learning and training opportunities for teachers underpins the focus of the Teaching and Learning International Survey (TALIS) on teaching as a profession. It enhances teachers' and school leaders' knowledge and skills as they apply it in their everyday work, therefore augmenting their learning with work experience (Ainley and Carstens, 2018[1]).

In-service learning is imperative for both early career and more experienced professionals. For early career teachers, it builds on recently learnt skills and knowledge base acquired from their teacher preparation programme and responds to the everyday, on-the-ground challenges teachers face in their work. For teachers and school leaders who have spent many years in the profession, in-service learning keeps them abreast of innovations in education and the allows them to meet new demands of the changing educational landscape, for example, more inclusive and diverse classrooms. It also prepares them for new roles as leaders, experts or mentors that they may assume in the course of their careers (OECD, 2005[2]; Villegas-Reimers, 2003[3]).

Research identifies teacher training and development opportunities as having a great potential positive impact on students' educational outcomes because it can directly improve teaching quality (Desimone, 2009[4]; Hattie and Timperley, 2007[5]). However, its impact depends on the content of the training programme and the amount of time spent on it. The mode of learning is also key: for example, if there are opportunities for teachers to practice and reflect on what they are learning.

The impact of in-service learning lies in its responsiveness to the needs and challenges teachers face in their everyday work. Therefore, it is important to examine in this thematic report, teacher in-service training while considering the different instructional and curricular demands put forth to teachers at each education level and the social-emotional context of students of different age groups.

This chapter looks at the in-service training opportunities for teachers in primary and upper secondary education. The first section of the chapter describes induction and mentoring activities as an in-service learning opportunity for teachers in new working environments. The next section examines teachers' and school leaders' participation in professional development activities as well as the areas of high need for professional development. The third section of the chapter describes feedback for teachers as an in-service learning opportunity, the different ways in which teachers receive feedback as well as their perceptions about the impact of feedback on their work.

While the data presented in this chapter and report was collected in the 2018 survey cycle, it also presents some reflections on the emerging challenges faced by education systems in light of the COVID-19 pandemic. A great number of teachers found themselves working in virtual environments, grappling with new instructional methods dependent on technology and virtual modes of communication with their students. This chapter also reflects on how induction and mentoring, continuous professional development and feedback can help teachers navigate these new working environments, especially as few teacher preparation programmes prepared teachers to teach in a virtual environment (Archambault, 2011[6]; Giffin, 2020[7]; Rice and Dawley, 2009[8]).

Supporting teachers' transition into new working environments through induction and mentoring

Induction activities are designed to support new teachers' introduction to the teaching profession and supplement the initial education or training they enter the profession with. They also support experienced teachers who are new to a school. Induction is either organised in formal, structured programmes or informally arranged as separate activities. TALIS provides information on whether a teacher participated in a formal programme or informal activities as well as whether their induction took place during their first

employment and/or at the school they were currently teaching at the time of the survey in 2018. In addition to this, TALIS also asked teachers what kind of induction activities they participated in.

Volume I of TALIS 2018 results (OECD, 2019[9]) noted that informal induction activities at teachers' current schools were more common than formal activities among the target population of TALIS, i.e. lower secondary teachers. However, induction as a formal arrangement was more common compared to informal activities when teachers were asked about their first employment.

Induction activities are a key learning opportunity for teachers during their practice. One of the most important advantages of induction activities for beginning teachers based on evidence from the United States is early career retention, especially activities that allow teachers to collaborate with their colleagues and include a mentor in their induction (Ingersoll and Smith, 2004[10]). Having multiple forms of activities can also make induction programmes more comprehensive, which can be beneficial for teacher retention. Induction activities are also shown to have a positive impact on teaching quality and student achievement (Glazerman et al., 2010[11]; Helms-Lorenz, Slof and Van De Grift, 2013[12]; Ingersoll and Strong, 2011[13]).

Having an assigned mentor for teachers is also one of the support structures through which teachers can receive hands-on guidance towards improving their practices (Ainley and Carstens, 2018[1]). Mentoring opportunities for teachers can be a part of induction programmes for new teachers but not limited to it. Mentoring can also include need-based support for teachers struggling with some aspects of their work where an experienced or expect teacher provides guided support (Holloway, 2001[14]).

This section discusses induction activities and mentoring as learning opportunities for teachers, especially those new to teaching or a working environment.

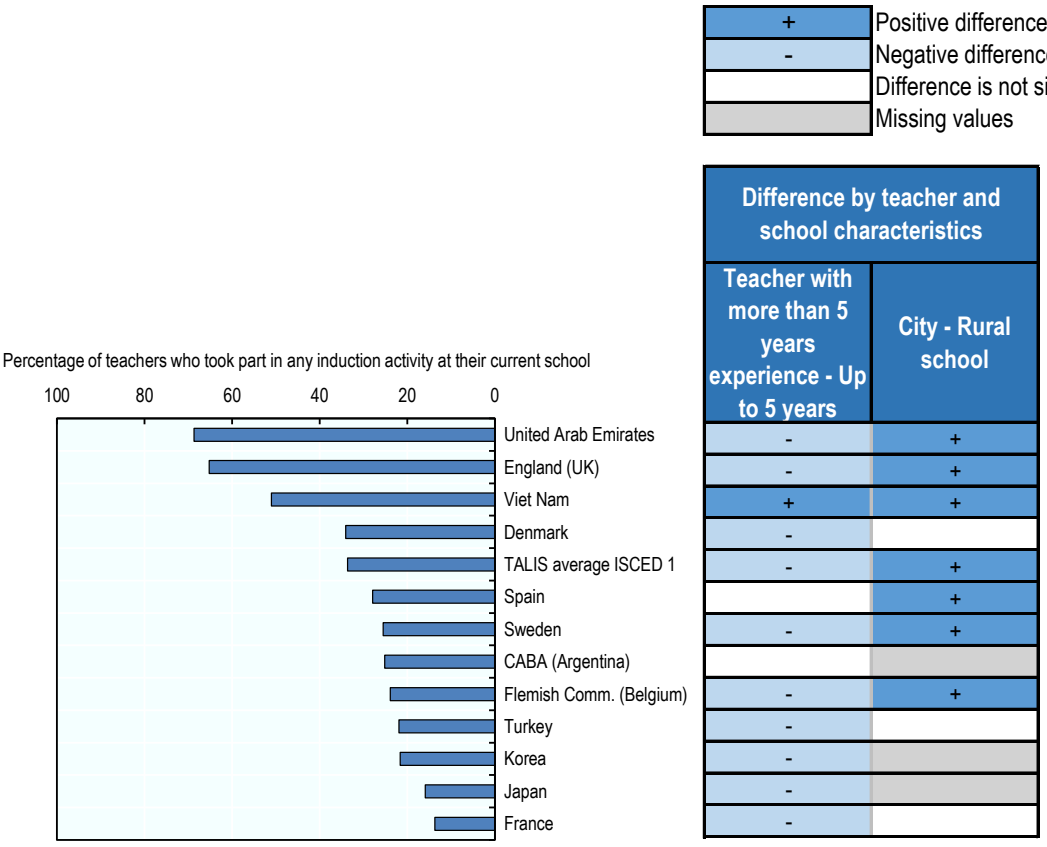
Teachers' participation in induction activities in primary education

Teachers in primary education' participation in induction activities is limited. On average across the participating countries and economies from primary education, about 42% of teachers took part in induction during their first employment and 34% of teachers at their current school of employment at the time of survey administration. In contrast, 41% of teachers, on average participated in neither of these activities (Table 4.4). In six countries and economies, half or more of the teaching workforce did not participate in induction: the Flemish Community of Belgium (69%), Ciudad Autónoma de Buenos Aires (henceforth CABA [Argentina]) (63%), Spain (59%), Sweden (59%), France (55%) and Denmark (54%). Taking part in induction activities is the most prevalent in England (United Kingdom), Japan and the United Arab Emirates, as more than 85% of teachers participated in induction either in their first employment or at their current school (Figure 4.1).

The provision of induction activities can be targeted to specific teachers and TALIS data show that teachers in some contexts and situations reported higher participation in induction activities. Novice teachers i.e. teachers with fewer than five years of experience are more exposed to induction activities in primary education in several countries and economies (Figure 4.1). This is true for primary education in ten participating countries and economies, with the largest differences (more than 20 percentage points) in England (United Kingdom), Japan, and Korea. The only exception to this pattern is seen in Viet Nam where more teachers with more than five years of experience participated in induction activities in their current school (52%) than novice teachers (46%) (Figure 4.1 and Table 4.5). These results indicate that education systems who must allocate their limited resources may offer induction programmes especially to novice teachers as they will most benefit from them. Research indicates that there is a greater risk of novice teachers leaving the profession in their early years and induction could potentially minimise these risks given the positive association with teacher retention (European Union, 2013[15]; Sutcher, Darling-Hammond and Carver-Thomas, 2016[16]). However, induction programmes may also be relevant and much needed for experienced teachers who are new to a school so as to better deal with the challenges of a new working environment (Ainley and Carstens, 2018[1]). Induction may help all teachers to get familiar

with the school's working environment as well as to collaborate with their new colleagues, including the school leader, etc.

Figure 4.1. Participation in induction activities in primary education



	Difference by teacher and school characteristics	
	Teacher with more than 5 years experience - Up to 5 years	City - Rural school
United Arab Emirates	-	+
England (UK)	-	+
Viet Nam	+	+
Denmark	-	
TALIS average ISCED 1	-	+
Spain		+
Sweden	-	+
CABA (Argentina)		
Flemish Comm. (Belgium)	-	+
Turkey	-	
Korea	-	
Japan	-	
France	-	

Education systems with a positive difference	1	6
Education systems with no difference	2	3
Education systems with negative difference	9	0

Countries and economies are ranked in descending order of the percentage of teachers who took part in any induction activity at their current school.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/dnkyzi

In a handful of countries, participation in induction programmes in primary education is more common among full-time teachers than among their part-time colleagues. This is true for England (United Kingdom) (21 percentage points), the Flemish Community of Belgium (9 percentage points), Japan and the United Arab Emirates (6 percentage points for both). (Table 4.5). These results are concerning as part-time teachers already have less direct contact with their colleagues and other students in school, and spend less time teaching (Ryan and Graham, 2013[17]). Part-time teachers may also face time constraints and high teaching workload, which might prevent their participation in induction in these countries. Nevertheless, induction programmes may be particularly beneficial for part-time teachers to help their integration into the new work environment and enhance their efficiency at work. An exception to this pattern

is observed in Korea: part-time teachers reported a higher participation in induction activities than their full-time colleagues (37% versus 21%).[1]

TALIS data also show that support to teachers in the form of induction activities may be limited in primary schools in rural areas. In seven countries and economies, the share of teachers in primary education who participated in induction programmes at their current school in rural areas is lower than that of teachers in urban schools (Figure 4.1 and Table 4.5). The difference ranges from 7 percentage points in Viet Nam to 14-15 percentage points in England (United Kingdom) and the United Arab Emirates respectively. Rural schools often have fewer resources especially in terms of personnel staff. Therefore, teachers may have additional workload which may prevent their participation in induction activities (Hayes, Lachlan-Haché and Williams, 2019[18]; Peltola et al., 2017[19]).

Box 4.1. Induction provisions during the coronavirus outbreak

England (United Kingdom): Induction for early career teachers

England (United Kingdom) made some changes to its existing induction policy for newly qualified teachers in light of the educational challenges posed by the COVID-19 pandemic. Primarily, they allowed for an extended period of induction for new teachers who could not fulfil induction requirements due to reasons related to the pandemic. In addition to these provisions, the length of the induction period for new teachers has been increased from one year to two years along with a reduction in the timetable by 10% for first-year teachers and 5% for second-year teachers. Another new element is the defining of the role of a mentor for new teachers in addition to the induction tutor.

Ireland: Induction programme, release days for school leaders and extra teaching staff

Ireland is introducing a range of measures to support school leaders and teachers in the new academic year. Prior to schools reopening, all staff must complete COVID-19 induction training that will ensure that staff have full knowledge of the latest public health advice and guidance, and an outline of the COVID-19 response plan. The Professional Development Service for Teachers has developed an interactive resource bank for teachers to support teaching, learning and assessment. Moreover, at primary level, Ireland is providing funding to allow school leaders and some deputy school leaders who also have teaching hours to have one release day per week during the next academic year. At secondary level, 1 080 additional teaching posts, including 120 guidance posts, have been introduced to support schools in managing the extra workload resulting from efforts to minimise the impact of the COVID-19 pandemic.

Sources: Department for Education (2021[20]), *Induction for newly qualified teachers during the coronavirus outbreak,* https://www.gov.uk/government/publications/coronavirus-covid-19-induction-for-newly-qualified-teachers/covid-19-induction-for-newly-qualified-teachers-guidance; OECD (2020[21]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://doi.org/10.1787/0a530888-en.

TALIS findings indicate that some countries may also use induction programmes as a specialised support for teachers working in more challenging school environments, such as those with a high share of students from socio-economically disadvantaged backgrounds. This is true for England (United Kingdom), the Flemish Community of Belgium and Viet Nam where a higher share of teachers reported participation in induction programmes in schools with more than 30% of students from socio-economically disadvantaged backgrounds than teachers in schools with less than or equal to 30% of students from socio-economically disadvantaged backgrounds (about 7 percentage points) (Table 4.5). While education systems may especially target induction programmes in these schools to support teachers and work towards achieving their equity goals (Bettini and Park, 2021[22]), these results could simply indicate the availability of induction

programmes for less experienced teachers who are more likely to teach in schools with a high share of students from disadvantaged backgrounds (see Chapter 2).

How do primary and lower secondary education levels compare?

Compared to lower secondary education, teachers' participation in induction programmes (either during their first employment or at their current school) in primary education is lower by 3-4 percentage points on average across the 13 countries and economies with available and comparable data for these two levels (Table 4.4). In six countries and economies, fewer teachers in primary education participated in induction than teachers in lower secondary education with the largest gaps in the Flemish Community of Belgium (27 percentage points) and France (13 percentage points). The other countries where this is true include England (United Kingdom), Sweden, the United Arab Emirates and Viet Nam. These differences are primarily driven by less participation in induction at the teachers' current school. However, Japan and Korea are exceptions to this pattern where teachers in primary education' participation in induction is higher than that of lower secondary teachers (3-4 percentage points).

One hypothesis for why there is less induction in primary education is that, in practice, they are often designed with the goal of improving the teaching practices of new teachers, i.e. their systemic goal is to provide instructional support, subject-specific and pedagogical training (Paine et al., 2003[23]). These could be priorities that are identified more often at higher levels of education (Jensen et al., 2016[24]). The goal of providing personal support to new teachers to help them adjust to their new working environment is less focused in practice, which might limit their offering in primary education. Teachers in primary education face a range of issues related to classroom management and student discipline, and generally spend more time engaging with students (see Chapter 3). It is concerning that they have less support through induction to manage their students.

Elements of induction in primary education

Induction involves a wide range of activities that may be designed formally under a systemic framework or initiated by school leaders and teachers themselves. The type of induction activities are shaped by the skills and competencies the particular education system has identified for new teachers need to learn (Paine et al., 2003[23]). TALIS asked teachers which one of the ten elements were a part of their induction programme. While TALIS only provides information on the type of induction activities that teachers engaged in, research also points to the importance of time spent in these activities in order for teachers to benefit the most from these learning opportunities (Paine et al., 2003[23]).

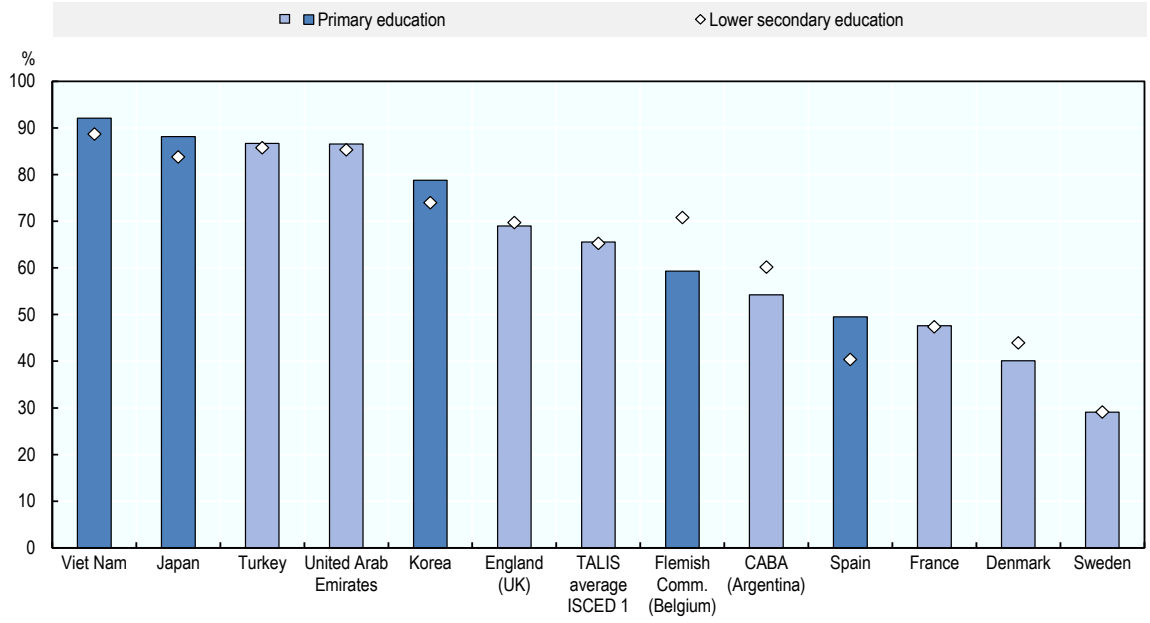
Among the teachers who participated in induction activities in their current school: 82% cited participating in planned meetings with principals and/or experienced teachers; 75% said that their induction involved supervision by principal and/or experienced teachers; 71% reported participating in courses/seminars attended in person; 66% said that their induction included networking or collaboration with other new teachers; 60% said that their induction included a general administrative introduction; 56% reported that their induction included team teaching with experienced teachers; and 49% of teachers reported that their induction included portfolios, diaries or journals (Table 4.7). Induction more rarely included online courses, seminars and online activities, and a reduced teaching load: less than 30% of teachers who participated in induction activities reported that these elements were included in their induction.

Participation in induction activities that allow teachers to collaborate with each other (such as networking with other colleagues or team-teach with experienced teachers) could help teachers build inter-personal relationships with their peers and lay foundations for a collaborative school culture (Fulton, Yoon and Lee, 2005[25]). Some countries and economies where a high share of teachers (more than 85% of teachers who participated in induction) participated in networking and collaboration with other colleagues as a part of their induction include Japan, Turkey, the United Arab Emirates and Viet Nam (Figure 4.2 and Table 4.7). Team teaching with experienced colleagues is a common feature of induction in CABA (Argentina), Japan,

Spain, Turkey, the United Arab Emirates and Viet Nam where it was included for more than 60% of teachers who participated in induction.

Figure 4.2. Networking and collaboration as an element of induction in primary and lower secondary education

Percentage of teachers for whom networking and collaboration with other new teachers were included in teacher induction at their current school



Notes: The sample is restricted to teachers who took part in induction activities at the current school based on teachers' responses and also have access to induction activities based on principals' responses.
Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers in primary education for whom networking and collaboration with other new teachers were included in teacher induction at their current school.
Source: OECD, TALIS 2018 Database.

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Considering that inducting teachers into their new working environments could be daunting for education systems in the 2021/21 school year as many new teachers would have to start their roles in a virtual working environment, it is worth reflecting on online courses, seminars and other online activities as an element of induction, based on teachers' reports in 2018. Countries where these activities in induction are used relatively more are Korea, Turkey, the United Arab Emirates and Viet Nam where about 40-50% of teachers who participate in induction reported these elements to be included in their induction. On the contrary, these activities were quite rare in Denmark, the Flemish Community of Belgium, Japan and Sweden (less than 15% of teachers who participated in induction reported so in the 2018 survey). Indeed, the pandemic has created impetus for education systems to introduce more provisions suited to a virtual induction programme. While some countries may already have an infrastructure in place for executing induction activities on online platforms based on their use in the pre-COVID context, some countries may need more time and resources to make the transition to online forms of induction.

How do primary and lower secondary education levels compare?

Even though the overall participation in induction activities is lower in primary education than in lower secondary education, some provisions of induction may be used more often in primary education (Table 4.7). For example, supervision by principal or experienced teachers is more common as an induction programme element in primary education than in lower secondary education in eight countries and economies (average difference of 2 percentage points); team teaching with experienced teachers is more common in primary education in six countries and economies (average difference of 7 percentage points); and, portfolios/ diaries and journals are more common in primary education in seven countries and economies (average difference of 8 percentage points). The presence of these modes of induction in primary education could signal a focus on developing the practical skills in the classroom for these teachers. The Flemish Community of Belgium stands out with respect to these differences as several induction provisions are far less common in primary education (online courses and seminars, online activities, planned meetings with principals and/or experienced teachers, supervision by principals or experienced teachers, networking and collaboration with other new teachers, and a general administrative introduction) with differences ranging between 4-24 percentage points.

What aspects of induction matter in primary education?

Research evidence points to the effectiveness of induction for teachers when they combine a range of different activities for teachers (Ingersoll and Smith, 2004[10]), especially as teachers have different learning styles and may achieve different learning goals from each activity. However, the provision of induction opportunities for teachers is an expensive endeavour for education systems in addition to investment in professional development (Fulton, Yoon and Lee, 2005[25]); therefore, it is important to identify which induction features are most closely associated with positive teacher outcomes so that allocation of scarce resources may be best utilised.

Regression results based on TALIS 2018 data indicate that school-based induction activities that allow for greater interaction between teachers are especially important for education systems to consider. Five elements of induction, i.e. planned meetings with principals or experienced teachers; supervision by principals or teachers; networking and collaboration with other new teachers; team teaching with experienced teachers; and assigning mentors to teachers were regressed in a single model on teachers' self-efficacy.

Teachers for whom team teaching with experienced teachers was a part of their induction activities reported higher levels of self-efficacy in five countries and economies in primary education – CABA (Argentina), England (United Kingdom), Spain, Sweden, and the United Arab Emirates, controlling for the other elements that were included in a teacher's induction (planned meeting with principal or teacher; supervision by principal or teachers; networking/collaboration with other new teachers); having an assigned mentor), and other teacher characteristics (gender, age, and employment status) (Table 4.11). On the contrary, teachers who participated in a network or collaborated with other teachers as a part of their induction express higher levels of self-efficacy in CABA (Argentina), France, Korea, the United Arab Emirates and Viet Nam. In Denmark, Flemish Community of Belgium, Japan, and Turkey, none of these induction elements are significantly associated with higher levels of self-efficacy.

Mentoring opportunities in primary education

Another learning opportunity for teachers is when they are assigned mentors, who can provide individualised support and guidance to novice teachers and teachers who may be struggling in specific areas in their practice. Mentoring programmes in schools are also an opportunity for teachers to collaborate on instructional issues and develop collegial relationships with other teachers in the school (OECD, 2019[9]).

TALIS data show that mentorship is not commonplace among teachers in primary education. On average across the participating countries and economies from primary education, 12% of teachers reported having an assigned mentor and 13% of teachers say that they are a mentor to one or more teachers (Table 4.8). The only exceptions to this overall pattern where at least 25% of the primary teaching workforce or more have an assigned mentor are the United Arab Emirates (43%) and Japan (25%). Among the subset of novice teachers, about 26% of teachers have an assigned mentor. The highest shares are seen in England (United Kingdom) (33%), Japan (47%), the United Arab Emirates (44%) and Viet Nam (33%) (Table 4.9).

The share of teachers who have an assigned mentor is mainly concentrated among teachers who have less than five years of experience. However, the United Arab Emirates stands out as a country that perhaps makes use of mentorship as a support for both experienced and novice teachers (Table 4.9). Being the country with the highest share of teachers who have an assigned mentor (43%), it is also the only country out of participating countries and economies from primary education where there is no significant difference between the share of novice and experienced teachers who have an assigned mentor. TALIS data indicate that some countries may also use mentorship as a special support for part-time teachers. In France, Spain and the United Arab Emirates, the share of part-time teachers in primary education who have an assigned mentor is significantly higher than their full-time colleagues. The share of full-time teachers in primary education who have an assigned mentor is higher than part-time teachers in their countries in England (United Kingdom) and the Flemish Community of Belgium.

How do primary and lower secondary levels compare?

Despite the low prevalence of mentorship in primary education, it seems that mentorship as a support for teachers is still used more in primary schools compared to lower secondary schools across several countries and economies – such as in CABA (Argentina), Japan, Korea and Viet Nam (3-5 percentage points) (Table 4.8). However, in the Flemish Community of Belgium and Turkey, a slightly lower share of teachers in primary education have an assigned mentor than their lower secondary counterparts (up to 5 percentage points).

Teachers' participation in induction activities in upper secondary education

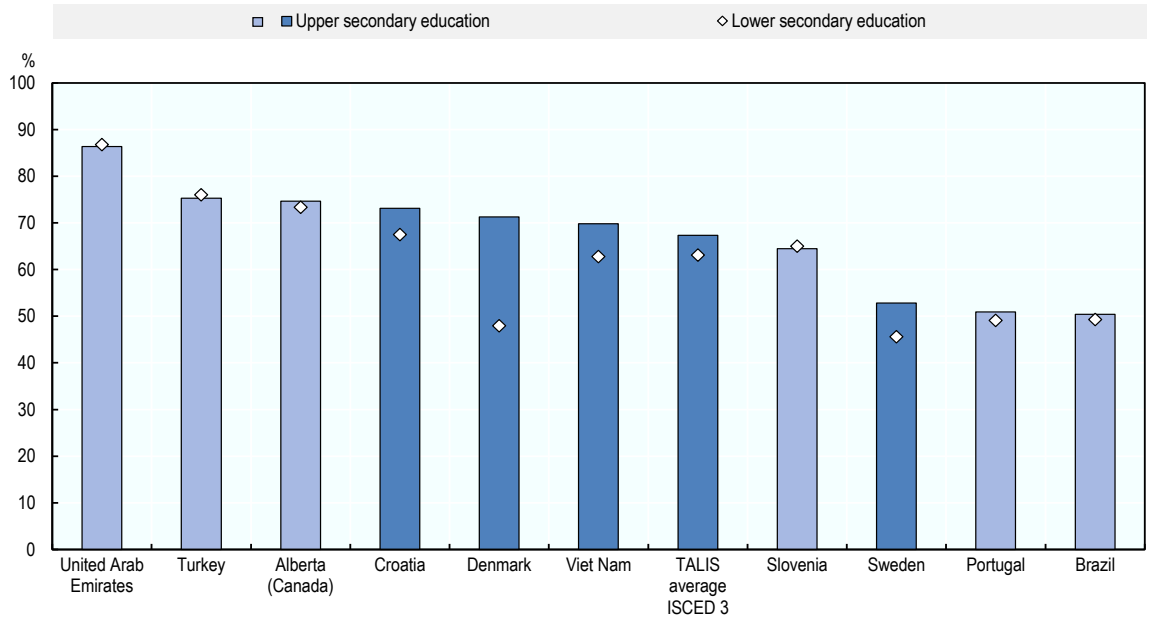
Induction activities could be a valuable learning experience for teachers at all educational levels considering their benefits related to transition into new working environments for teachers. TALIS data on upper secondary education shows that teachers at this level may have more induction opportunities.

About two-thirds of the teaching workforce in upper secondary schools attended an induction programme (either in their first employment or at their current school), on average across the 11 participating countries and economies (Figure 4.3 and Table 4.4). However, 33% of the workforce at this level reported no induction activities at all.

Among the teachers who participated in an induction activity in upper secondary education, 39% participated in induction during their first employment and 50% at their current school (Table 4.4). The lowest shares of induction are observed in Brazil, Portugal and Sweden where almost half of the teaching workforce did not participate in any induction programme. A majority of teachers participated in induction during their first employment in Turkey (63%), the United Arab Emirates (56%) and Alberta (Canada) (55%). Countries where a large majority of teachers reported participating in induction activities at their current school include Croatia, Denmark and the United Arab Emirates (more than 60% in each country). While induction in teachers' first employment may be a part of the education system's mandate, the high shares of teachers' induction in their current school in these countries could indicate the presence of school-led or principal-led initiatives for teachers to be inducted into the working context of respective schools (European Commission, 2010[26]).

Figure 4.3. Participation in induction activities in upper secondary education

Percentage of teachers who took part in any induction activity



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers who took part in induction activities in upper secondary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/apkw9l

The share of novice teachers in upper secondary education who participated in induction at their current school is higher than that of experienced teachers in Alberta (Canada) (21 percentage points), Denmark (17 percentage points), Sweden (16 percentage points) and Turkey (6 percentage points) (Table 4.6). However, no significant difference is observed between novice and experienced teachers' participation in induction activities in Brazil, Portugal, Slovenia, the United Arab Emirates and Viet Nam. Exceptionally, the share of experienced teachers who participated in induction at their current school is higher than their novice colleagues in Croatia (13 percentage points difference). These results indicate that teachers' access to induction activities is not only higher in upper secondary education but also less unequally distributed between experienced and novice teachers.

Overall, there are no differences in the share of teachers participating in induction activities between schools with a vocational education and training (VET) programme and those without a VET programme. Yet, there are two exceptions to that: in the United Arab Emirates induction among teachers is higher in schools offering vocational education programmes than in those without one (12 percentage points difference) and, in Denmark, induction among teachers is lower in VET schools compared to those without a VET programme (10 percentage points difference) (Table 4.6).

Box 4.2. Chile: Distance mentoring (*Mentorías a Distancia*) for school management teams

While Chile's Education Quality Agency normally supports schools through in-person visits, it has adapted to the situation posed by COVID-19 pandemic by developing a programme of remote mentoring for management teams. The agency conducts three video calls with participants. The first is to identify the main needs in areas such as learning assessment, socio-emotional support, and adapting pedagogical resources. Based on this, the second call discusses and explains specific tools and guidance. Finally, the third call is used to share experiences and analyse results. After the first two months of the programme's implementation, the Education Quality Agency had conducted more than 700 distance-mentoring sessions in establishments across the country. Early data suggested that the areas of greatest need among management teams were formative student assessment and socio-emotional support.

Source: OECD (2020[21]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://doi.org/10.1787/0a530888-en.

How do upper secondary and lower secondary levels compare?

On average across TALIS participating countries in upper secondary education, the share of teachers who participated in induction at their first employment or current school is higher than the share of lower secondary teachers. This difference is primarily driven by the higher prevalence of induction at teachers' current school in upper secondary education. In 7 out of the 11 countries with available data there is a higher share of teachers in upper than lower secondary education who participated in induction at their school. Both induction during first employment and at teachers' current school are significantly more prevalent in upper secondary education than in lower secondary education in Denmark (by 12 and 24 percentage points respectively) and Viet Nam (4 and 7 percentage points) (Table 4.4). Other countries where induction in upper secondary education is higher than that in lower secondary education include Croatia, Sweden and Turkey.

Elements of induction in upper secondary education

The most common form of induction activities for teachers in upper secondary education are planned meetings with the principal and/or experienced teachers – reported by 82% of the teachers who participated in any formal or informal induction activity in their current school (Table 4.7). The participation ranges from 69% to 95% of teachers among those who participated in induction across the 11 countries and economies. Planned meetings with principals or experienced teachers are a core element of all induction programmes (Ingersoll and Smith, 2004[10]). Other common forms of induction in upper secondary education are supervision by principal and/or experienced teachers. This was reported by 74% of teachers on average among those who participated in induction.

As is the case at other education levels, induction for teachers in upper secondary education rarely included a reduced teaching load (26%) or online courses/seminars and activities (28-32%) (Table 4.7). Even though a reduced teaching load is relatively uncommon as an induction provision, almost half of the teachers who participated induction cited that it was included in their induction in Viet Nam (49%). The use of online platforms in induction activities stands out in Brazil, the United Arab Emirates and Viet Nam where it was included in the induction for 45-50% of teachers in upper secondary education. These online opportunities for induction of new teachers amid the disruptions caused by the COVID-19 pandemic are crucial as they could ensure some learning continuity for new teachers.

How do upper secondary and lower secondary levels compare?

There are few noteworthy differences in the type of induction activities for teachers in upper secondary education compared to their lower secondary colleagues. The most visible differences can be seen in Denmark where several elements of induction such as planned meetings and supervision with the principal and experienced teachers, team teaching with experienced colleagues, portfolio/diaries and journals are more prominent in upper secondary education (6-15 percentage points differences) whereas induction elements that are less prominent in upper secondary education are courses and seminars attended in person and a reduced teaching load (11 and 5 percentage points difference, respectively) (Table 4.7). In Slovenia, seven out of the ten listed induction elements were less prominent in upper secondary education even though there was no significant difference in the overall levels of teacher induction in the country between the two education levels. This indicates that induction in Slovenia could be less comprehensive, i.e. involve fewer elements for teacher induction at the upper secondary level. Another notable difference is the prominence of a reduced teaching workload in Croatia, which is higher in upper secondary education by 21 percentage points.

What aspects of induction matter in upper secondary education?

Teachers in upper secondary education work in a different context with an older age group of students and different instructional demands. Induction activities in upper secondary education need to serve the needs of these teachers. Therefore, it is important to re-examine the relationship between different elements of induction and teachers' self-efficacy at this level.

Regression results based on TALIS 2018 on upper secondary education once again assert the importance of school-based and collaborative elements in induction activities. Teachers for whom team teaching with experienced teachers was a part of their induction show higher levels of self-efficacy controlling for other induction activities they participated in and their gender, age and working status (Table 4.12). This is true for Alberta (Canada), Brazil, Croatia, and the United Arab Emirates.

Teachers for whom induction included networking and collaboration with other teachers reported higher levels of self-efficacy in four countries and economies – Slovenia, Turkey, the United Arab Emirates and Viet Nam – when controlling for other elements that were included in their induction and teacher characteristics (gender, age and working status). On the contrary, planned meetings with principals and/or other teachers, which is a common element of induction across educational levels, is rarely associated with teachers' self-efficacy across the participating countries and economies in upper secondary education.

Mentoring opportunities in upper secondary education

Teachers' reports on mentoring activities as a part of formal school arrangements show that this form of in-service learning opportunity is very limited. On average across the participating countries and economies from upper secondary education, only 11% of teachers reported that they had an assigned mentor and only 14% reported that they were an assigned mentor to one or more teachers (Table 4.8). The prevalence of mentoring ranges from less than 5% of teachers having an assigned mentor in Croatia, Slovenia and Turkey to 21% in Brazil and 43% in the United Arab Emirates. Looking at these low shares of engagement in mentoring activities raises the question of whether education systems find this a relevant form of support for teachers or not. Is the individualised support model of mentoring too time consuming for teachers? Or can the benefits of mentoring for teachers be achieved through other professional development avenues such as peer feedback, etc.?

Meeting the learning needs of teachers and school leaders through continuous professional development

Continuous professional development (CPD) or in-service professional development includes formal learning opportunities or training that teachers and school leaders undergo during the course of their employment and teaching practice. Teachers participate in different activities in order to build on their existing skills and knowledge, keep themselves updated on changing learning environments and overcome the challenges that emerge in their instructional roles.

Continuous professional development is based on the understanding of teaching professionals as "lifelong learners" (OECD, 2019[9]; OECD, 2005[2]). This comprises lectures, seminars, courses and qualifications but also more interactive formats such as peer observations and coaching, professional development networks or forums for teachers. The United Nations Sustainable Development Goals have identified the importance of universal access to teacher training through continuous professional development to improve the qualifications of the teaching workforce in order to meet its education targets by 2030 (OECD, 2019[9]; UNESCO, 2016[27]).

Taking part in continuous professional development requires an additional time commitment for teaching professionals outside of their core teaching and planning tasks. As teachers and school leaders already grapple with heavy workloads (OECD, 2020[28]; OECD, 2019[9]), it is imperative that continuous professional development is relevant, effective and engaging. If teachers and school leaders feel that their limited time has been well spent, they will be more motivated to seek further professional development.

Participation in continuous professional development in primary education

Participation in at least some form of in-service professional development over the school year is almost universal for teachers in primary education. On average across countries and economies participating in the primary education module of the survey, 96% of teachers said they participated in at least one professional development activity in the 12 months prior to the survey (Table 4.13). The share of teachers from primary education that participated in any form of professional development is more than 90% in all the participating countries and economies, ranging from 91% in Denmark to 99% in Korea. Teachers' widespread participation in continuous professional development is similar in primary and lower secondary education. France, however, is a notable exception where the participation of teachers in primary education in CPD activities (96%) is significantly higher than their lower secondary peers (83%).

Participation in professional development activities in primary education seems to be related to the location of the schools where teachers teach in some countries and economies. Participation in continuous professional development activities is more prevalent among teachers in primary education in rural schools than teachers teaching in cities in Turkey (6 percentage points), the Flemish Community of Belgium (3 percentage points) and the United Arab Emirates (2 percentage points) (Table 4.14). Although these differences are rather small, they do signal that access to professional development could be further improved for teachers working in cities.

Participation in professional development in primary education also differs between experienced and novice teachers in four countries and economies. Experienced teachers' participation in professional development was higher than novice teachers in CABA (Argentina), Sweden (4 percentage points each), and the United Arab Emirates (2 percentage points). However, in Turkey, the participation of novice teachers in continuous professional development was higher compared to that of their experienced colleagues in primary education (3 percentage points).

In addition to these overall patterns, countries where continuous professional development may be less than universal for teachers in primary education include Japan (where only 73% of part-time teachers participated in at least one professional development activity compared to 95% of full-time teachers) and

Viet Nam (where a slightly lower share of part-time teachers participated in continuous professional development than their full-time counterparts) (Table 4.14). These results are noteworthy in light of monitoring progress towards United Nations Sustainable Development Goal 4(c), which emphasises access to professional development for all teachers (UNESCO, 2016[27]). These results highlight areas in which access and participation in CPD are limited and which need to be monitored and improved.

With respect to principals in primary education, as is the case for teachers, professional development in at least one activity in the 12 months prior to the survey is almost universal with 97% of principals reporting so on average across the countries and economies participating from primary education (Table 4.16). Principals' participation in professional development is above 95% in all the countries and economies participating in primary education. However, France stands out as an exception where only 71% of principals reported participation in any professional development activity. This is also notably lower than principals' participation in professional development in lower secondary schools in France (94%). This can be explained by principals in primary education in France having a particularly heavy workload as they often hold their leadership positions in addition to teaching duties. They may be less willing to voluntarily participate in professional development activities, which are not mandatory at this level.

Research indicates that what matters for teachers' continuous learning is the format, amount of time spent and variety of training activities (Darling-Hammond, Hyler and Gardner, 2017[29]). Professional development programmes that include an element of personal coaching for teachers are related to positive effects on instruction, especially at lower levels of instruction (Kraft, Blazar and Hogan, 2018[30]). However, it may be challenging to implement these tailored, personalised programmes at a large scale.

Teachers in primary education participated in multiple professional development activities in the 12 months prior to the survey. The average number of activities that a teacher participated in ranges from about three different types in France and Denmark to about six activities in Korea over a typical year – see Table I.5.8 in Volume I of the TALIS 2018 results (OECD, 2019[9]). The most common type of professional development activity among teachers in primary education is courses and seminars attended in person, reported by 78% of teachers on average across the participating countries and economies from primary. Courses and seminars are the most common form of professional development in eight countries and economies (Table 4.17). However, Japan is one exception where less than half of the primary teaching workforce participated in courses and seminars.

Table 4.1. The most common forms of professional development in primary education

Course and seminars attended in person	**More than 90%** - Flemish Community of Belgium **80-90%** - England (UK), Spain, Turkey, United Arab Emirates **70-80%** - CABA (Argentina), Denmark
Online courses and seminars	Korea (95%)
Education conferences where teachers and/or researchers present their research or discuss educational issues	France (75%)
Observation visits to other schools	Japan (79%)
Reading professional literature	Viet Nam (94%), Sweden (81%)

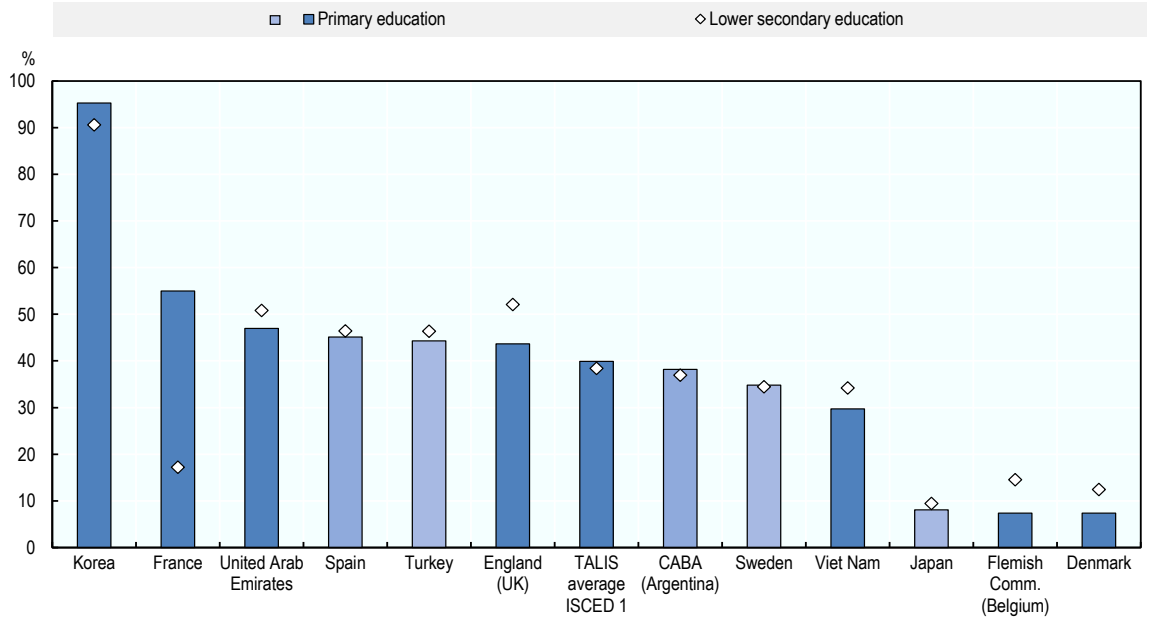
Note: The percentages indicate the share of teachers who reported participating in these forms of professional development in the 12 months prior to the survey.

TALIS data show that online courses and seminars, which may be particularly relevant for teachers working from home during the COVID-19 pandemic, were reported by 40% of teachers in primary education on average across the participating countries and economies in the 12 months prior to the TALIS 2018 survey. Interestingly, online courses and seminars were the most common form of professional development among teachers in Korea, as reported in the 2018 survey responses (95%). Other countries and economies where professional development through online courses and seminars was widely cited include France

(55%), England (United Kingdom), Spain, Turkey and the United Arab Emirates (44-47%). However, in Denmark, the Flemish Community of Belgium and Japan, less than 10% of teachers reported participating in online courses and seminars in the 12 months prior to the survey. Countries and economies may have an infrastructure in place for online professional development and some of them may have been better equipped to provide CPD when in-person training was disrupted in the 2020/21 school year. Additionally, the use of these online platforms may have been further expanded for teachers during the pandemic.

Figure 4.4. Professional development through online courses or seminars in primary and lower secondary education

Percentage of teachers who took part in online courses or seminars for professional development in the 12 months prior to the survey



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers who participated in online courses or seminars in the 12 months prior to the survey in primary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/w8s591

How do primary and lower secondary levels compare?

There are significant differences in the prevalence of different types of professional development between primary and lower secondary education. That said, the most common forms of professional development are similar. For example, courses and seminars attended in person are more frequent in primary education than in lower secondary education in eight countries and economies (a difference of 7 percentage points on average across the participating countries and economies) (Table 4.17). Education conferences as a form of CPD are more common in primary education in seven countries and economies (an average difference of 6 percentage points). Similarly, observation visits to others schools as a part of teachers' in-service training is more common in primary education across seven countries and economies (an average difference of 5 percentage points). Only professional development in the form of observation visits to business premises, public organisations and non-governmental organisations is less common in primary

education than in lower secondary education but this difference is quite small (2 percentage points, and not across all the participating countries and economies. A lower share of teachers in primary education than their lower secondary counterparts participated in online courses and seminars in Denmark, England (United Kingdom), the Flemish Community of Belgium, the United Arab Emirates and Viet Nam (4-8 percentage points). However, the opposite pattern is observed in France (38 percentage points) and Korea (9 percentage points).

Looking at the forms of continuous professional development in specific countries, the biggest differences between primary and lower secondary education can be observed in France where a larger share of teachers in primary education participated in online courses and seminars (38 percentage points), educational conferences (37 percentage points) and in-person courses and seminars (21 percentage points) as well as reading professional literature (10 percentage points). A smaller share of teachers in primary education than their lower secondary counterparts in France participated in a network of formed specially for their professional development, peer/self-observation as a part of a formal school arrangement, observation visits to business premises, public organisations and NGOs and formal qualification programmes (a difference of 3-5 percentage points in each).

Box 4.3. Spain: Teacher training and student learning through #SeeYouInDigital

ProFuturo is a digital education programme launched in 2016 by the Telefónica Foundation and "La Caixa" Foundation (based in Spain). It aims to narrow the global education gap by providing quality digital education to children in vulnerable environments in Latin America, the Caribbean, Africa and Asia.

To deal with worldwide school closures triggered by the COVID-19 crisis, the digital education programme – ProFuturo put in place a contingency plan ensuring the continuity of teacher training and student learning away from classrooms: #SeeYouInDigital. ProFuturo opened its training courses and educational resources to teachers and students around the world in mid-April 2020, free of charge, regardless of whether they were enrolled in their programme or not. The platform offers more than 160 online training courses and digital resources for teachers, focused on the development of their pedagogical and digital skills.

Additionally, ProFuturo adapted methodologies and content during the pandemic to reach students without access to technology or internet connectivity, ensuring that no one was left behind. It adapted its blended training methodology (usually a mix of online and face-to-face) to fully remote training. To reach teachers and students with no Internet connection or access to a technological device, the programme used alternative content and formats, including printed workbooks that were distributed door to door, interactive presentations, podcasts, audio and video lessons for radio and TV broadcasting, WhatsApp forums, and an offline app for teacher training.

ProFuturo has reinforced training on innovation, information and communication technology (ICT) and digital competences for its local coaches so that they can become virtual tutors supporting teachers and students remotely.

Source: Encinas-Martin, M. (2020[31]), "Spain: #SeeYouInDigital (Ensuring the continuity of learning)", *Education Continuity Stories Series*, No. EDCONT-041, https://oecdedutoday.com/wp-content/uploads/2020/12/Spain-SeeYouInDigital-Ensuring-continuity-learning.pdf.

Maximising the benefits of continuous professional development for teachers in primary education

It is imperative that professional development help teachers feel more supported, confident and better at their tasks. TALIS has captured teachers' perceptions of whether the professional development activities they participated in in the 12 months prior to the survey improved their practices or not. Positive experiences with continuous professional development motivate teachers to spend more time on it in the future (Ravhuhali, Kutame and Mutshaeni, 2015[32]). Knowing whether teachers found CPD useful or not also helps education systems understand which aspects of professional development stand out the most for teachers, which can help them in planning for relevant professional development activities for teachers.

On average across the participating countries and economies from primary education, 84% of teachers who participated in any sort of professional development said it had a positive impact on their teaching practice (Table 4.27). More than 90% of teachers in CABA (Argentina), England (United Kingdom), Japan and Korea found it impactful. However, only 62% of teachers in primary education in France found their professional development impactful towards their teaching practice. In Denmark and Turkey, 73% of teachers found their professional development impactful.

Most teachers in primary education point out that one of the key characteristics of impactful professional development for them was that it built on their prior knowledge. This was reported by 92% of teachers on average across the participating countries and economies (Table 4.25). 78% of teachers on average, found their impactful professional development appropriately focused on content needed to teach their subjects. Both these features highlight the importance of content training in in-service professional development of teachers in primary education. In France, however, one of the limitations in making professional development impactful for teachers in primary education could be related to learning content, as a smaller share of teachers noted that effective professional development for them built on their prior knowledge (68%) and appropriately focused on the content needed to teach their subjects (61%).

Impactful professional development as the one that adapted to teachers' personal development needs indicates the presence of need-based and responsive learning opportunities for teachers. It is reported to be a characteristic of impactful professional development by 82% of teachers on average across the participating countries and economies in primary education. However, this was noted by a smaller share of teachers in Sweden (64%), England (United Kingdom) (70%), Denmark (71%), and Japan (74%).

How do primary and lower secondary levels compare?

In seven countries and economies, a higher share of teachers in primary education than their lower secondary counterparts found their professional development impactful (3 percentage points on average). These differences range from 4 percentage points in Japan to 9 percentage points in England (United Kingdom) and Sweden. However, one exception to this pattern is France where the share of teachers in primary education who reported that their CPD was impactful is 9 percentage points lower than that of their lower secondary counterparts.

Regarding the characteristics of impactful professional development, a higher share of teachers in primary education noted that impactful professional development appropriately focused on content required to teach their subject (eight countries and economies), had a coherent structure (nine countries and economies), was adapted to their personal development needs (eight countries and economies) and built on their prior knowledge (seven countries and economies) (Table 4.25). These differences could simply mean that there were more of these elements in professional development in primary education; it could also mean that these factors matter more to teachers in primary education for their professional development to be impactful.

How are professional development activities related to teaching quality in primary education?

Teachers' self-efficacy and how often they use cognitive activation practices in the classroom are both signals of the quality of teaching gauged by TALIS (Ainley and Carstens, 2018[1]).

Teachers' self-efficacy is important not only for its positive relationship with their pedagogical practices (Holzberger, Philipp and Kunter, 2013[33]) but also relates to job satisfaction, commitment and less likelihood of burnout (Avanzi et al., 2013[34]; Chesnut and Burley, 2015[35]). Regression results indicate that teachers in primary education who participated in educational conferences where teachers and/or researchers present their research or discuss educational issues tend to have higher levels of self-efficacy in eight countries and economies – Denmark, England (United Kingdom), the Flemish Community of Belgium, France, Japan, Korea, Turkey and the United Arab Emirates, controlling for other forms of CPD that a teacher participated in and teachers' gender, age and employment status. Another form of professional development that stands out as significantly associated with higher levels of self-efficacy among teachers in primary education is peer or self-observation and coaching as part of a formal arrangement in five countries and economies – Canada (Alberta), Spain, Sweden, the United Arab Emirates and Viet Nam (Table 4.18).

Cognitive activation practices consist of instructional activities that require students to evaluate, integrate, and apply knowledge in the context of problem solving (Lipowsky et al., 2009[36]). It is perhaps the most demanding and complex dimension in teaching practices (see Chapter 3) in terms of operationalisation. Regression results indicate that certain professional development activities are positively associated with teachers in primary school using cognitive activation practices in the classroom in different countries. Teachers in primary education who participated in educational conferences where teachers and/or researchers present their research or discuss educational issues tend to use cognitive activation practices in their instruction more often in five countries and economies (England [United Kingdom], the Flemish Community of Belgium, Korea, Sweden and the United Arab Emirates), controlling for other forms of CPD that a teacher participated in, teachers' gender, age and employment status (Table 4.20).

Online courses and seminars are associated with primary teaches using cognitive activation practices more often in five countries and economies – the Flemish Community of Belgium, France, Spain, Sweden and the United Arab Emirates. Formal qualification programmes are associated with more frequent use of cognitive activation practices in the Flemish Community of Belgium, France, Korea and the United Arab Emirates even though this form of professional development is relatively uncommon among teachers in primary education. Reading professional literature is positively associated with cognitive activation practices in Denmark, France, Korea and Spain.

Notably, when teachers attend courses and seminars in person there is a positive association with higher levels of teachers' self-efficacy and frequent use of cognitive activation practices only in CABA (Argentina). It is negatively associated with self-efficacy in France and with cognitive activation in Korea. While teachers in primary education attending courses and seminars in person is one of the most prevalent forms of CPD (78% on average), these findings call into question the time and resources spent on this form of professional development and their relevance for teachers in primary education.

Participation in continuous professional development in upper secondary education

In upper secondary education, participation in at least some kind of professional development activity in a typical year is widespread. On average across the 11 participating countries and economies, 95% of teachers participated in at least one professional development activity in the 12 months prior to the survey. More than 90% of teachers reported so Denmark, Sweden and Turkey and more than 95% in Alberta (Canada), Croatia, Slovenia, the United Arab Emirates and Viet Nam (Table 4.13). However, participation

in continuous professional development among teachers in upper secondary education is not as widespread in Brazil (87%) and Portugal (88%).

Fewer part-time teachers participate in continuous professional development in upper secondary education compared to their full-time colleagues in Sweden (11 percentage points), Brazil (7 percentage points), Portugal and Turkey (4 and 3 percentage points) (Table 4.15). Part-time teachers' participation in continuous professional development may not necessarily be a problem of access to CPD opportunities. Instead, their lower rate of participation in such activities may be voluntary – teachers who chose to work part-time may not prioritise CPD and may not be willing to increase their working hours to allow for additional training commitments. However, policy efforts can be focused on motivating part-time teachers to participate in at least some form of professional development during the year so they can update their skills and find CPD more relevant to their work.

Teachers with more than five years of teaching experience reported higher participation in continuous professional development than novice teachers in Portugal (11 percentage points), Sweden (4 percentage points), Croatia and the United Arab Emirates (2-3 percentage points). As novice teachers are likely to have recently graduated from teacher education programmes and gone through induction, they may not participate as much in continuous professional development as experienced teachers. Consequently, engaging in some form of continuous professional development is be a requirement for experienced teachers in some countries in order to maintain their jobs or progress to higher ranks (see Annex A for country background information).

In Sweden, participation in at least some form of continuous professional development is higher among teachers working in schools with a vocational education and training (VET) programme (96%) than teachers in schools without any VET programme (91%) (Table 4.15).

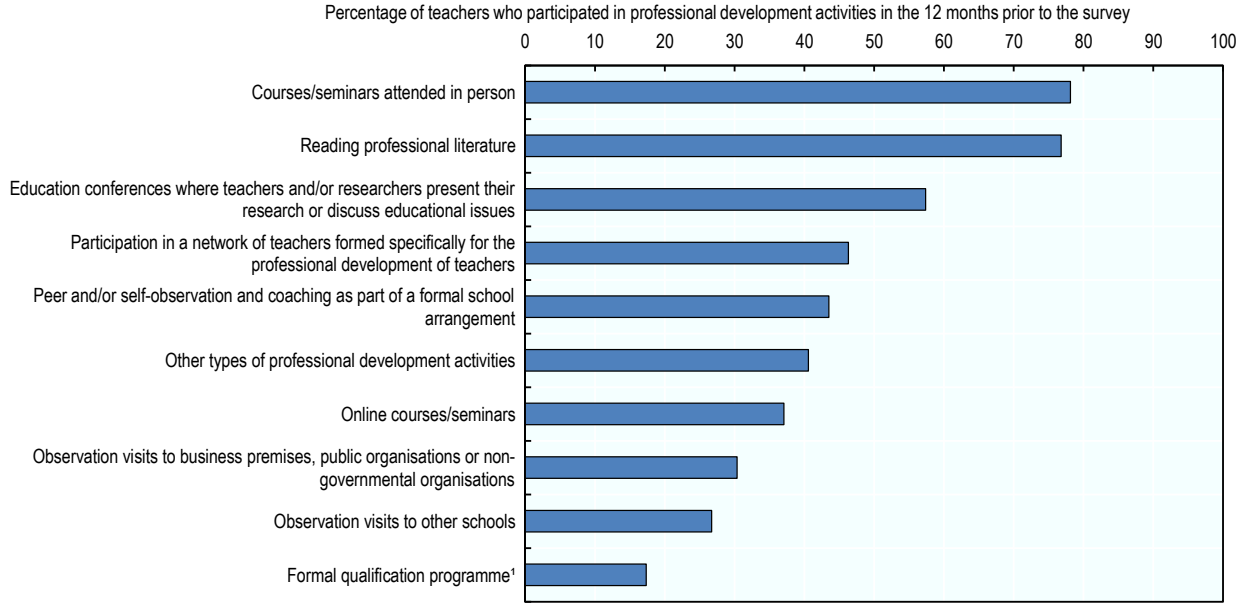
Types of professional development in upper secondary education

Just as in primary and lower secondary education, courses and seminars attended in person are the most reported form of professional development for teachers in upper secondary schools in 8 out of 11 participating countries and economies (78% on average across teachers in upper secondary education) (Figure 4.5 and Table 4.17). The second most common form of professional development is reading professional literature (77% on average across participating countries and economies). It is the most reported type of CPD by teachers in Croatia, Denmark and Viet Nam. Participation in education conferences where teachers and/or researchers present their research or discuss educational issues is reported by 57% of teachers in upper secondary education on average across the 11 participating countries and economies.

Professional development can also take a collaborative form when teachers closely work together on instructional processes. This includes peer and/or self-observation, and coaching as part of a formal school arrangement as well as participation in a network of teachers formed specifically for teachers' professional development. An average of 44% and 46% of teachers, respectively, reported these types of professional development. Countries with the highest shares of teachers participating in peer/self-observation include the United Arab Emirates (87%) and Viet Nam (56%). Participation in a network of teachers formed especially for professional development is widespread in Viet Nam (75%), the United Arab Emirates (73%) and Alberta (Canada) (66%).

Figure 4.5. Types of professional development in upper secondary education

Based on responses from teachers in upper secondary (TALIS average)



1. For example, a degree programme.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/lp7szc

How do upper secondary and lower secondary levels compare?

The biggest differences between upper secondary and lower secondary education in terms of prevalence of professional development programmes are in observation visits to business premises, public organisations or non-governmental organisations (an average difference of 9 percentage points). There are nine countries and economies where this form of CPD is higher among upper secondary teacher, with the largest differences seen in Sweden (19 percentage points), Croatia (16 percentage points) and Slovenia (14 percentage points).

Observation visits to other schools are more common among teachers in upper secondary education compared to their lower secondary counterparts in Croatia, Denmark, Portugal, Sweden and the United Arab Emirates. They are less common among teachers in upper secondary education in Slovenia, Turkey and Viet Nam. Peer/self-observations and coaching as a part of formal school arrangement is less common among teachers in upper secondary education compared to their colleagues in lower secondary education in Portugal (7 percentage points) and Slovenia (18 percentage points). Participation in a network of teachers formed especially for their professional development is less common among teachers in upper secondary education in Croatia, Slovenia, Sweden and Turkey (differences ranging from 4-13 percentage points).

Box 4.4. Australia: New regulatory strategy for vocational education and training 2020-22

The Australian Skills Quality Authority (ASQA) has developed a regulatory strategy for 2020-22 based on responses from consultations with stakeholders. The strategy takes a risk-based approach, identifying the system- and provider-level risks to the delivery and quality of VET and taking regulatory action to address the most serious among those identified. As such, this strategy considered the impact of the COVID-19 pandemic on the VET and international education sectors. System-level risks include: providers adding training programmes to meet changes in demand without sufficiently engaging industry experts; providers transitioning to online or other distance modes of delivery without providing adequate student support or the means to validate assessments; and providers being unable to place learners in workplaces to fulfil assessment requirements. To help minimise these risks, ASQA publishes general information and guidance to the sector on related issues and collates further information on a dedicated webpage with advice for providers on how to manage their own risks (e.g. information on distance and online delivery methods, webinars on key risk areas). ASQA also offers targeted advice for individual providers moving to online delivery. Finally, ASQA will also commence a strategic review of online learning in the VET sector. This will engage with key stakeholder groups and providers to understand the benefits, opportunities and risks associated with the transition to online learning during the COVID-19 pandemic, as well as the areas where providers may still face challenges, and where ASQA can provide further support.

Source: OECD (2020[21]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://doi.org/10.1787/0a530888-en.

Maximising the benefits of continuous professional development for teachers in upper secondary education

On average across the participating countries and economies in upper secondary education, 83% of teachers cited that the professional development they received in the 12 months prior to the survey had a positive impact on their teaching practices. Countries and economies where a lower share of teachers reported this include Denmark, Sweden and Turkey (73-75%). On the contrary, the highest share of teachers in upper secondary education who found their professional development impactful towards their teaching practices was in Alberta (Canada) (92%). These results signal that most teachers in Alberta (Canada) have access to high-quality and relevant professional development and that they also have a positive attitude towards these learning opportunities.

The characteristics of impactful professional development for teachers remain similar across education levels. Professional development to build on teachers' prior knowledge is the most cited characteristic of impactful CPD, as noted by 92% of teachers on average across the participating countries and economies in upper secondary education. On average, 77-79% of teachers felt that professional development was impactful when it was adapted to their professional development needs, had a coherent structure and appropriately focussed on the content needed to teach their subjects.

How do upper secondary and lower secondary levels compare?

A slightly smaller share of teachers in upper secondary education in Croatia (3 percentage points) and Slovenia (6 percentage points) found their professional development impactful compared to their lower secondary counterparts. However, the opposite is observed for teachers in upper secondary education in Denmark and Viet Nam (4 percentage points).

How are professional development activities related to teaching quality in upper secondary education?

Even in upper secondary education, professional development through educational conferences where teachers and/or researchers present their research or discuss educational issues stands out as positively associated with higher levels of teacher self-efficacy in six countries and economies (Brazil, Sweden, Turkey, the United Arab Emirates and Viet Nam) (Table 4.19), controlling for other forms of continuous professional development that a teacher participated in, and teachers' demographic characteristics (gender, age and employment status, i.e. full-time or part-time). Professional development in the form of peer and/or self-observation and coaching as part of a formal school arrangement is positively associated with teachers in upper secondary education' self-efficacy in five countries and economies – Alberta (Canada), Croatia, Portugal, the United Arab Emirates and Viet Nam.

When it comes to the use of cognitive activation practices in the classroom, regression results indicate that teachers who participated in online courses for professional development, educational conferences, peer or self-observations and coaching etc. use cognitive activation practices in the classroom more often. This is the case for several countries and economies when controlling for other forms of professional development that a teacher participated in and teachers' demographic characteristics (Tables 4.2 and 4.21).

Table 4.2. Relationship between types of professional development and teachers' use of cognitive activation practices

	Association between forms of continuous professional development and teachers' cognitive activation in upper secondary education[1]								
	Courses/seminars attended in person	Online courses/seminars	Education conferences where teachers and/or researchers present their research or discuss educational issues	Formal qualification programme	Observation visits to other schools	Observation visits to business premises, public organisations or non-governmental organisations	Peer and/or self-observation and coaching as part of a formal school arrangement	Participation in a network of teachers formed specifically for the professional development of teachers	Reading professional literature
United Arab Emirates	-	+	+	+		+	+		
Brazil					+				
Alberta (Canada)									
Denmark					+				
Croatia		+					+	+	
Portugal		+	+	+	+				+
Slovenia		+		+			+		
Sweden			+						
Turkey	-	+	+	+	+		+		+
No. of countries with a positive association (+)	0	5	4	4	4	1	4	1	2
No. of countries with a negative association (-)	2	0	0	0	0	0	0	0	0

Note: Empty cells indicate that the association is not statistically significant.
1. Controlling for other forms of professional development in which a teacher participated in the 12 months prior to the survey, teachers' age, gender and working status (full-time/part-time).
Source: OECD, TALIS 2018 Database.

These results highlight the significant association of specific professional development activities with important indicators of teacher quality (self-efficacy and use of cognitive activation practices). They also show that more than one type of professional development activity can be important and beneficial for teachers. The elements of professional development activities that stand out in the regression results are also those that research has found to be effective – i.e. involving active learning, collaboration, coaching and expert support (Darling-Hammond, Hyler and Gardner, 2017[29]).

What are the professional development needs of teachers and principals?

Understanding teachers' professional development needs at each level of education is paramount for the efficient distribution of training resources. It is also important for ensuring professional development is relevant, timely and impactful so that teaching professionals will see it as supporting their work.

A range of factors shape teachers' professional development needs in primary and upper secondary schools– these include students' age groups; schools' working environments; the instructional and social-emotional demands of their positions; and teachers' pre-service training and qualifications at a particular level etc. For this analysis, teachers' professional development needs were organised into three overarching categories:

- **Subject matter and pedagogy-related CPD need** – knowledge and understanding of teachers' subject field(s), pedagogical competencies in teaching their subject field(s), knowledge of the curriculum, student assessment practices, analysis and use of student assessments
- **Skills and management-related CPD need** – including ICT skills for teaching, student behaviour and classroom management, school management and administration, teaching cross-curricular skills and teacher-parent/guardian co-operation
- **Teaching for diversity-related CPD need** – approaches to individualised learning, teaching students with special needs, teaching in a multicultural or multilingual setting, and communicating with people from different cultures or countries.

Professional development needs in primary education

Teaching for diversity is an area for policy intervention for providing teachers with relevant continuous professional development opportunities. The largest share of teachers in primary education identified teaching students with special needs as an area of high need for professional development on average across the participating countries and economies (28%) (Figure 4.6 and Table 4.24). This area is the most frequently cited for high need of professional development among teachers in primary education in seven countries and economies – Japan (61%), France (47%), CABA (Argentina) (41%), Denmark (29%), Spain (27%), the Flemish community of Belgium (24%) and the United Arab Emirates (20%).

Teachers in primary education also expressed a high need for training in approaches for individualised learning (20%, on average), teaching in a multicultural or multilingual setting (17%) and communicating with people from different cultures or countries (13%). In Turkey, the most frequently cited area of high need for professional development is communicating with people from different cultures (23%).

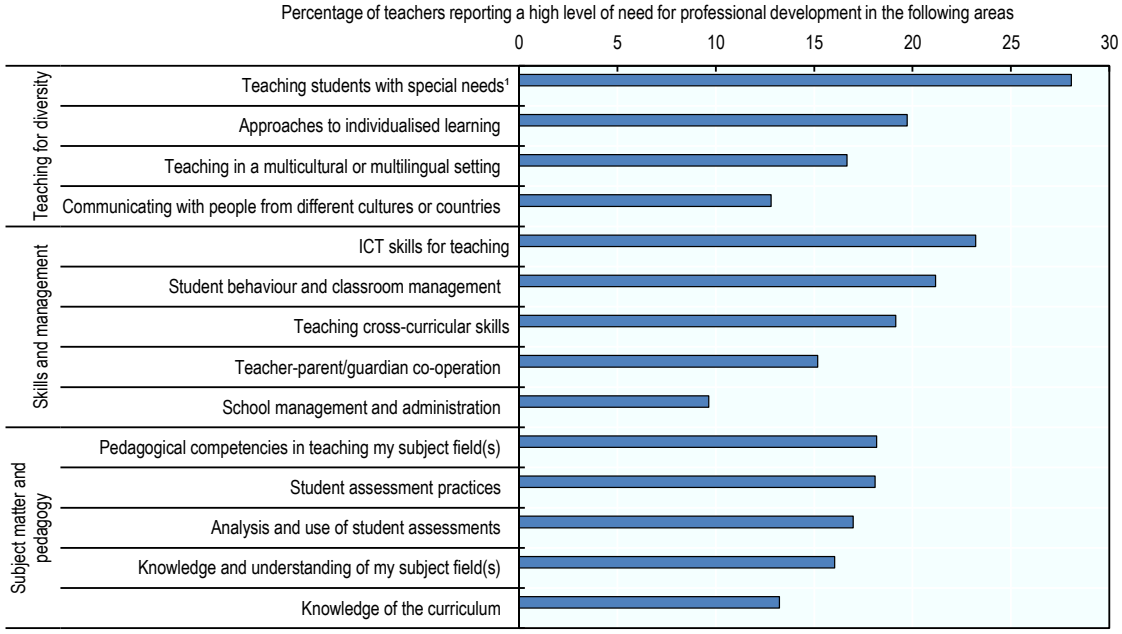
Training in ICT skills is also in high demand. An average of 23% of teachers in primary school reported a high need for training in this area (Figure 4.6 and Table 4.23). Compared to other areas of CPD, it was the most cited by teachers in primary education in England (United Kingdom) (8%) and Sweden (25%). About 56% of teachers in primary education reported a high need for professional development in ICT skills for teaching in Viet Nam, 35-39% in France and Japan, and at least one-fifth of the primary teaching workforce (more than 20%) in CABA (Argentina), Korea, Spain and Sweden. These results show that teachers' ICT training is not only inadequate but that teachers are realising they can use ICT to create meaningful learning experiences for their students. Indeed, these results reflect teachers' pre-pandemic ICT training

needs, and these needs may have been further augmented as digital technology became the primary mode of instruction in the new educational context.

A considerable share of teachers also express a high need for training in student behaviour and classroom management – 21% on average across participating countries and economies from primary education (Figure 4.6 and Table 4.23). The largest shares of teachers express this in Viet Nam (72%), Japan (53%) and Korea (33%). These results indicate that teachers in primary education could be better supported to deal with behaviour management issues through training, especially as time spent on classroom management takes up a significant proportion of instructional time for teachers in primary education (see Chapter 3), and can also be a cause of stress for teachers (see Chapter 6).

Figure 4.6. Need of professional development in primary education

Based on responses from teachers in primary education (TALIS average)



1. "Students with special needs" are those for whom a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged.
Source: OECD, TALIS 2018 Database.

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How do primary and lower secondary levels compare?

There is a greater need for professional development in teaching for diversity in primary than in lower secondary education. Teachers' reporting a high need for professional development in teaching students with special needs is higher among teachers in primary education in seven countries and economies, and 6 percentage points higher compared to lower secondary teachers' on average across the participating countries and economies (Table 4.24). The largest differences are in Denmark, the Flemish Community of Belgium, France, Japan and Viet Nam (10-15 percentage points). Similarly, a high need of training in approaches to individualised learning and teaching in a multicultural or multilingual setting was reported by a larger share of teachers in primary than in lower secondary education (2-3 percentage points, on average).

Teachers' professional development need in specific skills and management is also higher in primary education in several countries and economies. The share of teachers in primary education who expressed a high need of training in ICT is bigger than that for their lower secondary counterparts in seven countries and economies, with the largest difference in France (12 percentage points) (Table 4.23). The share of teachers in primary education who expressed a high need for professional development in student behaviour and classroom management is higher in eight countries and economies, with the largest differences in Japan (9 percentage points) and France (7 percentage points).

With respect to teachers' need for training in subject matter and pedagogy, there are some differences between primary and lower secondary teachers, especially related to assessments (Table 4.22). Notable differences can be seen in Viet Nam where a higher share of teachers in primary education than lower secondary teachers expressed a high need for training in student assessment practices, their use and analyses (a difference of 6 percentage points). There are slightly smaller differences in the same area in Spain, Sweden and Japan. As for exceptions, a less share of teachers in primary education than lower secondary teachers expressed a high need for training in knowledge and understanding of their subject in England (United Kingdom), Japan, Sweden and Viet Nam (up to 5 percentage points differences).

Box 4.5. Difference in teachers' need for professional development in subject matter and pedagogy between primary education and lower secondary education – a gap decomposition analysis

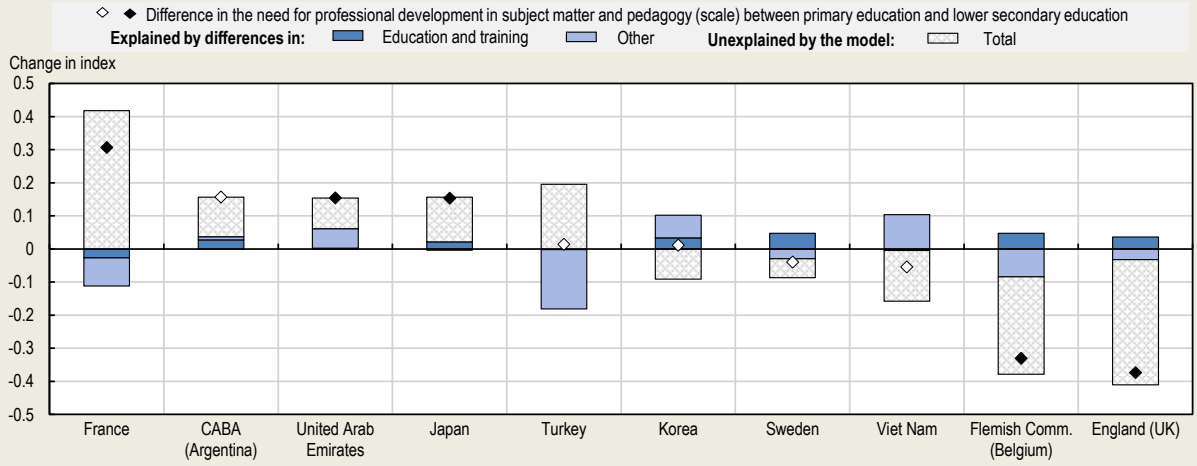
Teachers' need for professional development in subject matter and pedagogy varies between primary and lower secondary education. This includes five areas where teachers express a need for professional development – knowledge and understanding of their subject, pedagogical competencies in teaching their subject, knowledge of the curriculum, student assessment practices and student behaviour and classroom management. The professional development need among teachers in primary education is higher than their lower secondary counterparts with respect to student behaviour and classroom management and student assessment practices, but less with respect to knowledge and understanding of their subjects.

The differences across educational levels in the need for professional development for subject matter in pedagogy education may be partly explained by the differences in the level of education, training and experience of teachers working at the two levels, but also other school characteristics and teacher characteristics. However, a large part of variation still remains unexplained by the model.

Figure 4.7 shows the results of decomposition of the difference in teachers' need for professional development in subject matter and pedagogy across primary and lower secondary education into three components (in the figure, the sum of the values represented by the three bars corresponds to the value represented by the diamonds) (Blinder, 1973[37]; Oaxaca, 1973[38]). This analysis helps to understand to what extent the observed gaps in teachers' needs, across levels of education, can be accounted for by differences in teachers' education and training (teachers' highest level of attainment, participating in induction), by differences in other variables of consideration (such as teachers' gender, experience, working arrangements), and by school characteristics; or if they cannot be explained by such observable differences.

Gap decomposition results show that differences in teachers' need for professional development in subject matter and pedagogy are somewhat explained by the education of teachers and training (including educational attainment, pre-service and in-service training and experience) – as seen in the dark blue bars in Figure 4.7. These results indicate that the differences in the knowledge and skills profile of teachers at different levels of education could explain differences in their professional development needs.

Figure 4.7. Difference in teachers' need for professional development in subject matter and pedagogy between primary education and lower secondary education



Notes: Predictors include teachers' gender (reference: male), highest educational attainment (reference: below ISCED level 5), participation in formal induction at current school, participation in effective forms of professional development, experience as a teacher and in non-education roles, teaching hours, having a permanent employment contract, class size, the share of students with special needs in the school and the share of students who come from disadvantaged homes in the school.
Statistically significant differences in the scale between primary education and lower secondary education are marked in a darker tone diamond.
Countries and economies are ranked in descending order of the difference in the need for professional development in subject matter and pedagogy between primary education and lower secondary education.
Source: OECD, TALIS 2018 Database.

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Among the "explained" variation (blue bars), it is possible to notice that teachers' education and training plays an important role in a couple of countries. In England (United Kingdom) and the Flemish Community of Belgium, the higher need for professional development in subject matter and pedagogy among lower secondary teachers is explained partly by differences in socio-demographic characteristics, whilst differences in education and training play in favour of a higher need among teachers in primary education. In the case of France, differences in both education and training and other socio-demographic characteristics play in favour of lower secondary teachers having a higher need in professional development compared to their primary counterparts; however, differences in unobserved characteristics compensate for this effect and are associated with a higher need for professional development in subject matter and pedagogy among teachers in primary education overall.

Source: OECD, TALIS 2018 Database.

Principals' need for professional development in primary education

Identifying the professional development needs of principals is equally important for education systems to be able to support their leadership and for leadership to support teachers. Overall, the professional development needs of school leaders in primary education mirror that of their counterparts in lower secondary education.

On average across participating countries and economies, principals in primary schools prioritised training in developing collaboration among teachers (28%), using data to improve the quality of the school (27%), and designing the school curriculum (26%) (Tables 4.28 and 4.29). The largest share of principals reported a high need for training in developing collaboration among teachers in Viet Nam (78%), Japan (51%) and Korea (43%).

Another area related to school leaders' support towards teachers is designing professional development for/with teachers, where on average about a quarter of school leaders (26%) express a high need of training on average across the participating countries and economies. Principals cited this most often among all other areas of CPD need in Sweden (14%) and Turkey (22%) and the largest share of principals expressed a high need for training in this area in Viet Nam (56%), Korea (41%) and Japan (38%) and the Flemish Community of Belgium (34%) (Table 4.29).

Using data to improve the quality of school is the area of training principals cited most in Viet Nam (82%), the United Arab Emirates (27%), the Flemish Community of Belgium (39%) and Denmark (13%) (Table 4.28). TALIS data also indicate a growing share of principals demanding training in promoting equity and diversity in their schools (16% on average). The largest share of principals expressed a high need of training in this area in Viet Nam (56%), Korea (34%), Japan (23%) and Spain (23%).

Professional development needs in upper secondary education

Teaching for diversity is the area with the greatest need of professional development among teachers in upper secondary education. A high need for training in teaching students with special needs was reported by 21% of teachers on average across the 11 participating countries and economies (Table 4.24). It is the most cited area of training need in seven countries and economies, the highest being in Brazil where 61% of teachers reported a high need for continuous professional development in this area.

With respect to training in skills and management, teachers in upper secondary education express a high need for training in ICT skills for teaching as well as cross-curricular skills. This was reported by 17-18% of teachers on average across the participating countries and economies. Teachers' need of professional development in these two areas go hand in hand, for example, the largest shares of teachers' express a high need for professional development in both these areas in Viet Nam (51% and 60%), Brazil (27% and 19%) and Croatia (21% and 22%) whereas the share is quite small in Alberta (Canada) (8-9%), Denmark (8% and 6%), the United Arab Emirates (9% and 8%) (Table 4.23 and Figure 4.8).

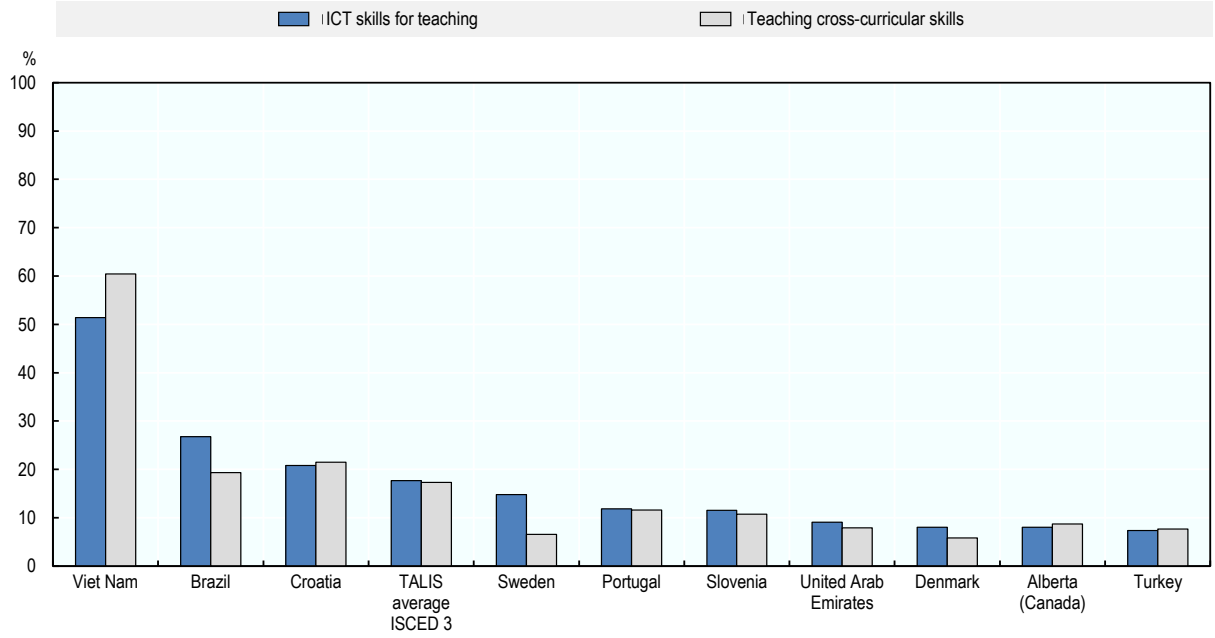
Teachers' need for training in areas related to subject matter and pedagogy lie between 12-14% of teachers on average for the five areas of professional development – knowledge and understanding of the subject, pedagogical competencies in teaching the subject, knowledge of the curriculum, student assessment practices and analysis and use of student assessments.

How do upper secondary and lower secondary levels compare?

In upper secondary education, teachers' need for professional development is less than that of their colleagues in lower secondary education in some areas – teaching students with special needs (3 percentage points), approaches to individualised learning (2 percentage points), student behaviour and classroom management (2 percentage points), and teacher-parent/guardian co-operation (2 percentage points) (Tables 4.23 and 4.24). Fewer teachers in upper secondary education express a high need for training in teaching students with special needs in 6 out of 11 countries and economies with the largest differences in Croatia and Denmark (10 percentage points).

Figure 4.8. Professional development need in ICT skills for teaching and teaching cross-curricular skills in upper secondary education

Percentage of teachers who express a high need for professional development in the following areas



Note: ICT refers to information and communication technology.
Countries and economies are ranked in descending order of the percentage of teachers who expressed a high need for professional development in ICT skills for teaching.
Source: OECD, TALIS 2018 Database.

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Principals' need for professional development in upper secondary education

Principals in upper secondary schools express a high need for training in using data for improving the quality of the school (29% on average across the 11 participating countries and economies), financial management (27%) and developing collaboration among teachers (27%) (Tables 4.28 and 4.29).

Results indicate that the administrative responsibilities of school leaders may be particularly daunting to their work in upper secondary schools. This is reflected in financial management as the most cited area of professional development need in Brazil (36%), Portugal (45%) and Turkey (15%). Training in human resource management also emerges as the most cited area for upper secondary principals in Viet Nam (73%) and Croatia (50%) (Table 4.29).

Developing collaboration among teachers is a high priority area for professional development. This indicates that principals recognise the need for teacher collaboration and may take actions to promote it given relevant training in this area (see Chapter 5 for more discussion on instructional leadership) (OECD, 2016[39]). More than one-third of principals in Croatia (40%), Portugal (37%) and Viet Nam (70%) reported this as an area of high need for professional development (Table 4.29). This is largely the same for principals in lower secondary education. Other areas of professional development need that reflect principals' interest in supporting teachers and improving instruction instructional are designing professional development for/with teachers (23% of principals express a high need for training in this area), providing effective feedback (21%) and observing instruction in the classroom (18%). Together these areas point to principals' need for training in exercising instructional leadership.

Using feedback channels to improve teachers' instruction

Feedback is key to teachers' everyday practice. TALIS defines feedback as any form of information that teachers receive about their instructional practices based on some form of interaction with their work (e.g. observing teaching in the classroom, discussions on curriculum or student results). The use of feedback for teachers to improve their teaching practice and, ultimately, student achievement, has become an integral part of teacher evaluations (Isoré, 2009[40]). However, TALIS identifies a broader view on feedback for teachers as an important form of professional development and support, and one of the five pillars of teaching as a profession (Ainley and Carstens, 2018[1]). Feedback enables teachers to interact with their colleagues (both senior colleagues, e.g. school leaders and department heads, as well as peers). This constitutes an important form of teacher collaboration (OECD, 2020[28]).[2]

A new challenge for education systems posited by COVID-19 is ensuring teachers continue to receive feedback in their new virtual working environments. Even more important is that the feedback that teachers receive is relevant to their emerging needs in these times, and that it includes, for example, supporting teachers on social-emotional learning, relationship building and student engagement (Giffin, 2020[7]).

Feedback for teachers in primary education

About 7% of teachers in primary education reported that they have never received any feedback in their school (Table 4.30). The largest share of teachers who have never received any feedback are in Spain (20%), Sweden and France (13%), and Turkey and Denmark (11-12%).

Feedback in primary education mainly comes from school-level sources – i.e. 76% of teachers, on average, received feedback from the school principal and/or members of the school management team and 57% of teachers received feedback from other colleagues within the school. However, a considerable share of teachers in primary education also received feedback from external individuals or bodies (39%). Feedback coming from school-level authorities or external bodies may be more evaluatory in nature whereas feedback from other colleagues within the school could be understood as peer feedback. The latter could be an important lever of support and inter-dependence for teachers in primary education.

In most countries and economies, the main source of feedback for teachers out of the above three is the school principal and/or school management team. However, peer-feedback, i.e. feedback cited by teachers received from other colleagues in their school is widely prevalent in Korea (88%), Viet Nam (79%) and Japan (70%).

How do primary and lower secondary education levels compare?

Comparing these results to feedback in lower secondary education, the share of teachers who did not receive any feedback is significantly lower than the share of lower secondary teachers who reported that they have never received any feedback in CABA (Argentina), Denmark, the Flemish community of Belgium and Korea (Table 4.30). Teachers' reports indicate that feedback from external sources or bodies as well as the school principal and/or members of the school management team is more common in primary education. However, peer-feedback is less common in primary education (3 percentage points difference on average) – seen in England (United Kingdom) (15 percentage points), Viet Nam (11 percentage points), CABA (Argentina) (9 percentage points), the Flemish community of Belgium and the United Arab Emirates (5 percentage points). Denmark and Sweden are exceptions to this pattern as peer-feedback is more common in primary education in these countries (differences of 8 and 6 percentage points, respectively).

Methods of feedback in primary education

Feedback, i.e. information that teachers receive about their teaching practice can be provided through several methods. TALIS asked teachers about which of the six methods were used in the feedback they

received – observation of their classroom teaching; student survey responses related to their teaching; assessment of their content knowledge; external results of the students they taught; school and classroom-based results of students; and self-assessment of their work.

Feedback through multiple methods is common across all levels of education. On average across participating countries and economies from primary education, 56% of teachers reported receiving feedback based on at least four different methods (Table 4.31). The share of teachers in primary education who received feedback based on one method only is 9% on average across the participants. The largest shares of teachers in primary education who received feedback through at least four different methods are from Viet Nam (97%), the United Arab Emirates (82%), Korea (70%) and England (United Kingdom) (69%). On the contrary, teachers' reliance on feedback through a single method is more common in France (19%) and Denmark (16%).

Teachers receiving feedback through multiple sources is unequally distributed between experienced and novice teachers. In eight countries and economies, a higher share of teachers with more than five years of experience reported that they received feedback through at least three different methods or more compared to those with less than five years of experience. The highest gaps were observed in CABA (Argentina), Denmark, the Flemish community of Belgium, France and Sweden (differences of 9-13 percentage points) (Table 4.32).

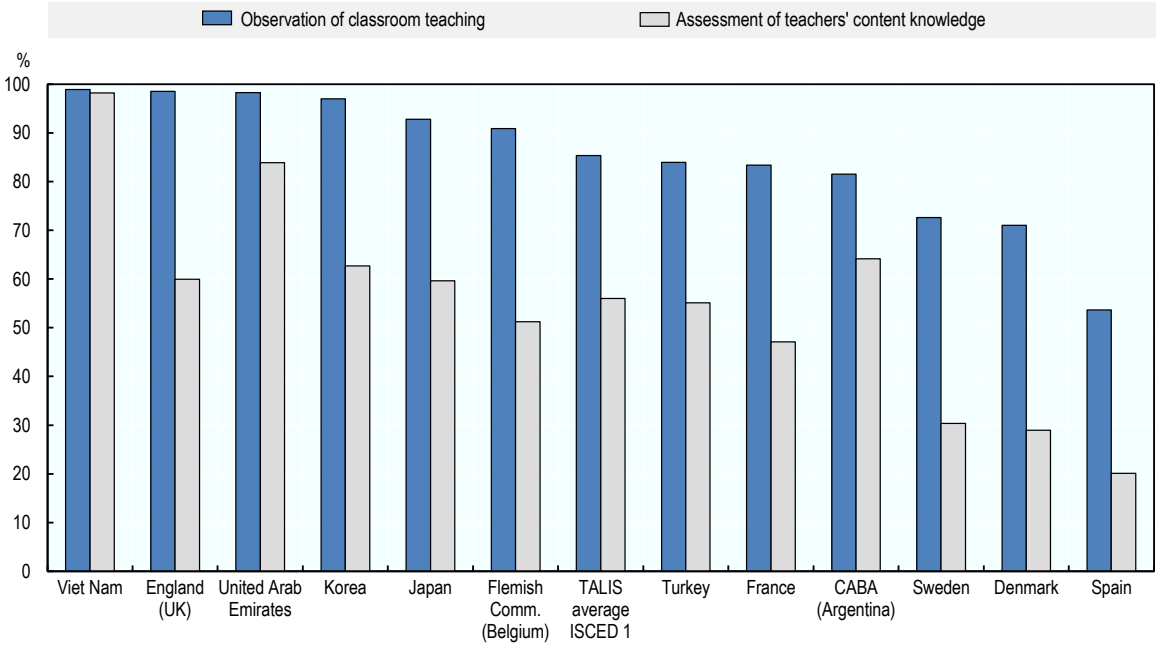
Observation of teachers' classroom teaching is reported as one of the most common forms of feedback in primary education. On average across participating countries and economies, 85% of teachers reported that they have received feedback based on observations of their classroom teaching and it is the most common method of feedback in ten countries and economies (Table 4.34).[3] The share of teachers who received feedback based on this method ranges from 71% in Denmark to 99% in England (United Kingdom) and Viet Nam. However, one exception to this pattern is Spain where the share of teachers who reported receiving feedback on this method is not as high (54%). While it is not clear to what extent feedback based on classroom observations is used for evaluation or training purposes or a combination of both (Tymms, 2003[41]), the advantage of this method is that it is closest to teachers' actual practices and, therefore, evidence-based. Observation of teachers' classroom teaching not only helps to provide feedback on teachers' instructional practices but also captures teachers' interactions with students and ways that student engagement can be improved and classroom disciplinary issues managed. However, this form of feedback is likely the most disrupted in virtual learning environments due to the pandemic (Giffin, 2020[7]).

Feedback based on school and classroom results is also common in primary education as reported by 73% of teachers on average (Table 4.34). It is the most common compared to other methods of feedback in CABA (Argentina) (83%) and Spain (66%). More than 90% of teachers received feedback based on this method in England (United Kingdom), the United Arab Emirates and Viet Nam. Education systems usually use this form of feedback in order to combine training and development purposes for teachers with diagnostic or monitoring purposes such as teachers' performance, appraisal or accountability (Muralidharan and Sundararaman, 2010[42]; OECD, 2014[43]; Tymms, 2003[41]). Teachers in primary education also receive feedback through their students' external results as reported by 62% of teachers.

Another method that can be a crucial lever in helping teachers in primary education improve their practices is feedback based on assessment of their content knowledge. For teachers in primary education who often teach several subjects, developing content expertise on the job is much needed as their initial training may only provide an introduction to different content areas (Jensen et al., 2016[24]). On average across the participating countries and economies, 56% of teachers received feedback based on this method. While only 30% or less of teachers received feedback based on this method in Denmark, Spain and Sweden, it is most widely used in Viet Nam (98%) and the United Arab Emirates (84%) (Table 4.34).

Figure 4.9. Feedback through classroom observations and assessment of content knowledge in primary education

Percentage of teachers who received feedback based on the following methods



Countries and economies are ranked in descending order of the percentage of teachers who received feedback based on observation of their classroom teaching in primary education.
Source: OECD, TALIS 2018 Database.

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How do primary and lower secondary education levels compare?

Feedback through multiple methods is more commonly used in primary education than in lower secondary education in several countries and economies. The share of teachers who received feedback through three or four different methods is higher by more than 10 percentage points in primary education in CABA (Argentina) and the Flemish community of Belgium, and by smaller margins in four other countries – England (United Kingdom), France, Sweden and Viet Nam (Table 4.31).

Comparing results on different methods of feedback used for teachers in primary education with those in lower secondary education, it is promising to see that a higher share of teachers in primary education received feedback based on classroom observations in CABA (Argentina), Denmark, the Flemish Community of Belgium, France, Japan, Korea and Turkey (4-8 percentage points) (Table 4.34).

However, the largest differences between education levels are seen in feedback in the form of students' external results of students that the teacher teaches. In the Flemish Community of Belgium (27 percentage points), France (17 percentage points), Spain and Sweden (4-5 percentage points), a higher share of teachers in primary education received feedback based on external results of students compared to their lower secondary counterparts. The opposite pattern is observed for this method of feedback in Korea and Turkey (differences of 14-15 percentage points), and Denmark and the United Arab Emirates (4-5 percentage points) (Table 4.34).

Feedback for teachers in upper secondary education

TALIS data indicate that most teachers in upper secondary education have had some exposure to feedback. However, about 8% of teachers on average in upper secondary education reported never receiving any feedback in their school (Table 4.30), with the highest share of teachers in Portugal (23%), Sweden and Turkey (12-13%). On the contrary, almost all teachers have received feedback of some kind in the United Arab Emirates and Viet Nam where 99% of teachers have reported so.

The feedback that teachers received in upper secondary education also comes mainly from school-level sources. On average across the participating countries and economies, 80% of teachers reported that they received feedback from the school principal and/or members of the school management team. Further, 59% reported that they received feedback from other colleagues within their school, which signals the prevalence of peer feedback for more than a majority of teachers on average. The percentage of teachers who received feedback from their peers ranges from 32% in Brazil and Turkey to 92% in Viet Nam. Feedback from external individuals or bodies is also quite prevalent in upper secondary education as 34% of teachers reported so on average across the participating countries and economies (Table 4.30).

How do upper secondary and lower secondary levels compare?

The overall prevalence of feedback for teachers in upper secondary education is largely similar to that in lower secondary education. Two exceptions to this pattern are Denmark where the share of teachers who reported receiving feedback is 7 percentage points higher in upper secondary education; and in Slovenia, the share of teachers who received feedback is 2 percentage points lower in upper secondary education (Table 4.30).

Methods of feedback in upper secondary education

Similar to the results seen in primary education, more than half of the teaching workforce in upper secondary education (57%) received feedback based on at least four different methods on average across the 11 participating countries and economies while the share of teachers who received feedback through only one method is 8% (Table 4.31). TALIS results show that novice teachers received feedback through less number of methods compared to experienced teachers. While 67% of novice teachers (those with less than five years of experience) received feedback through at least three different methods, a higher share, 73% of experienced teachers received feedback through these many methods (Table 4.33). The largest gaps (more than 10 percentage points) are seen in Brazil, Denmark and Slovenia.

On average across the 11 participants from upper secondary education, 82% of teachers reported that they received feedback based on classroom observations (Table 4.34). The largest share of teachers in upper secondary education received feedback based on classroom observations of their teaching in 8 out of 11 participating countries and economies in upper secondary education. However, one exception to this widespread use of classroom observations for teacher feedback is Portugal where only half of the teaching workforce (49%) cited that they received feedback based on this method.

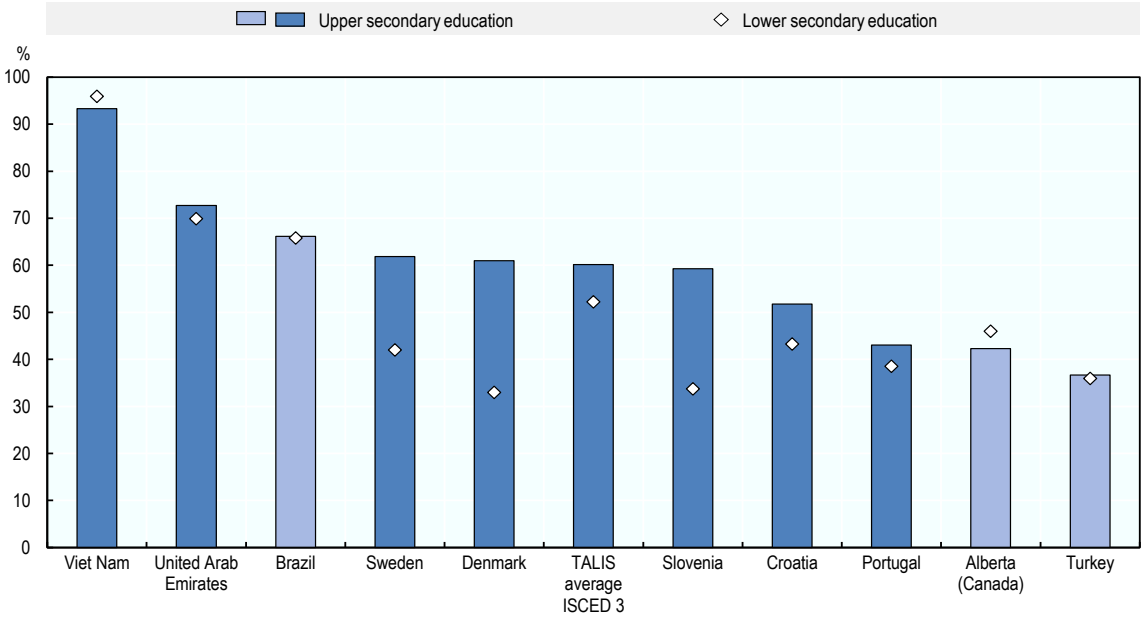
Feedback based on school and classroom-based results of students is also widespread in upper secondary education as cited by 74% of teachers on average across the 11 participating countries and economies. This form of feedback is the most common among teachers in Brazil (84%) and Portugal (60%) compared to other methods of feedback used in these countries. Feedback to teachers based on students' external results are reported by 68% of teachers on average across the participating countries and economies, with the highest shares observed in Slovenia, the United Arab Emirates and Viet Nam (82-86%).

Feedback from students, for example, in the form of surveys can be a powerful stimulus for teacher reflection specially to understand students' needs better (Mandouit, 2018[44]). On average across the

11 participating countries and economies in upper secondary education, 60% of teachers received feedback based on student survey responses related to their teaching (Figure 4.10). However, less than half of teachers received feedback based on this method in Alberta (Canada) (42%), Portugal (43%) and Turkey (37%). Research indicates that the efficacy of this method and, for that matter, any other feedback method, depends on the feedback model and guidance to teachers on how to reflect on and identify areas of improvement. However, its limited use can also mean that it is only used as a performance measure for evaluating teachers (Boudett, City and Murnane, 2013[45]; Mandouit, 2018[44]).

Figure 4.10. Student survey responses as a method of feedback for teachers in upper and lower secondary education

Percentage of teachers who received feedback via student survey responses



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers who received feedback based on student survey responses in upper secondary education.
Source: OECD, TALIS 2018 Database.

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How do upper secondary and lower secondary levels compare?

Differences between upper secondary and lower secondary education levels also indicate that in some countries and economies, teachers may be more likely to receive feedback through a variety of methods in upper secondary education. This is true for Croatia, Denmark, Slovenia and the United Arab Emirates where a higher share of teachers in upper secondary education reported receiving feedback based on at least four different methods compared to their lower secondary colleagues (2-11 percentage points difference) (Table 4.31).

Compared to lower secondary education, the largest differences in the use of different methods of feedback can be observed in students' external results and student survey responses related to the teachers' teaching (Table 4.34). For instance, feedback based on the external results of students is more common

in upper secondary than in lower secondary education in Croatia (17 percentage points), Viet Nam (15 percentage points), Portugal (5 percentage points) and the United Arab Emirates (3 percentage points). But this method of feedback is less common in upper secondary education in Denmark and Sweden (13-14 percentage points), and Turkey and Slovenia (7 percentage points).

Considering that students in upper secondary education are older, the use of student surveys to provide feedback to teachers is made possible and used significantly more in upper secondary education compared to lower secondary education. The highest differences are observed in Denmark (28 percentage points), Slovenia (26 percentage points) and Sweden (20 percentage points) (Figure 4.10). Smaller differences (up to 10 percentage points) are observed in Croatia, Portugal and the United Arab Emirates.

Maximising relevant and impactful feedback for teachers in primary education

The nature of TALIS data allows for education systems to identify how teachers perceive the use and relevance of feedback they receive. Understanding teachers' attitudes towards feedback is important in ensuring that the aims of feedback to improve teachers' practices and ultimately improve student achievement are achieved (Hattie and Timperley, 2007[5]).

The findings in this report on teachers' perception of feedback mirror those of Volume II of the TALIS 2018 results. While a large majority of teachers finds that feedback helps them improve their practice, the impact of feedback for teachers could be further maximised (OECD, 2020[28]).

Among the teachers in primary education who received feedback, 76% of them on average noted that it had a positive impact on their teaching practice (Table 4.35). The lowest shares of teachers who find feedback impactful come from Denmark, France, Spain and Turkey (60-63%) while the largest shares of teachers who find feedback impactful are in Japan and Viet Nam (88% and 91%, respectively).

TALIS data show that the importance of feedback for teachers may be higher in primary education than in lower secondary education. A higher share of teachers in primary education reported that the feedback they received had a positive impact on their teaching practice (an average difference of 5 percentage points). This is reflected in ten countries and economies, with the largest differences in the Flemish community of Belgium (12 percentage points), CABA (Argentina) and England (United Kingdom) (8 percentage points). These findings could be shaped by several possibilities – teachers in primary education have a more positive attitude towards feedback because it helps them improve their instruction, or that the content of feedback is more suited to the needs of teachers in primary education.

Maximising relevant and impactful feedback for teachers in upper secondary education

In upper secondary education, 74% of teachers on average across the participating countries and economies find the feedback they received to have a positive impact on their teaching practice. The lowest share of teachers who find feedback impactful is in Denmark (55%) while the highest share is in Viet Nam (95%). These results are largely similar to teachers' views on the impact of feedback in lower secondary education in these countries. The only exception is Slovenia where a smaller share of teachers in upper secondary education (78%) reported finding feedback impactful than their lower secondary counterparts (83%). These results signal that there is further scope for improving the relevance and utility of feedback for teachers in these countries. Initial results from TALIS 2018 noted that in countries in which the overall reported impact of feedback for teachers is low, there is also a significant difference between novice and experienced teachers' utility value for feedback (OECD, 2020[28]).

Box 4.6. Digital learning provisions in France and Sweden

France: Digital education advisory at the local level through *délégués academiques*

The French Ministry of Education mobilised its network of local digital education advisers *(délégués académique numériques*) to support the transition from face-to-face to distant learning when school closure became a possible scenario and then actually happened on 16 March 2020. France is divided into 30 education academies (or administrative districts) directed by rectors. They implement the national education policies at the regional level and interact with regional stakeholders that share legal educational responsibilities with the ministry of education. The digital education advisers advise the rectors of each academy, liaise with local authorities and companies on digital education matters and lead actions and networks around the uses of digital tools in education. The network of digital education advisers ensured the quick transition from face-to-face to online distance schooling with little interruption by:

- working with local authorities to lend and deliver computers and learning worksheets to all students
- mobilising existing repositories of curated online resources (notably the Digital Educational Resources Platform [BRNE], Eduthèque and Canotech)
- providing online training to teachers and school principals on the availability and use of digital resources for pedagogical practice
- sharing and promoting teaching and learning practices adapted to educational continuity and progressive school re-opening
- working with other public education partners on the deployment of their education continuity initiatives, notably the National Centre for Distance Education (CNED) and public TV and radio channels.

The originality of this initiative lies in the mobilisation of a network of education advisers with good knowledge of past initiatives and strong relationships with all major stakeholders in the field, enabling quick negotiations with partners, rapid communication and an understanding of the peculiarities of the different local contexts throughout France.

Open schools and curriculum flexibility in Sweden during the COVID-19 pandemic

Schools in Sweden have generally remained open throughout the pandemic. Following the recommendations from the Public Health Agency of Sweden and based on a new ordinance, from 2020, on education in a context of a contagious infectious disease, schools have been allowed curriculum flexibility and to use digital distance learning based, to a large extent, on local needs. This can, for example, be applied when many of the staff are absent, or upon the recommendation of an infection control physician during times of an increased risk for contagious spread of the virus. The ordinance has been extended to also include flexibility for digital distance learning when students run the risk of a crowded commute to school, or if the school itself is crowded. Accordingly, the aim of the curriculum flexibility and the use of digital distance learning is twofold: to hinder the spread of the virus when conditions can change rapidly and to ensure that teaching is adapted to the students' needs during the pandemic.

Curriculum flexibility, as well as digital distance learning, has been applied to varying extents across regions and municipalities, depending on the COVID-19 context. On a municipal level, additional measures have, for example, been taken in one single school, or in just a few schools if the spread of the virus has increased there. Likewise, students with special needs have been prioritised for classroom teaching together with students in their final year of lower or upper secondary education. In parallel,

principals and teachers also work consistently to counteract the educational gap in the pandemic, both on a general level and for specific students. Examples of those initiatives are extra lessons during school holidays, homework support and mentoring, increased support from student health teams, monitoring of student's needs, along with investment in more teachers and school staff.

Source: Skolverket (2021[46]), *Ändrade lärotider och utbildningstapp: Intervjuer med huvudmän med anledning av COVID-19-pandemin [Changed curriculum and achievement gaps: Interviews with principals due to the COVID-19 pandemic]*, https://www.skolverket.se/getFile?file=8165; Skolverket (2021[47]), *Covid-19-pandemins påverkan på skolväsendet [The impact of the COVID-19 pandemic on the education system]*, https://www.skolverket.se/getFile?file=8166; Skolverket (2021[48]), *Fjärr-och distansundervisning på högstadiet och I gymnasieskolan: Intervjuer med huvudmän med anledning av COVID-19-pandemin [Distance learning in lower secondary and upper secondary school: Interviews with principals due to the COVID-19 pandemic]*, https://www.skolverket.se/getFile?file=8040; Vincent-Lancrin, S. (2020[49]), "France: Réseau de délégués académiques numériques (Network of digital educational advisers)", *Education Continuity Stories Series*, No. EDCONT-007, https://oecdedutoday.com/wp-content/uploads/2020/05/France-DAN.pdf.

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Notes

[1] Part-time teachers working in national and public schools in Korea are employed on a permanent basis. Most part-time teachers have similar support and benefits as full-time ones because they are also permanently employed. In addition, they can choose to work as part-time temporarily for one year, which means their working status will change back to full-time.

[2] See Chapter 5 for further discussion and results on teacher collaboration in primary and upper secondary education.

[3] The percentage is estimated based on the subset of teachers who received feedback from one of the following sources: external individuals or bodies, school principals or members of the school management team, other colleagues within the school (not a part of the school management team).

5 Empowering teaching professionals

This chapter explores the aspects of leadership and school decision processes, teachers' feelings, actions and working environments that are relevant to teacher empowerment. It first describes several dimensions of principals' and teachers' autonomy, and principals' instructional and distributed leadership. It later addresses teachers' self-efficacy and collaboration in their professional practice. Finally, this chapter describes the perceptions of school principals and teachers on shortages of resources that may hinder their capacity to deliver quality instruction. It also explores teachers' priorities for spending in schools.

Highlights

Primary education

- An average of over half of school principals in primary education have autonomy in allocating budgets in their school but there are strong contrasts across countries, ranging from 14% in Ciudad Autónoma de Buenos Aires (henceforth CABA [Argentina]), to 96% in Denmark.
- Primary school teachers reported high levels of in-classroom autonomy in three core areas: "selecting teaching methods" (95%), "assessing students' learning" (94%) and "disciplining students" (91%).
- A large majority of principals in primary education agreed that there is a collaborative school culture characterised by mutual support (96%).
- Providing feedback to teachers based on principals' observations is more frequent than other indirect leadership practices for primary education compared to lower secondary education (4 percentage points difference).
- Teachers work more collaboratively in primary education compared to lower secondary education. There are, for example, 12 percentage points difference between the two in the areas of exchanging teaching materials and attending team conferences.
- Thirty-two percent of principals reported that the quality of instruction in their school is challenged by an inadequacy in digital technology for instruction. In Viet Nam, 82% of primary principals reported this, as well as slightly more than half in France (57%), but only 17% in Denmark and 18% in Sweden.

Upper secondary education

- Most principals have autonomy in establishing student disciplinary policies and procedures. This ranges from 93% in Alberta (Canada) to 31% in Turkey, with an average of 72% across Teaching and Learning International Survey (TALIS) countries and economies.
- Some 33% of principals reported significant teacher participation in establishing student disciplinary policies and procedures. In Croatia (68%) and Slovenia (65%), about two-thirds of principals reported significant teacher participation but less than 5% did in Sweden.
- Over 90% of teachers in upper secondary have autonomy in selecting teaching methods and assessing students.
- Fifty-two percent of principals provide parents or guardians with information on school and student performance. Some 10% of upper secondary principals do so in Sweden, which goes up to 80% in Brazil and 86% in the United Arab Emirates.
- Teachers in upper secondary education reported being involved in fewer collaborative activities than their peers in lower secondary education. Teaching jointly as a team in the same class shows significant decreases among teachers in upper secondary (5 percentage points difference).
- Principals at this level are, on average, less concerned with shortages in resources available to teachers, such as libraries (17%) and instructional materials (16%), than with inadequate digital technology for instruction (26%).

Introduction

Teacher empowerment has been analysed and discussed in the literature for several decades (Bogler and Somech, 2004[1]; Malen, Ogawa R. T. and Kranz, 1990[2]; Rinehart and Short, 1993[3]). It has been described as the process through which teachers, as other members of the school, "develop the competence to take charge of their own growth" and to face the challenges in their daily practice (Short, Greer and Melvin, 1994, p. 38[4]). It stands for teachers believing that they have what is necessary to have an effect on their work environment (Short, Greer and Melvin, 1994[4]).

The belief in ones' empowerment goes hand in hand with the ability to exercise that influence. This is teacher agency. Agency is a feature of teachers' engagement with their peers and their environment and the scope they have in defining those relations (Biesta, Priestley and Robinson, 2015[5]). Empowered teachers are professionals that are able to exercise agency.

Teachers' empowerment and agency can take many forms. What is central is the extent to which teachers' working environments allow them enough voice, autonomy and confidence through channels of collaboration, active roles in collective decision making and good combinations of support, motivation and autonomy.

This chapter will explore the extent of empowerment and agency among primary and school principals in upper secondary education and teachers in the countries and economies participating in these modules in TALIS 2018. It will explore several dimensions of principals' autonomy and autonomy transfers to teachers as well as their instructional and distributed leadership. It will analyse teachers' empowerment and agency through the perception of autonomy, their feelings of self-efficacy and the place that collaboration has in their professional practice. Finally, while traditional mechanisms of empowerment may be in place, there are factors that can hinder the actual development of agency. For this reason, the chapter will explore the perceptions of school principals and teachers on how resource shortages can be a barrier to teachers delivering educational goals.

Exploring the autonomy of school leaders and teachers

School autonomy has been identified as a strong lever for the empowerment of school leaders and teachers (OECD, 2020[6]). This section reports on the share of principals that have significant responsibilities for school-level decisions and tasks. As noted in previous TALIS reports (OECD, 2020[6]), when it comes to school autonomy across education levels, school principals usually report more autonomy as the level of education increases. The share of principals that reported significant responsibilities for school-level decisions and tasks reflects this relative increase in school autonomy across education levels.

Advocates for school autonomy consider that local authorities, as well as school governing boards and principals, have better knowledge of their limitations and needs, and they can manage more efficiently, than other centralised instances of administration (Caldwell and Spinks, 2013[7]; Ouchi and Segal, 2003[8]). While school autonomy does seem to have an effect on better efficacy in improving educational outcomes (Eskeland and Filmer, 2002[9]), the actual impact is not uniform across systems (Galiani, Gertler and Schargrodsky, 2008[10]; Hanushek, Link and Woessmann, 2013[11]). Evidence suggests that strong institutional support and good accountability mechanisms allow for strong school decision making based on local knowledge. And this results in better resource allocation and improved school performance (Elacqua et al., 2021[12]).

However, school autonomy is by no means absolute. It often involves a multiplicity of authorities and stakeholders that participate in the decision-making processes (OECD, 2020[6]). The great majority of school-level decision making is usually restricted by national or supra-national regulations (e.g. national

regulations on teachers' salaries and teachers' salary scales, regulations on teachers' minimum qualifications and/or training to enter the teaching profession). It is also routinely scrutinised by different authorities (OECD, 2020[13]).

TALIS 2018 asked school principals for which tasks they had "significant responsibility"[1] at the school level. The tasks analysed here are divided into four domains (Table 5.1).

Table 5.1. Domains of responsibility of school principals

Staffing	• Appointing or hiring teachers • Dismissing or suspending teachers from employment
Budget	• Deciding on budget allocations within the school • Establishing teachers' starting salaries • Determining teachers' salary increases
School policies	• Establishing student disciplinary policies and procedures • Establishing student assessment policies • Approving students for admission to the school
Curriculum and instruction	• Deciding which courses are offered • Choosing which learning materials are used • Determining course content

Source: OECD, TALIS 2018 Database.

The first three are the domains in which principals traditionally intervene when there is a transfer of authority towards greater autonomy (Hanushek, Link and Woessmann, 2013[11]). This constitutes school autonomy in resource allocation, whether it be staffing or budget, and school policies. Moreover, as discussed in previous TALIS 2018 reports, it is not only principals but also teachers who often describe having a considerable role[2] in determining certain school policies (OECD, 2020[6]). One domain where teachers have significant participation and shared responsibility concerns decisions on curricular elements and instruction. These are areas of relevant interaction and autonomy transfers to teachers, which can increase their sense of empowerment.

Principals' responsibilities and actions that build school autonomy in primary education

Concerning staffing policies, more than half of primary principals reported significant responsibility in deciding which teachers come to their school by appointing or hiring teachers (52%) but less so in dismissing or suspending teachers from employment (45%) (Figure 5.1). One remarkable exception to this is Denmark where virtually all principals (99%) reported having the responsibility of dismissing or suspending teachers. In England and Sweden, a large majority of principals also reported so (92% and 89%, respectively) (Table 5.4).

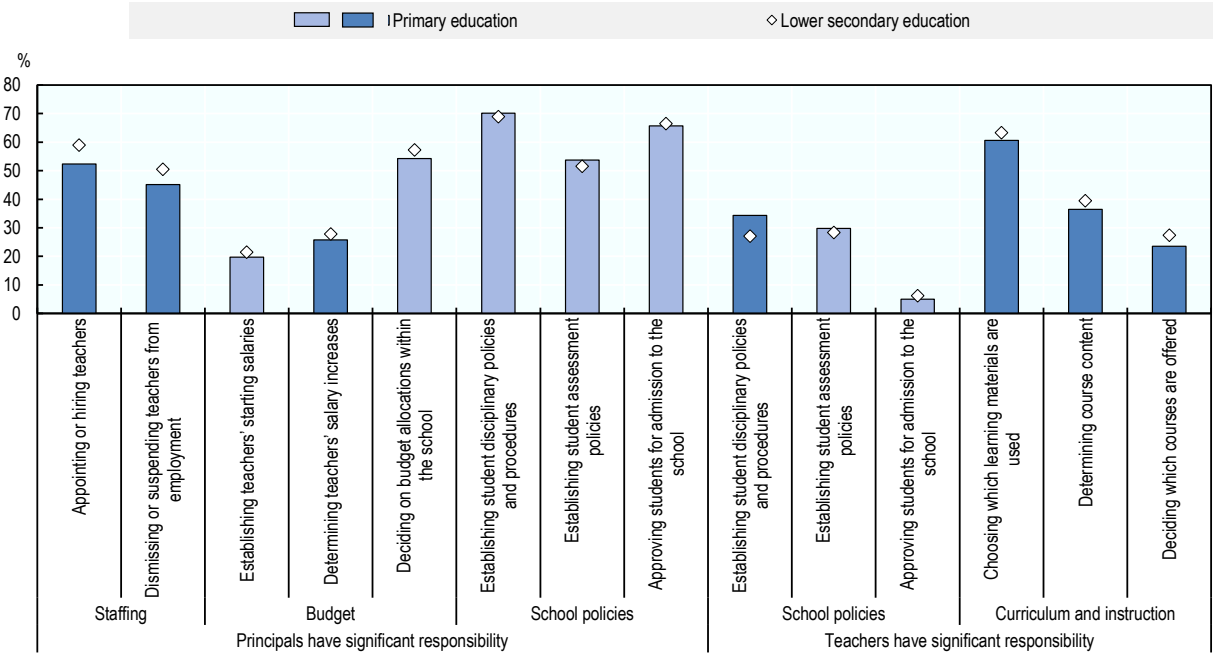
In contrast, the areas in which the lowest reported responsibility is observed are two budget policies: determining salary increases (26%) and establishing teachers' starting salaries (20%). Teachers' starting salaries and salary scales in public schools are often fixed by regulations and collective agreements (OECD, 2020[13]). In France, principals did not reported responsibility of establishing teachers' starting salaries whereas in England and Sweden over 70% of principals did (Table 5.4). This should not come as a surprise as policies concerning teachers' salaries are often centralised or highly regulated (OECD, 2020[13]).[3]

Regarding budget policies, decisions on budget allocations within schools can benefit from good knowledge of the school and students' needs (Hanushek, Link and Woessmann, 2013[11]). While over half of school principals in primary education reported significant responsibility in budget allocations (54%), there are differences depending on the country. In CABA (Argentina), 14% and in Turkey about one-fifth

(21%) of principals reported having this responsibility while 96% of school principals in Denmark did (Table 5.4).

Figure 5.1. Principals' and teachers' school responsibilities in primary and lower secondary education

Based on the responses of principals (TALIS average)



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/tn9ijm

Between half and more than two-thirds of school principals in primary education reported having significant responsibility in three areas of school policies: "establishing student disciplinary policies and procedures" (70%), "establishing student assessment policies" (54%) and "approving students for admission to the school" (66%) Figure 5.1.

School autonomy in determining disciplinary policies and procedures is not only important for school management as they can federate teachers, students and parents around a common approach to school authority (Gregory et al., 2010[14]) but it may also help teachers increase their confidence and job satisfaction (McCharen, Song and Martens, 2011[15]). Even though, on average, most principals reported significant responsibility for establishing student disciplinary policies and procedures, there are variations across countries. In Korea and Turkey, 40% and 34%, respectively, of principals reported this sort of autonomy, while in Sweden (94%), Denmark (91%), and England (United Kingdom) (91%), over 90% did (Table 5.4).

Cross-country variation on school-level responsibilities for student assessment policies is even stronger. A majority of principals reported significant autonomy in this domain in England (United Kingdom) (93%), Flemish Community of Belgium (90%), Denmark (84%) and Sweden (83%) and about one-quarter or less in Spain (26%), Viet Nam (25%) and Turkey (18%) (Table 5.4). As discussed in previous TALIS 2018 reports (OECD, 2020[6]), in several countries and economies, assessment frameworks are developed and

overseen by specific agencies that assume relevant roles in their governance with some degree of independence (OECD, 2013[16]). While teachers at the primary level often assume the responsibility for different assessment strategies, differences in adherence to a more centralised framework could explain part of the difference between countries.

An average of 66% of principals reported participating in students' admissions but the picture is more nuanced across countries. In Japan (33%) and Spain (26%), no more than a third of principals reported having significant responsibility in students' admissions. Authorities in many countries set out regulations and frameworks outlining public school admission policies for primary education. While in some cases admission policies may allow some student selection, they are applied mainly in the case of oversubscription (and most often when there is a school choice).[4] This does not imply that school principals can determine school admissions, but in some cases, there is room for some school-level selection criteria (European Commission/EACEA/Eurydice, 2020[17]).

On the other hand, autonomous decision making at the school level can be transferred to teachers, especially when it affects instruction. Transferring decision making autonomy gives teachers greater authority and voice in the organisation and management of the school and are, therefore, important for teacher agency. These transfers also imply that teachers can be held accountable to parents and the school community.

TALIS 2018 asked principals about teachers' responsibility for educational, instructional and curriculum school policies. At primary level, one topic is outstandingly more prevalent than others: more often than not, principals reported that teachers select which learning materials are used (61%). In Denmark (95%), Sweden (91%), France (89%) and Spain (85%), a majority of principals reported that teachers have the autonomy to do so. In Japan (16%) and Viet Nam (9%), less than one-fifth of principals reported this (Table 5.5).

Teachers' participation in school policies remains low, on average, according to principals. This is particularly relevant in establishing assessment and disciplinary policies, areas in which principals' self-reported responsibility can be over 50% and 70%, respectively. About 30% of principals reported that teachers have significant responsibility in establishing student assessment policies and slightly above a third (34%) in establishing student disciplinary policies and procedures – an area that can influence teachers' job-related stress and satisfaction (McCharen, Song and Martens, 2011[15]).

How do primary and lower secondary levels compare?

Principals in primary schools tended to report less autonomy concerning staffing policies compared to principals in lower secondary schools: appointing or dismissing teachers (7 and 5 percentage points difference, respectively). When it comes to hiring teachers, these differences are particularly strong in CABA (Argentina) (28 percentage points difference), France (24 percentage points difference) and Spain (17 percentage points difference) (Table 5.4). These differences suggest that primary schools have less freedom in dealing with shortages in teaching staff and hiring teachers with skill sets that better adapt to students' needs.

Primary education also differs from lower secondary education in teachers' responsibility for educational, instructional and curriculum school policies, as reported by principals.

According to principals, teachers in primary education have more responsibility for establishing student disciplinary policies and procedures than teachers at the lower secondary level (7 percentage points difference). Conversely, teachers in primary education have less leeway in choosing learning materials (3 percentage points difference).[5] Nonetheless, countries can differ significantly. In England (United Kingdom), Korea and the Flemish Community of Belgium, the differences are sharp between both levels (19, 19 and 17 percentage points difference, respectively) but in France, more school principals in

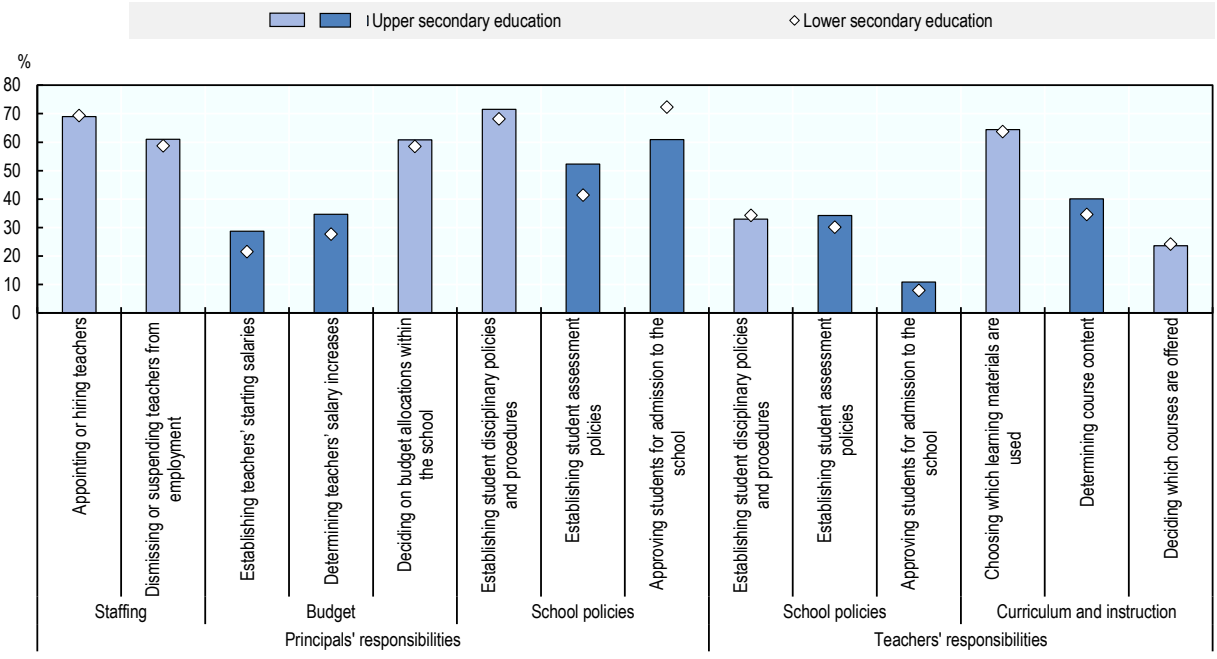
primary education reported transfers of significant responsibility here than lower secondary principals by a wide margin (11 percentage points difference) (Table 5.5).

Principals' responsibilities and actions that build school autonomy in upper secondary education

At the upper secondary level, most principals reported significant responsibility in school and staffing policies. The main decision-making area is establishing student disciplinary policies and procedures (TALIS average: 72%). The large majority of principals in Alberta (Canada) (93%), Sweden (92%) and Portugal (90%) reported significant responsibility in this domain while only 31% of principals do in Turkey (Table 5.4).

Figure 5.2. Principals' and teachers' school responsibilities in upper and lower secondary education

Based on the responses of principals (TALIS average)



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

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Approving students for admission to the school is another area in which principals reported significant responsibility. As with primary education, this has to be interpreted with caution, taking into consideration the specific characteristics in each system. Although in upper secondary education, top-level authorities often determine the main admissions criteria, school admission policies are more heterogeneous than at lower education levels. In several countries, upper secondary education is non-compulsory and it often proposes serval pathways that may require students' selection criteria based on academic achievement (European Commission/EACEA/Eurydice, 2020[17]; OECD, 2020[18]; OECD, 2020[13]).

Principals' participation in school budget allocation and staffing policies is noteworthy at this level. In upper secondary education, a high percentage of principals reported appointing or hiring teachers (69%) and dismissing or suspending teachers from employment (61%) (Table 5.4). One factor that may influence the autonomy upper secondary schools have in staffing policies is its non-compulsory status in several countries (OECD, 2020[13]). Non-compulsory education in some countries is guided by different sets of regulations on hiring and dismissing teachers than those for compulsory schooling.

Deciding on budget allocations within the school is also regarded as significant by a considerable share of principals, on average (61%). It ranges from over 80% in Croatia, Denmark and Slovenia, to a third in the United Arab Emirates (33%) and less than a quarter in Turkey (23%) (Table 5.4).

When looking at autonomy transfers to teachers at the upper secondary level, they are mainly seen in classroom-relevant domains. For example, according to principals, 64% of teachers choose which learning materials to use. However, on average, teacher autonomy transfers remain relatively low for both curriculum and school policies (Figure 5.2). About one-third of principals (33%) reported significant teacher participation in establishing student disciplinary policies and procedures, ranging from about two-thirds in Croatia (68%) and Slovenia (65%) to less than 5% in Sweden (Table 5.5).

How do upper and lower secondary levels compare?

Gaps in the main areas of autonomy reveal differences between schools at the lower secondary education level and those at the upper secondary level.

A significantly larger percentage of upper secondary principals reported being responsible for establishing student assessment policies (11 percentage points difference). In Slovenia, the gap is quite significant: 45 percentage points difference (Table 5.4).

On the other hand, principals in the upper secondary level reported less responsibility for approving students for admission to the school (11 percentage points difference) (Table 5.4). As discussed previously, to better interpret these results special attention has to be given to the characteristics in each system. Not only there are important differences in the proportion of private and public schools in each country (which may follow different rules for student selection) but in some education systems students change schools as they go from lower to upper secondary level. Thus, the change in schools may require further general criteria that regulates admissions, granting more authority to centralised authorities than to individual schools (European Commission/EACEA/Eurydice, 2020[17]).

Budget policies also show important variations. The two policies that concern teachers' salaries (establishing teachers' starting salaries and determining teachers' salaries increases) have significant differences (of 7 percentage points), as principals at the upper secondary level reported more autonomy here. When it comes to determining salary increases, in Portugal and Viet Nam the difference is 12 percentage points, in Slovenia it is 18 percentage points, while in Denmark it is 28 (Table 5.4). Staffing polices, on the other hand, remain largely similar across the two levels.

Finally, teachers' interventions in policies concerning the school, and curriculum and instruction, differ at this level from lower secondary in two areas. Teachers in upper secondary education were regarded by school principals as having more autonomy in determining course content with respect to their lower secondary peers (6 percentage points difference).

Principals also reported that teachers in upper secondary assume significantly more leading roles in the definition of student assessment policies with respect to their lower secondary counterparts in Slovenia (17 percentage points difference) and Portugal (12 percentage points difference) (Table 5.5).

Looking at principals exercising school leadership

School autonomy is an important marker in terms of the empowerment of school leaders and teachers. But increasing autonomy on its own is not a vector of empowerment for school leadership and teachers. Local governance requires information on school capacities, teachers' and students' needs and the ability to design good strategies. Therefore, success requires institutional capacity in addition to decision-making capacities. The positive empowering effects of autonomy go hand-in-hand with greater management capacity (Brutti, 2020[19]; Hanushek, Link and Woessmann, 2013[11]; Jensen, Weidmann and Farmer, 2013[20]).

Effective autonomous school practices entail leadership structures that are strong and relevant for the school. School leadership involves not only the management of staffing, budget and school policies but also an active role in building on and delivering the school's educational goals (Branch, Hanuschek and Rivkin, 2013[21]; Grissom, Loeb and Master, 2013[22]; OECD, 2016[23]).

As school principals fulfil several roles, they must strike a good balance between administrative and community engagement, stakeholder involvement and instructional leadership. Instructional leadership can be divided into indirect and direct. Indirect leadership practices contribute to improving school outcomes by means of actions mediated by people other than principals. Direct instructional leadership focuses only on actions that enhance pupils' learning by means of direct intervention. TALIS 2018 asked school principals whether they engaged in such activities in their school in the 12 months prior to the survey (Table 5.2).

Table 5.2. Types of instructional leadership in TALIS

Indirect instructional leadership	• Taking actions to ensure that teachers feel responsible for their students' learning outcomes • Taking actions to ensure that teachers take responsibility for improving their teaching skills • Taking actions to support co-operation among teachers to develop new teaching practices
Direct instructional leadership	• Collaborating with teachers to solve classroom discipline problems • Working on a professional development plan for the school • Providing feedback to teachers based on principal's observations • Observing instruction in the classroom

Source: OECD, TALIS 2018 Database.

Leadership in action across primary education

At the primary level, there are variations between the two types of instructional leadership: indirect and direct. At this education level, principals' instructional leadership is more often indirect: they engage in actions that indirectly influence instruction. These include taking actions to ensure that teachers feel responsible for their students' learning outcomes (67%); taking actions to support co-operation among teachers to develop new teaching practices (64%); and taking actions to ensure that teachers take responsibility for improving their teaching skills (63%) (Figure 5.3 and Table 5.13).

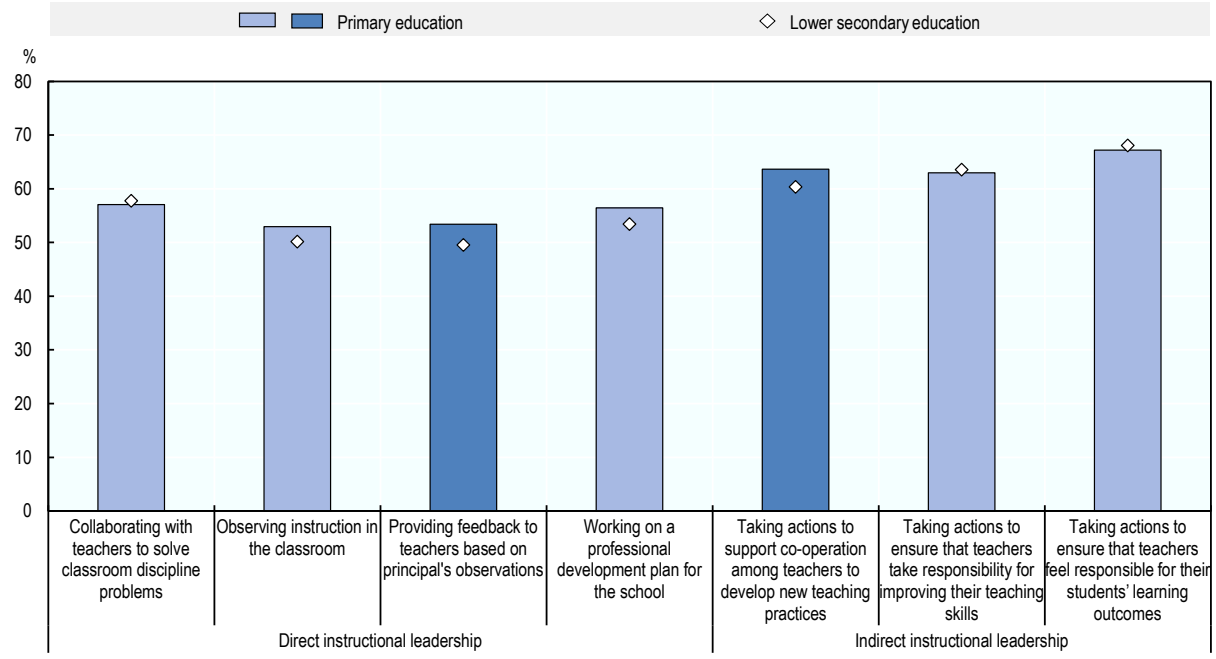
As shown in Figure 5.3, on average, slightly more than half of principals engage in instructional leadership activities that require direct contact and interventions with teachers ("collaborating with teachers to solve classroom discipline problems" [57%]; "working on a professional development plan for the school" [56%]; "providing feedback to teachers based on principal's observations" [53%]; and "observing instruction in the classroom" [53%]).

Research has found positive effects in teachers' self-efficacy when principals provide detailed feedback from in-classroom observation. However, this sort of intervention requires enough availability from principals and is rarely observed large schools (Wahlstrom and Louis, 2008[24]).

One way to increase principals' availability and flexibility is by opening spaces for distributed leadership. This is when teachers, staff and other stakeholders have real opportunities to address relevant school matters by increasing their participation in collective decision making. Distributed leadership, which is often considered to be an important component of a positive school environment, can also strengthen the legitimacy of decision making by staff other than the school head, thus empowering a broader group of stakeholders.

Figure 5.3. Principals' instructional leadership in primary and lower secondary education

Based on the responses of principals (TALIS average)



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

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At the primary level, a vast majority of school leaders agreed that their school is generally characterised by the presence of distributed decision making and collegiality. The majority of principals "agreed" or "strongly agreed" that there is staff-related distributed leadership in their school. Opportunities for staff to participate in decision making and their encouragement to lead new initiatives are the two most characteristic areas at this level (98% and 97%, respectively) (Table 5.6). Interestingly, the average shares of teachers that believe to have such opportunities are 81% and 84%, respectively (Table 5.9). Discrepancies between teachers' and principals' views are not uncommon as they may have different notions of their involvement in decision making across different topics. Aspects like the type of leadership exercised by principals can play a role on teachers' perceptions of their own roles. They may not be perceived the same if a principal has a focus on distributed leadership or if it is more of an administrative leader (OECD, 2016[25]).

Likewise, a large majority of principals agreed that there is a collaborative school culture that is characterised by mutual support (96%), and that the school staff share a common set of beliefs about teaching and learning (91%). Virtually the same proportion of principals agreed their school has a culture

of shared responsibility for school issues (91%) (Table 5.6). Here, too, large shares of teachers agree with these statements as, on average, 86% agree on having a collaborative school culture, 85% believe they share a common set of beliefs on teaching and learning and 81% agree on a culture of shared responsibility across the school (Table 5.9).

Distributed leadership involving parents and students shows lower percentages. Principals who agreed that their school provides parents or guardians with opportunities to actively participate in school decisions amount to 79%, and those that agreed that their school provides students with opportunities to actively participate in school decisions amount to 72% (Table 5.6).

Finally, administrative burden plays a role in school principals' direct instructional leadership, as it can limit their availability. School principals are involved in several administrative and community engagement activities. Their leadership in these activities takes different forms across educational levels. At the primary level, the highest percentage of principals reviewing school administrative procedures and reports is observed (63%) (Table 5.10). However, this is not homogeneous across countries. In Japan, about 10% of principals do this, as do about a third in France (35%) and Sweden (32%). At the opposite end, at least 80% of principals often review administrative procedures and reports in Korea, Spain, the United Arab Emirates and Viet Nam.

In contrast, other administrative tasks like resolving school timetable problems are less common (45%, on average) as this is often taken care of by support staff and teachers (Table 5.10).

Slightly over a third of principals collaborate with principals from other schools on challenging work tasks (38%) (Table 5.10). Moreover, more than half of principals are engaged in community activities like "providing parents or guardians with information on the school and student performance" (55%). This is more or less shared with teachers according to common practices in each system. It is reported by 88% of principals in CABA (Argentina) and 86% in the United Arab Emirates while in Denmark about 19% of principals do this.

These findings reinforce the idea that principals assume a series of roles according to different understandings of the type of leadership that is necessary for their schools. The issue of the different types of principals' leadership has been addressed in the literature (Bowers, 2020[26]; OECD, 2016[25]; Urick and Bowers, 2014[27]). Some forms of leadership may require special attention to instructional and distributed leadership, spending time on curriculum and teaching-related tasks. Others see their role as educational leaders, and hence are more engaged in instructional leadership and not so much in other tasks that relate to community engagement, for example. In some cases, principals see themselves as administrative leaders, making sure that school functions well, and less involved in instructional leadership (OECD, 2016[25])

Recent research using TALIS 2018 data suggests that, while different principals' profiles and approaches to school leadership abound, sensitivity to the relationship between types of leadership and teachers' profiles can better align leadership for learning in schools (Bowers, 2020[26]).

How do primary and lower secondary levels compare?

Across primary and lower secondary levels, principals reported the same involvement in indirect instructional leadership practices that concern teachers' roles and responsibilities, on average. There is similar participation in actions that ensure teachers feel responsible for their students' learning outcomes as well as for improving their teaching skills. These are actions that, if successful, can increase teachers' capacity for professional judgement and autonomy, ensuring they take responsibility for their students' performance (Gomendio, 2017[28]; Hargreaves and Fullan, 2012[29]).

More school principals in primary education support teachers co-operating to develop new teaching practices than in lower secondary (3 percentage points difference). While the difference is particularly strong in England (United Kingdom) (15 percentage points) and Spain (12 percentage points), it is very

much the opposite in France where more lower secondary principals reported exerting this kind of indirect leadership (14 percentage points) (Table 5.13).

Direct leadership practices are very similar across the two levels, on average. However, one important difference concerns providing feedback to teachers based on principals' observations (4 percentage points difference). This is already less frequent than other leadership practices in primary education but still more so than in lower secondary education. In some countries and economies, the difference is large: in CABA (Argentina) 75% of principals engage in this activity "often" or "very often" at the primary level, while less than half do (49%) at the lower secondary level (26 percentage points difference). The gap is also substantial in Japan (16 percentage points difference), England (United Kingdom) (13 percentage points difference) and Spain (9 percentage points difference). Conversely, in France, feedback to teachers based on principals' observations is more practiced in lower secondary education (9 percentage points difference) even if not very often (23%) (Table 5.13).

Distributed leadership is broadly the same in primary and lower secondary education. Yet, two differences observed when moving up through the education levels reveal a change in perspective:

- Principals in lower secondary education consider that their school provides students with opportunities to actively participate in school decisions to a larger extent than their counterparts in primary education (6 percentage points difference) (Table 5.6).
- The sense of collegiality and teaching harmony at the primary level seems to be higher. At this level, principals "agree" or "strongly agree" that school staff share a common set of beliefs about teaching and learning to a larger extent than at lower secondary level (3 percentage points difference) (Table 5.6). From teachers' perspectives, this sense of collegiality is also perceived more often in primary than in lower secondary education, including a common set of beliefs about teaching and learning, mutual support in their school and a culture of shared responsibility (5 percentage points difference each) (Table 5.9).

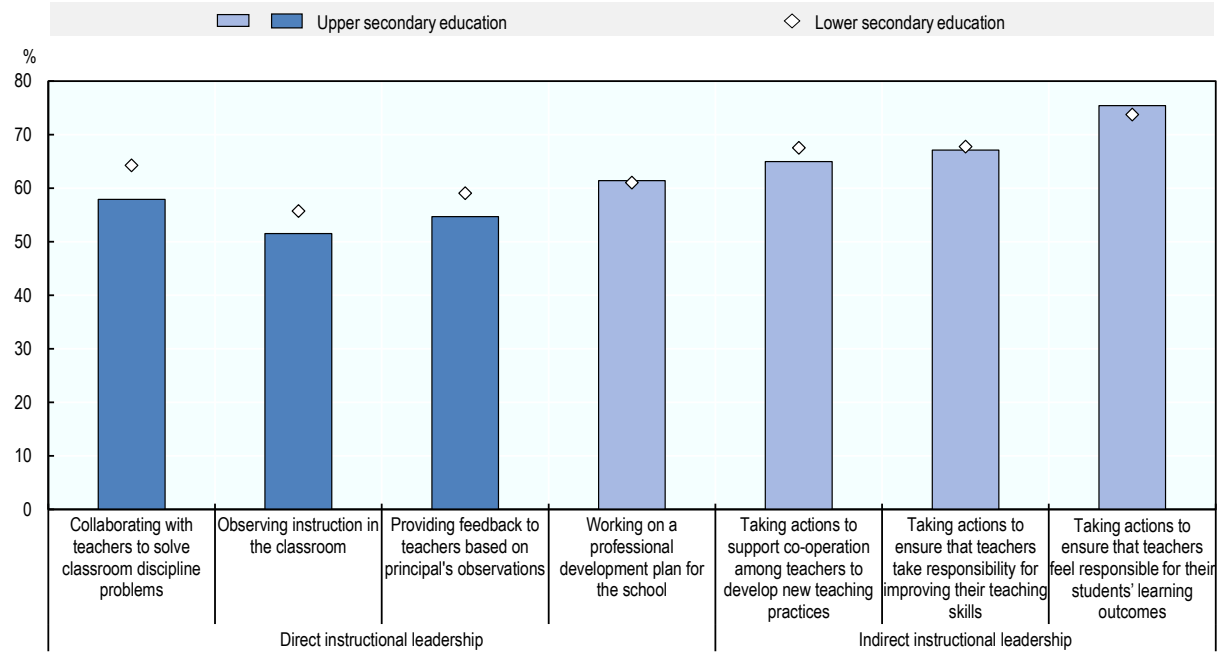
Finally, on average, principals' engagement in other leadership practices is very similar in primary and lower secondary education. However, there are some important differences in principals' involvement in administrative tasks across countries. In the Flemish Community of Belgium, primary principals reported significantly higher involvement in reviewing school administrative procedures and reports, and resolving problems with the lesson timetable in the school than principals in lower secondary education (20 and 21 percentage points difference, respectively). The opposite can be seen in France, where the change in principals' involvement in these same tasks in significantly higher in lower secondary education (20 and 37 percentage points difference, respectively) (Table 5.10).

Leadership in action across upper secondary education

According to principals' reports, indirect instructional leadership activities are the type of actions in which they engage the most at upper secondary education – between 65% and 75% of upper secondary principals reported engaging "often" or "very often" in such activities, on average. Ensuring that "teachers feel responsible for their students' learning outcomes" (75%) is still the most reported practice. Very similar shares of principals reported both "taking actions to ensure that teachers take responsibility for improving their teaching skills" (67%) and supporting "co-operation among teachers to develop new teaching practices" (65%) (Figure 5.4 and Table 5.13).

Figure 5.4. Principals' instructional leadership in upper and lower secondary education

Based on the responses of principals (TALIS average)



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/gvzdy7

Over half of principals engage in the four direct instructional leadership activities at this level and 61% in "working on a professional development plan for the school" (Figure 5.4).

When it comes to sharing decision making with other school staff and stakeholders, the majority of principals encourage staff to lead new initiatives (98%) and give "staff opportunities to actively participate in school decisions" (97%). A majority of principals agreed as well that there is a "collaborative school culture that is characterised by mutual support" (95%) and 91% of principals agreed that their school has a "culture of shared responsibility for school issues" (Table 5.6). As with primary education, teachers are slightly less emphatic, as 81% of teachers in upper secondary believe staff can lead new initiatives and 75% feel they have opportunities to participate in school decisions. Likewise, 79% of teachers agreed that there is a collaborative school culture while 76% agreed about the presence of a shared-responsibility culture in the school (Table 5.9).

Distributed leadership involving students is significant in upper secondary education. Some 88% of principals agreed that their school "provides students with opportunities to actively participate in school decisions". This is less for parents' participation with 77% of principals agreeing that their school provides them with "opportunities to actively participate in school decisions" (Table 5.6). Slightly above half of principals reported "providing parents or guardians with information on the school and student performance" (52%), most likely a responsibility shared with other members of the school staff. Less than 10% of upper secondary principals in Sweden engage often in this type of leadership practice while 80% do so in Brazil and 86% the United Arab Emirates (Table 5.13).

How do upper and lower secondary levels compare?

There are some significant differences between direct instructional leadership in lower and upper secondary. Fewer principals collaborate with teachers to solve classroom disciplinary issues at the upper secondary level (6 percentage points difference). In Denmark, about half of principals reported engaging in such collaboration at lower secondary level while about a quarter do so at upper secondary (24 percentage points difference). Brazil and Slovenia also show strong changes (14 and 17 percentage points difference, respectively) (Table 5.13).

The higher the education level, the fewer principals frequently observe instruction in the classroom, on average (4 percentage points difference). However, it is important to note that this difference is influenced by a few countries with strong values. In Slovenia, for example, at the lower secondary level, seven in ten principals do classroom observation while, at the upper secondary level, the percentage is about half (20 percentage points difference) (Table 5.13).

Concerning community engagement, one difference stands out between upper and lower secondary. In upper secondary education, there is a lower percentage of principals who give parents or guardians information on the school and student performance (4 percentage points difference). Some important gaps can be seen in Sweden (27 percentage points difference), Denmark (15 percentage points difference) and Turkey (13 percentage points difference). However, one country stands out for its opposite relationship. In Portugal, principals in upper secondary education reported higher engagement in this sort of community and accountability leadership than principals in lower secondary education by an important margin (11 percentage points difference) (Table 5.13).

Finally, it can be seen that, the higher the education level, the less principals engage in providing parents or guardians with information on student performance. This can be partly explained by differences in the characteristics and structure of upper secondary schools with respect to schools at lower levels. Differences between students' and parents' involvement in schools are also to be expected as students grow up (Sinclair, 2004[30]) and as part of the school learning process. That said, students do not replace parents as stakeholders. While parents have channels of communication through which they receive information about school, these channels are sometimes less effective as children advance to higher levels of education. When students advance to the secondary level, certain types of co-operation between parents and schools seem to change or even disappear (Sliwka and Istance, 2006[31]).

Box 5.1. How flexible and innovative were schools before the COVID-19 pandemic?

The COVID-19 pandemic has put education systems to the test. Government strategies to deal with the spread of the virus (e.g. lockdowns, curfews, social distancing, school closures and distant learning) has had impacts on access to education for millions of students around the globe.

Material resources available in schools are essential to face those challenges. But, how ready are schools to adapt those tools to challenging, and often new, teaching circumstances, or adopt wholly new ones? Readiness for innovation and collective learning shows schools' flexibility to experiment and choose different paths to achieve their goals (McCharen, Song and Martens, 2011[15]).

When TALIS 2018 was conducted, prior to the COVID-19 pandemic, school principals were asked if they felt their school was open to innovative practices: Do their schools quickly identify the need to do things differently? Are they flexible and innovative environments that accept new ideas swiftly? Do they respond quickly to changes when they are needed? Are schools ready to provide assistance for the development of those new ideas?

Principals' responses indicated that school principals in primary education generally believe in their schools' flexibility and readiness to innovate. Most principals reported that their schools quickly identify

the need to do things differently (92%) and quickly respond to changes when needed (91%) on average. And a high proportion consider that their school readily accepts new ideas (TALIS average: 89%) (Table 5.14).

Making assistance available for the development of new approaches is high on average too (TALIS average: 92%). School principals in primary education are more convinced of a flexibility toward innovation in their schools than their lower secondary peers. More school principals in primary education reported that their schools are quick to identify the need to do things differently (3 percentage points difference) on average (Table 5.14).

When it comes to responding quickly to changes when needed, school principals in primary education again are more confident (3 percentage points difference). However, strong contrasts can be seen across countries and economies. The differences are of at least 10 percentage points in CABA (Argentina), the Flemish Community of Belgium and Spain, and of more than 20 percentage points in France. On the other hand, the biggest gap between the two levels is when principals are asked about their school readiness to accept new ideas. On average, principals in primary school reported more flexibility in this area (5 percentage points difference). Here again, the picture is not homogeneous (Table 5.14).

Upper secondary principals, on the other hand, reported largely that their school quickly identifies the need to do things differently (93%) and makes assistance readily available for the development of new ideas (94%). Some 91% of principals reported that their school quickly responds to changes when needed and 88% consider that their school readily accepts new ideas (Table 5.14). This is roughly the same at lower secondary levels.

OECD reports have noted that innovation in the education sector is often challenging in itself: "…practices of teaching are embedded in political and organisational structures which are resistant to new ideas…" (Dumont, Istance and Benavides, 2010, p. 286[32]). Despite this, the COVID-19 pandemic has forced schools and systems out of their comfort zones in search of effective solutions to replace traditional face-to-face interactions.

While lower and upper secondary education in most countries and economies were similar in terms of readiness for innovation, school principals in primary education believed their schools were more flexible and ready to try new things. The question remains if they had the human and material resources to act on it.

Source: Dumont, H., D. Istance and F. Benavides (eds.), (2010[32]) *The Nature of Learning: Using Research to Inspire Practice*, https://doi.org/10.1787/9789264086487-en; McCharen, B., J. Song and J. Martens (2011[15]) "School innovation: The mutual impacts of organizational learning and creativity", *Educational Management Administration & Leadership*, https://doi.org/10.1177/1741143211416387.

Teachers acting as autonomous and confident leaders

TALIS 2018 asked school principals the extent of their responsibility in a series of decision-making areas in school management. However, principals' views on the exercise of autonomy show only part of the picture. To analyse other facets of school autonomy, which involve multiple actors and stakeholders, TALIS asked teachers about their level of control and responsibility in several domains.

Teachers that reported having control over areas related to their work, have more autonomy and, thus, assume responsibility for their teaching and students' learning outcomes. Tailoring teaching to students' needs can have more space in school environments that promote autonomy as they provide teachers with more incentives to adapt their teaching practice. Programme for International Student Assessment (PISA) results have shown that, in many countries, when the right mechanisms are in place, school autonomy can

be associated with teachers adapting their lessons to their students' needs. This sort of practice can, in turn, have positive effects on students' performance (OECD, 2016[23]) and students' predispositions to learn (OECD, 2021[33]).

Moreover, previous TALIS 2018 analyses have shown the relationship between teacher autonomy and self-efficacy across OECD countries (OECD, 2020[6])). Teacher autonomy is a factor in empowering teachers, giving them the ability to choose, to act and to experiment (Dierking R. C. and Fox R. F., 2012[34]). Teachers gain confidence and greater self-efficacy.

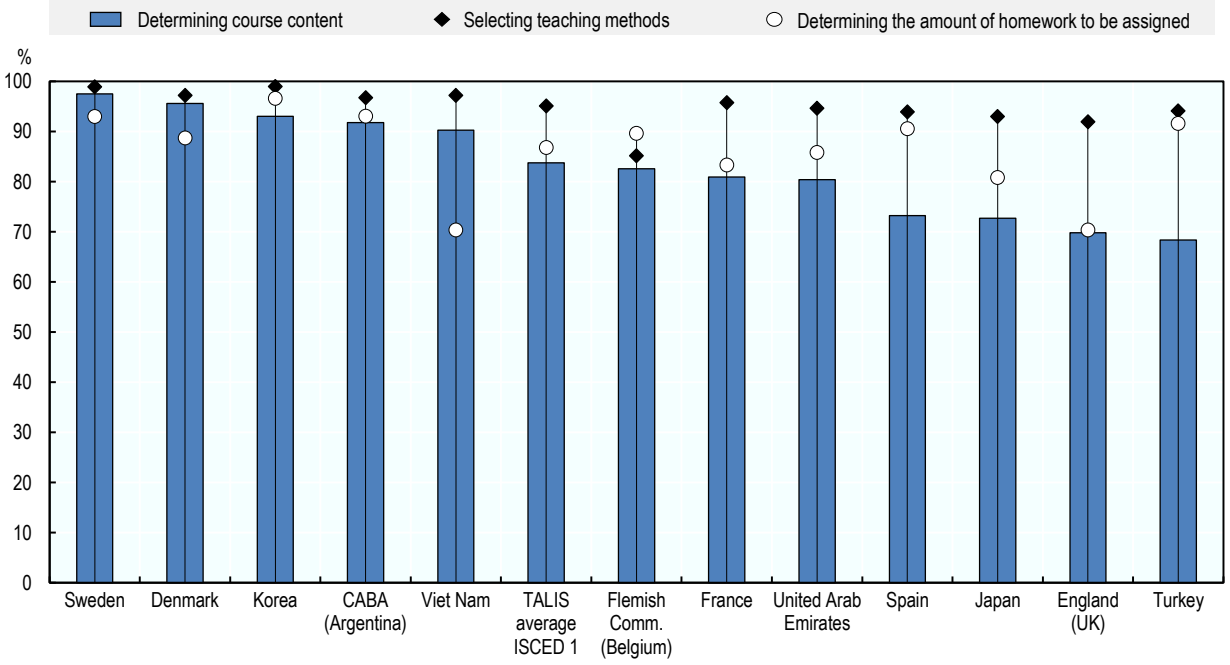
Teachers educating autonomously and confidently in primary education

Primary school teachers reported high levels of autonomy. Most teachers in primary education reported having control over three core areas of in-classroom autonomy. Over 90% of teachers on average reported control in "selecting teaching methods" (95%), "assessing students' learning" (94%) and "disciplining students" (91%), and there is large homogeneity across countries in these three areas (Table 5.15).

Over 80% of teachers at this level reported control in "determining the amount of homework to be assigned" (87%) and "determining course content" (84%). The latter is an area where the most difference is observed between countries. At least 90% of teachers reported determining course content in 5 out of 12 countries with available data. In Japan (73%), Spain (73%), and England (United Kingdom) (70%), at least 70% of teachers reported this and 68% of teachers in primary education in Turkey (Figure 5.5). In some of these countries, teachers reported less leeway in determining course content because of compulsory assessments and the need to follow national curriculums closely.

Figure 5.5. Teachers' autonomy in primary education

Percentage of teachers who "agree" or "strongly agree" they have control over the following areas



Countries and economies are ranked in descending order of the percentage of teachers who "agree" or "strongly agree" they have control over determining course content.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/flrsxw

Teachers' reports on their autonomy in determining course content contrast with school principals' responses on how much responsibility their teachers have (84% and 36%, respectively) (Tables 5.5 and 5.15). It is important to note that teachers and principals may be reporting on different issues: teachers' responses concern autonomy in determining course content for one target class, while principals' reports regard the participation and responsibility of different stakeholders in decision making.[6]

Autonomy by itself does not guarantee better teaching practices. Previous findings suggest that teachers are more likely to create positive learning environments for their students if they feel confident they are competent to do so. Teachers' self-efficacy is strongly related to learning environments that enable better student outcomes (OECD, 2014[35]). Self-efficacy can be regarded as teachers' conviction that they can successfully perform the professional actions that are required to meet the changing demands encountered in their professional practice (Runhaar, Sanders and Yang, 2010[36]) (see Box 5.2 for an overview of the relationship of self-efficacy and teacher collaboration).

In TALIS 2018, teachers' self-efficacy in classroom management has to do with their efficacy concerning student behaviour and rule following in the classroom. Even if the differences are small, teachers in primary education reported a better sense of control in communicating their expectations and achieving respect for classroom guidelines than for controlling specific behaviour. Most teachers at primary level (above 90%, on average) feel they can make their expectations about student behaviour clear and get students to follow classroom rules "quite a bit" or "a lot" except in Japan where around 63% of teachers feel confident about these two actions (Table 5.16).

Teachers in primary education also feel strongly about being able to control disruptive behaviour in the classroom (87%) and calm down a student who is disruptive or noisy (86%). Japan is an exception here, as well, with 64% and 59% of teachers who feel able to control this sort of behaviour and calm down a disruptive student, respectively (Table 5.16).

Teachers' self-efficacy in instruction is their ability to adapt to students' learning needs by means of a variety of teaching strategies, methods and materials. The majority of teachers in primary education feels comfortable adapting to students' learning needs by providing alternative explanations when teaching (TALIS average: 92%). Likewise, using a variety of assessment strategies (79%), crafting good questions for students (87%) and varying instructional strategies (87%), are approaches with which teachers at this level are largely confident. This is also the case in most countries with few exceptions. In France, about 67% of teachers are confident about varying instructional strategies, and in Japan half of teachers are (Table 5.19).

As seen previously, teachers in primary education largely feel they are in control of "assessing students' learning" (Table 5.15). Nonetheless, the least confidence in self-efficacy among teachers in primary education is seen in the use of a variety of assessment strategies (79%). In France, about 59% of teachers reported this while in Japan one-third of teachers in primary education did (33%) (Table 5.19). These results are in line with the fact that assessment frameworks are often developed or overseen by central authorities and agencies. This may affect the relative autonomy of assessment practices in the classroom as teachers' grading must have some stability in order to guarantee consistency both within the school and between schools in the system (OECD, 2013[16]). It is nonetheless important to note that a significant share of teachers in primary education (TALIS average: 21%) do not feel confident about using a variety of assessment strategies. This is an important point for policy makers as summative and formative assessments help teachers and schools keep track of students' progress (OECD, 2013[16]).

How do primary and lower secondary levels compare?

Teachers' self-reported autonomy in teaching methods, assessment, discipline and course content is high at both levels. However, teachers in primary education reported somewhat less autonomy than lower secondary teachers do.

Of the five areas of autonomy observed here, only disciplining students is the same on average in both levels. In 6 out of 13 countries and economies with available data, however, differences are significant. In five countries, more teachers in primary education reported control over disciplining students. The opposite is only seen in Viet Nam, where the gap is wide , with 60% of teachers in primary education reporting this while 80% of lower secondary teachers "agree" or "strongly agree" that they are in control of disciplining students (Table 5.15).

One big difference, on average, concerns determining the amount of homework to be assigned to students. Teachers at the primary level reported less control with respect to their lower secondary peers (5 percentage points difference on average) (Table 5.15). This is in line with the overall feeling of autonomy among primary school teachers: even if they reported high levels of autonomy in determining what teaching and assessment methods they use in their classroom, this feeling is, on average, stronger among lower secondary teachers.

Interestingly, teachers' reports on self-efficacy in classroom management suggest that it is, on average, higher at primary level (2 percentage points difference for all domains). The differences between primary and lower secondary education are also seen across countries and, in some cases, they are important. In Korea, significantly more teachers consider they can make their expectations about student behaviour clear at the primary level (9 percentage points difference). Also in Korea and in Spain, teachers in primary education feel more capable of controlling disruptive behaviour (6 and 7 percentage points difference, respectively). Teachers in primary education in Spain feel more able to calm down a student who is disruptive and get students to follow classroom rules (8 and 7 percentage points difference, respectively) (Table 5.16).

When it comes to self-efficacy in instruction, teachers in primary education reported significantly more efficacy in varying instructional strategies in the classroom than lower secondary teachers. While the average difference is of 4 percentage points across countries, differences in this domain are of at least 5 percentage points in England (United Kingdom), Korea, Spain and Turkey (Table 5.19).

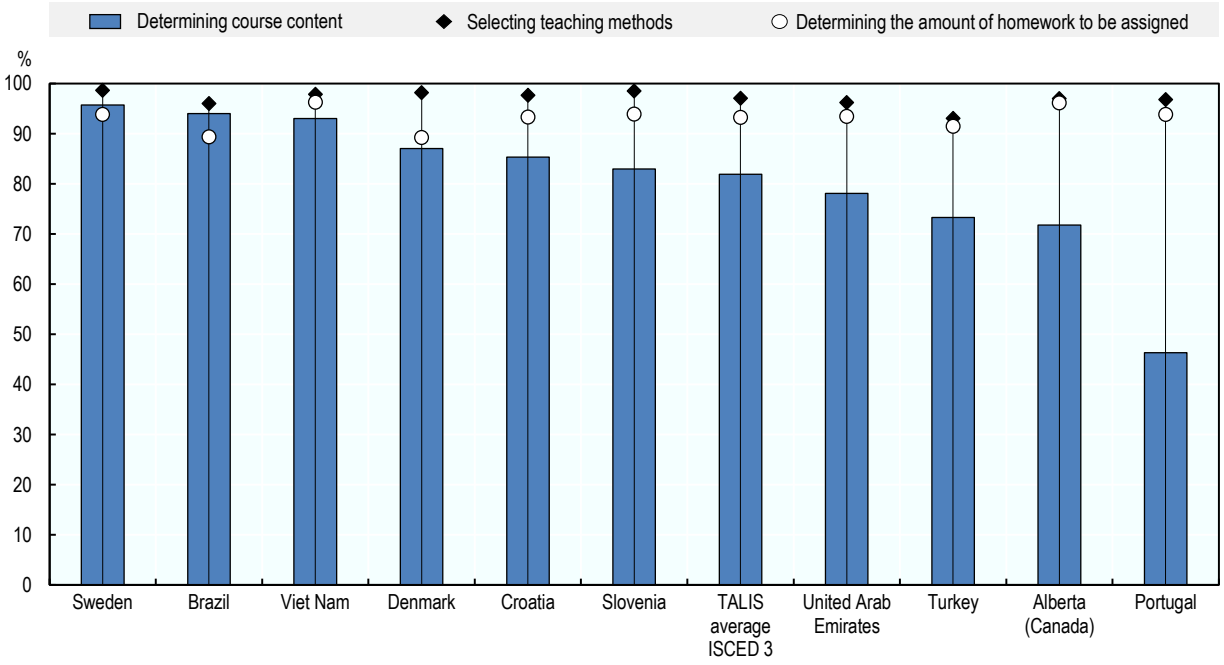
In other domains, primary and lower secondary teachers reported similar levels of self-efficacy in instruction, notably in using a variety of assessment strategies. In France, however, significantly fewer teachers reported confidence in the use of a variety of assessment strategies at the primary level (16 percentage points difference) (Table 5.19).

Teachers educating autonomously and confidently in upper secondary education

At the upper secondary level, a large majority of teachers reported classroom autonomy. On average, over 90% of teachers reported they "agree" or "strongly agree" that they have control over most areas ("selecting teaching methods", "assessing students' learning", "disciplining students" and "determining the amount of homework to be assigned to students") (Table 5.15). There are relatively small cross-country variations in determining course content. Portugal is the sole country in which less than half of teachers reported having control over determining course content. This is the sole area where less than 80% of teachers in upper secondary reported control in four out of ten countries (Figure 5.6).

Figure 5.6. Teachers' autonomy in upper secondary education

Percentage of teachers who "agree" or "strongly agree" they have control over the following areas



Countries and economies are ranked in descending order of the percentage of teachers who "agree" or "strongly agree" they have control over determining course content.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/0ikt3y

Strong autonomy is reported for selecting teaching methods and assessing students as about 90% of teachers in upper secondary or more reported control over these two domains in all countries and economies for which there is available data (Table 5.15).

Concerning self-efficacy in classroom management at the upper secondary level, most teachers feel they can make their expectations about student behaviour clear (93%). Teachers also feel strongly that they are able to get students to follow classroom rules (90%), control disruptive behaviour in the classroom (88%) and calm down a student who is disruptive or noisy (88%).There is little variation across participating countries (Table 5.16).

Teachers in upper secondary feel on average highly confident in their self-efficacy in instruction. The percentage of teachers who feel confident they can provide an alternative explanation when students are confused is the highest (94%). Teachers also feel confident about crafting good questions for students (90%) and varying instructional strategies in their classroom (84%) (Table 5.19).

Finally, only a small percentage of teachers reported feeling little confidence about using a variety of assessment strategies, with 84% of teachers mastering this at this education level. Across countries, at least 70% of teachers reported confidence in this area (Table 5.19).

How do upper and lower secondary levels compare?

There seems to be no relevant difference in autonomy between lower and upper secondary education as reported by teachers, on average. However, control over determining course content shows variations across countries. Higher levels of autonomy are seen at upper secondary level in this area in Alberta

(6 percentage points difference), Viet Nam (4 percentage points difference), Croatia (3 percentage points difference) and Slovenia (3 percentage points difference). However, in Denmark (7 percentage points difference), United Arab Emirates (4 percentage points difference) and Sweden (2 percentage points difference), fewer teachers in upper secondary reported control here (Table 5.15).

One important difference between the two levels concerns the percentage of teachers that feel confident in varying instructional strategies in the classroom. A lower share of teachers in upper secondary education feel confident about this (3 percentage points difference). In Alberta (Canada), Turkey and Slovenia, the differences are of 5 percentage points or more (Table 5.19).

Box 5.2. Self-efficacy and collaboration

Confident teachers are often more inclined to collaborate and share their experiences and knowledge with their peers (OECD, 2014[35]). However, the opposite relationship also holds true: collaborative teachers are well positioned to find ways to adapt their classroom strategies to challenging situations.

For example, TALIS 2018 findings have shown the significant and positive association between teachers' engagement in collaborative practices like collaborative professional learning (i.e. a form of professional development in which teachers work together in teams to improve teaching and learning over time),[7] and the use of teaching practices that allow students to evaluate, integrate and apply knowledge within the context of problem solving, known as cognitive activation practices (OECD, 2020[6]).

However, collaborative professional learning is a type of collaboration that may require school support, including specific school arrangements that allow teachers to participate. When looking at teacher collaboration, other more "informal" types of collaboration are those in which the highest participation among teachers is observed (e.g. discussions about the learning development of specific students).

To explore the relationship between self-efficacy and these forms of collaboration, regression analyses have been performed between self-efficacy, 1) teacher participation in collaborative professional learning, 2) teachers' engagement in discussions about the learning development of specific students,[8] and 3) other variables concerning teacher demographics and class characteristics.

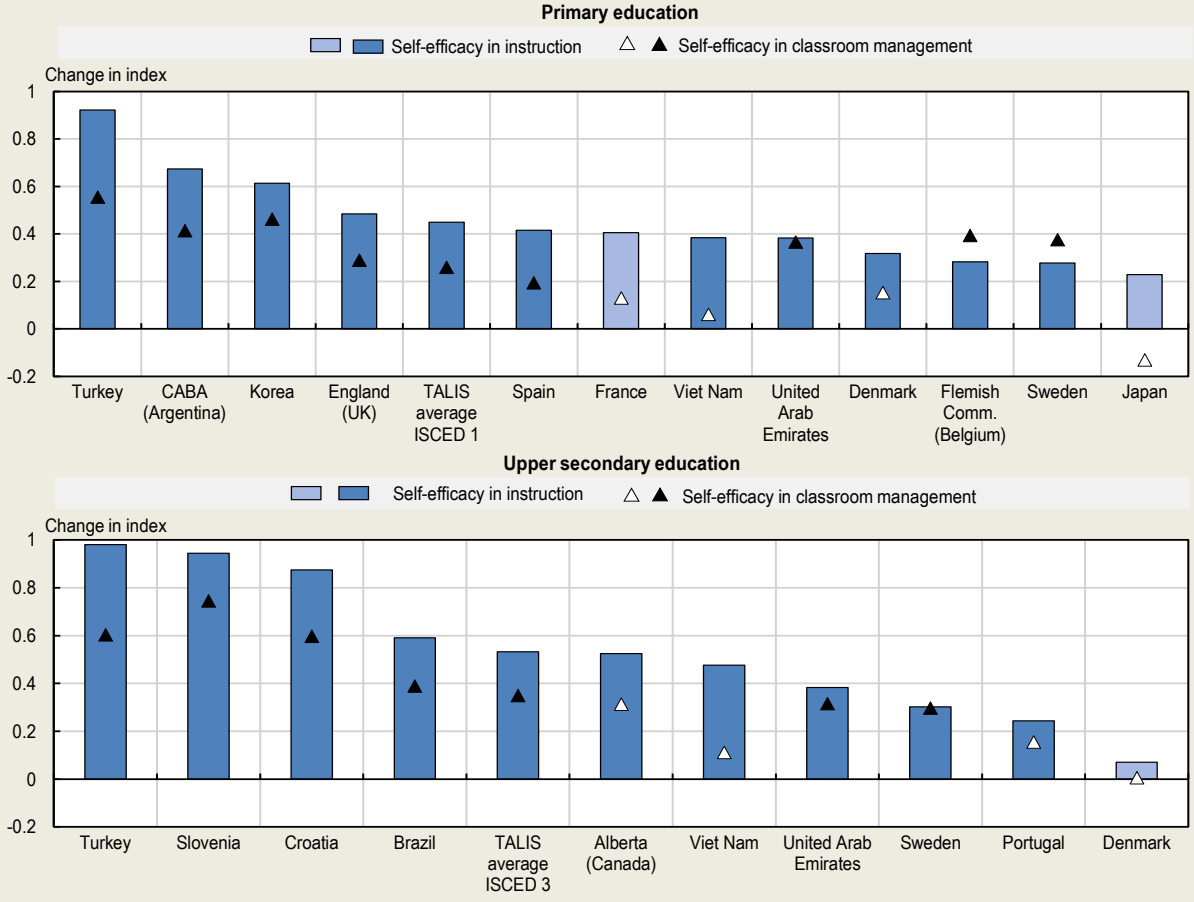
Results show that collaborative professional learning is an action that is positively associated with a better feeling of self-efficacy in classroom management and instruction among teachers in primary and upper secondary levels. The association seems on average stronger with teachers' self-efficacy in instruction than with self-efficacy in classroom management (Figure 5.7).

The same type of relationship is seen between teachers that engage in discussions about the development of specific students and self-efficacy on average. This holds true in all countries with available data for self-efficacy in instruction, and in 11 out of 13 countries for self-efficacy in classroom management for countries with available data for primary education (Tables 5.17 and 5.20). Among teachers in upper secondary education, the relationship is positive in all countries for self-efficacy in instruction and in 10 out of 11 for classroom management (Tables 5.18 and 5.21). However, these results need to be interpreted with caution as the coefficients of determination – R2 – are low.

These results are relevant as they point to the importance of developing teachers' opportunities to engage in professional collaboration. Collaborative professional learning is a practice that has very low incidence, especially among teachers in upper secondary (22%) (Table 5.22). School leaders could play an important role in developing the availability and opportunities for teachers to engage in this type of professional collaboration.

Figure 5.7. Relationship between teachers' self-efficacy in instruction and classroom management, and their participation in collaborative professional learning

Change in the indices of self-efficacy in instruction and in classroom management associated with teachers' participation in collaborative professional learning



Notes: Results of linear regression based on the responses of teachers in primary and upper secondary education. Controlling for the following: teachers engaging in discussions about the learning development of specific students more than once a month, teachers' characteristics (gender, age, working full-time) and school characteristics (share of students with special needs, low achievers and academically gifted)

Statistically significant coefficients are marked in a darker tone.

Countries and economies are ranked in descending order of the change in the index of self-efficacy in instruction associated with teachers' participation in collaborative professional learning.

Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/9x63sp

Source: OECD (2020[6]), *TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals*, https://dx.doi.org/10.1787/19cf08df-en; OECD (2014[35]), *New Insights from TALIS 2013: Teaching and Learning in Primary and Upper Secondary Education*, https://dx.doi.org/10.1787/9789264226319-en.

Teachers collaborating and sharing knowledge and experience

A sense of collegiality and support among teachers can have positive effects on both student learning and school climate (Bryk and Schneider, 2003[37]). Collaboration among peers is at the core of a collective sense of support. Research has shown that teacher collaboration can be associated with better teacher motivation and more student-centred instructional strategies, among other benefits (Vangrieken et al., 2015[38]) (see Box 5.3 and Box 5.4 for an overview of professional networks and collaboration).

Teacher co-operation is an important component in teacher empowerment and agency and it can improve students' learning (Goddard, Goddard and Tschannen-Moran, 2007[39]). PISA results have shown that when teachers engage in professional collaboration it can have a positive effect on student performance (OECD, 2016[23]).

However, there are a series of conditions that must be fulfilled to achieve successful collaboration. They include maintaining teachers' sense of autonomy and ensuring that collaboration comes with the right balance in terms of time and workload for teachers. A support structure that facilitates participation in collaborative activities and determines clear roles is key (Vangrieken et al., 2015[38]).

TALIS 2018 asked teachers about their participation in collaborative actions, whether these concern the exchange of information, materials and co-ordination among teachers or collaboration in lessons.

Table 5.3. Forms of teacher collaboration

Exchange and co-ordination among teachers	• Exchange or develop teaching materials with colleagues • Discuss the learning development of specific students • Work with other teachers in this school to ensure common standards in evaluations for assessing student progress • Attend team conferences
Professional collaboration in lessons among teachers	• Teach jointly as a team in the same class • Provide feedback to other teachers about their practice • Engage in joint activities across different classes and age groups (e.g. projects) • Participate in collaborative professional learning

Source: OECD, TALIS 2018 Database.

Collaboration in schools across primary education

At primary level, exchange and co-ordination among teachers are the most practiced forms of collaboration. Over 60% of teachers reported discussing the learning development of specific students with colleagues at least once a month. In England (United Kingdom), France and Sweden, over 80% of teachers in primary education reported discussing student development at least once a month while less than 40% reported doing so in the Flemish Community of Belgium and Viet Nam (Table 5.22). Working with other teachers to address specific student challenges and plan interventions is an important element in teacher empowerment. Not only can it help identify potential difficulties and find collegiate solutions but it can strengthen the role of teachers and provide students with the possibility of benefitting from the experience of more than one teacher (OECD, 2019[40]; Visscher and Witziers, 2004[41]).

Moreover, over half of teachers exchange teaching materials with their colleagues (59%) and participate in team conferences (57%). These conferences are planned gatherings of teams responsible for specific areas of work (e.g. subject matter domains, grade levels, or individual classes) for exchanging information, consultations or taking decisions. Teacher participation shows variations across countries: in Sweden a large majority of teachers reported attending such conferences (94%) while about 20% of teachers do so in Turkey (Table 5.22).

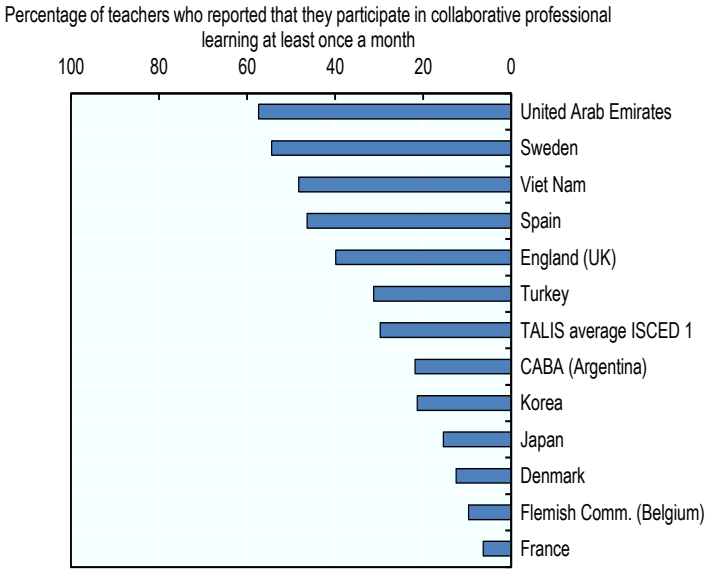
On the other hand, professional teacher collaboration on lessons is less frequent among teachers in primary education compared to exchanging and co-ordinating actions, on average. This is a tendency that

has been described in the literature as teachers tend to engage more in collaborative actions that are considered to be less intrusive (Vangrieken et al., 2015[38]).

In accordance with this, observing other teachers' classes and providing feedback about their practice is less reported at primary level (19%). Across countries, only a majority of teachers in Viet Nam reported doing this, with 81% of teachers doing it at least once a month. In 10 out of 12 countries with available data, this is not a common practice, concerning 20% of teachers or less, probably due to time constraints and due to it being considered a more intrusive action (e.g. respect for teachers' practices and liberty of choice of teaching methods) (Table 5.22).

Teaching jointly as a team in the same class is an action that is reported by over half of teachers in Japan (64%) and Sweden (56%) but only 17% in England (United Kingdom) (TALIS average: 34%). Actions like participating in collaborative professional learning concern the participation of 30% of teachers, on average. In Sweden (54%) and the United Arab Emirates (57%), over half of teachers engage in this type of professional development. About 10% or less of teachers do so in the Flemish Community of Belgium and France (Table 5.22).

Figure 5.8. Participation in collaborative professional learning among teachers in primary education



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

Difference by teacher characteristics		
Male - Female	More than 5 years of experience - Up to 5 years	Full-time - Part-time
-	+	
		+
-		+
-	-	
	-	+
-	-	
-	-	+
-		
-		
+		-
	-	
	-	
		+

Education systems with a positive difference	1	1	4
Education systems with no difference	5	6	7
Education systems with a negative difference	6	5	1

Countries and economies are ranked in descending order of the percentage of teachers who reported that they participate in collaborative professional learning at least once a month.
Source: OECD, TALIS 2018 Database.

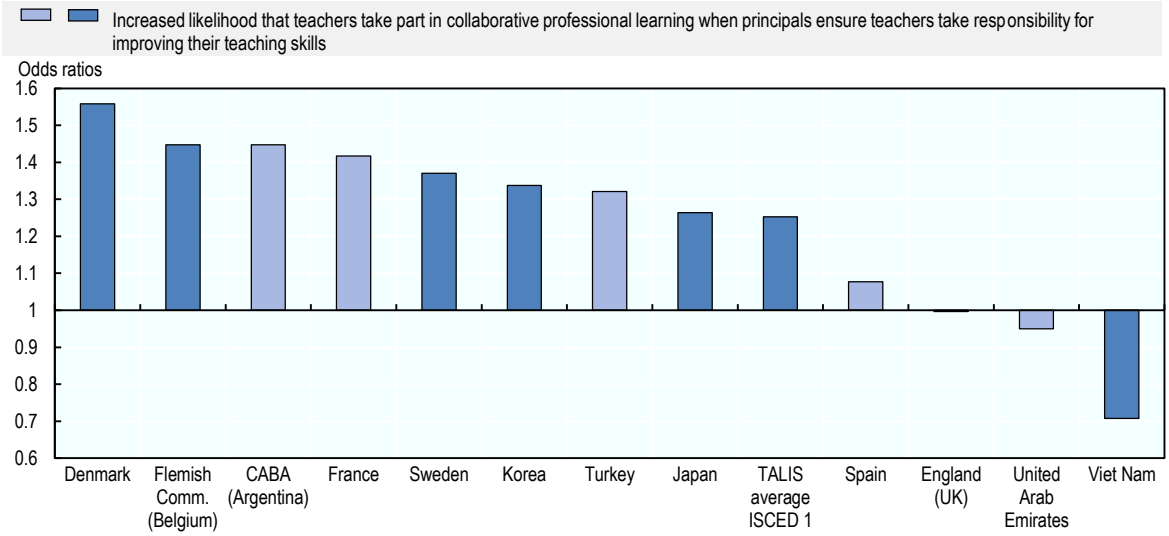
StatLink https://stat.link/pnr74i

Collaborative professional learning comes across as a relevant policy area as it combines three significant elements. As discussed in the previous section, taking part in collaborative professional learning is positively associated to a better feeling of self-efficacy in classroom management and instruction. Moreover, as reported in previous TALIS 2018 reports, findings show that participation in collaborative forms of professional development is associated with teachers' frequent engagement in professional collaboration (OECD, 2020[6]). One likely reason for the low incidence of this practice is the lack of opportunities teachers have to engage in this sort of professional learning. However, when asked about impactful professional development they participated in, teachers often cited opportunities for collaborative learning as a key feature of their professional development (OECD, 2020[6]).

As shown in Figure 5.8, in terms of teacher participation in this form of professional development, data suggest that novice teachers, female teachers and full-time teachers are more inclined to take part in collaborative professional learning at least once a month on average and in most countries (Table 5.23).

School environment and support is likely to be important in teachers' interest in this type of collaborative practice. Results from TALIS 2013 showed that there was an association between principals who show greater instructional leadership and teachers that are more engaged in collaboration at the primary and lower secondary levels (OECD, 2014[35]). As shown in Figure 5.9, TALIS 2018 data suggest that, when principals take action to ensure that teachers feel responsible about improving their teaching skills at the primary level, teachers are more likely to participate in collaborative professional development.

Figure 5.9. Relationship between teachers' participation in collaborative professional learning and principals ensuring teachers take responsibility for improving their teaching skills, in primary education



Notes: Results of binary logistic regression based on the responses of teachers and principals in primary education. Controlling for the following: teachers' gender, age and working full-time.
An odds ratio indicates the degree to which an explanatory variable is associated with a categorical outcome variable. An odds ratio below one denotes a negative association: an odds ration above one indicates a positive association; and an odds ratio of one means that there is no association.
Statistically significant coefficients are marked in a darker tone.
Countries and economies are ranked in descending order of the increased likelihood that teachers take part in collaborative professional learning when principals ensure teachers take responsibility for improving their teaching skills.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/yd41zg

This may reinforce the idea that there is a positive association between the steps taken by principals to strengthen teacher agency and teachers' involvement in professional collaboration activities. These results have to be interpreted with caution as this relationship is non-significant in several countries and many other conditions must to be met in order to provide teachers with opportunities and incentives to participate in different collaborative practices.

How do primary and lower secondary levels compare?

Teacher collaboration stands out not as one defined and unique practice but as a series of actions and interactions that take place in many settings. It can take the form of almost informal and relatively simple interactions, as when teachers discuss the development of specific students, or it can be regarded as occurring in more formal and organised settings, like teaching jointly as a team in the same class, attending team conferences or participating in collaborative professional learning. Still, independent of the format or setting of such interactions, collaboration in all its forms is a way to nurture teaching and learning by helping to improve and adapt teaching practice.

Teachers' responses suggest significantly different approaches to collaborative actions between primary and lower secondary levels. Teachers in primary education reported stronger collaborative actions. Differences between the two levels can be seen both on average and across countries, and they can be large.

Two of the exchange and co-ordination actions show the largest differences between both levels. Exchanging of teaching materials and attending team conferences each show 12 percentage points difference. These activities are significantly more practiced among teachers in primary education, and this holds true across countries. In Japan, Korea and Spain, the difference between levels reaches over 20 percentage points. Furthermore, significantly more teachers reported working with their peers to ensure common standards in evaluations for assessing student progress at primary level (8 percentage points difference). In 5 out of 13 countries with available data, differences between levels are of at least 10 percentage points (Table 5.22).

Teachers engaging in discussions about the learning development of specific students also shows higher incidence across primary education by 9 percentage points difference, on average. In some countries, teachers at the primary level reported significantly higher involvement in such practices. In Korea, more than half of teachers in primary education reported discussing student learning development with colleagues while about a third reported this at lower secondary (25 percentage points difference). In CABA (Argentina), the Flemish Community of Belgium and Japan, gaps amount to at least 10 percentage points (Table 5.22).

These findings suggest that primary school teachers may have a stronger sense of collegiality than lower secondary teachers as they seem to engage more frequently in one another's practices. The sorts of practices described here suggest that teachers in primary schools may structure collaboration around aspects of their work over which they aim to increase control (e.g. teaching materials, assessments and student progress) and on which they feel they can have a positive impact. Other factors may also influence this sense of collegiality, including the variety of teachers' profiles and the organisation of secondary schools. Teachers in secondary education are often content-oriented. This may reduce exchanges with other colleagues whose field of specialty is different (Honingh and Hooge, 2014[42]; Van Veen et al., 2001[43]).

Two other teamwork actions are significantly more relevant in primary education though they are not used very often. Teaching jointly as a team and taking part in collaborative professional learning are both more frequent practices at this level (10 and 9 percentage points differences, respectively). While almost half of teachers in the Flemish Community of Belgium teach jointly in primary education (46%), about 18% do so in lower secondary education (28 percentage points difference), and in Spain the same is seen for both

teaching jointly and collaborative professional learning activities (26 percentage points difference each) (Table 5.22).

A great deal of useful knowledge for teaching is generated in the classroom. Collaboration allows for sharing, appropriating and reinterpreting that knowledge (Vescio, Ross and Adams, 2008[44]). These findings show important differences in collaborative practices between primary and lower secondary teachers – practices that are key to improving teaching practices and student learning (Bezzina, 2006[45]).

Box 5.3. Professional networks during the COVID 19 pandemic in the Flemish Community of Belgium

In the context of the COVID-19 disruption, KlasCement – the educational resources network managed by the Flemish Department of Education and Training – put forward a number of initiatives to support teachers in their online teaching activities and professional learning. The network, created in 1998 and designed as a "community for and by teachers", targets teachers at all education levels, including teachers in adult education and student teachers. On KlasCement, teachers can share and use existing educational resources, including training ones, shared by other teachers or organisations and exchange with other teachers using the teacher forum.

Following the decision to close schools in March 2020 in the Flemish Community of Belgium, KlasCement started creating specific sections on its website devoted to distance teaching and learning; curated existing resources; and asked commercial and non-commercial partners (e.g. school and student management system platforms, platforms with educational videos made by and for teachers, start-up companies providing tools to create online exercises, game-based learning platforms) to upload new content on relevant topics to support teachers (e.g. use of digital tools, video learning). KlasCement also proceeded with the redesign of a teacher online forum that was rarely used before the COVID-19 disruption but which became an effective way for teachers to exchange and help each other compared to more traditional methods of communication (e.g. emails). A third initiative by KlasCement revolved around the organisation of webinars for teachers where they could learn and ask questions on a variety of topics related to distance teaching, the organisation of virtual classes with their students, student online evaluations, etc.

While KlasCement existed before the COVID-19 pandemic, many more teachers started working digitally and created and shared digital content. KlasCement proved to be a useful alternative for giving teachers access to appropriate learning materials as peer teachers created and shared their educational content, providing a variety of teaching methods. Between mid-March and end of April 2020, there were more than 3 000 new contributions on the network and more than 22 000 new members joined KlasCement, a substantial rise relative to similar periods in previous years. Following first investments in a better server to provide higher capacity for webinar organisation, KlasCement plans on further developing its networking features and enhancing its adaptability to each teachers' needs and profile by incorporating technologies like artificial intelligence.

Source: Minea, A. (2020[46]), "Flemish Community of Belgium: KlasCement", *Education Continuity Stories Series*, No. EDCONT-038, https://oecdedutoday.com/wp-content/uploads/2020/11/Flemish-Community-Belgium-KlasCement.pdf.

Collaboration in schools across upper secondary education

Exchange and co-ordination actions have higher incidence among teachers in upper secondary even if they engage less in such activities.

Virtually half of teachers at this level exchange information on the learning development of specific students (TALIS average: 49%). In Alberta (Canada) and Sweden, more than 70% of teachers do this while less than 30% reported doing so in Viet Nam (Table 5.22).

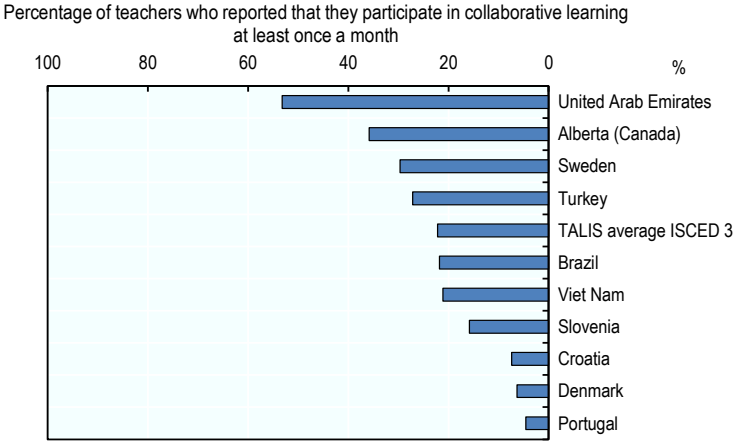
Other exchange and co-ordination activities are not as frequent at this level: exchanging teaching materials (41%), attending team conferences (37%) and working with other teachers in school to ensure common standards in evaluations for assessing student progress (36%) (Table 5.22).

According to teachers' reports, less than a quarter of teachers reported taking part of collaborative professional learning (22%) and in teaching jointly as a team in the same class (16%).

At the upper secondary level, this sort of professional development is not only infrequent but it does not show the type of significant association with principals' instructional leadership seen at the primary level. Previous TALIS reports had already pointed out the lack of significant association between principals who show greater instructional leadership and teachers engagement in collaboration at the upper secondary level (OECD, 2014[35]).

Figure 5.10 shows that, on average at this education level, female teachers are more inclined to take part in this sort of professional development (4 percentage points difference). Years of experience and employment status do not have an impact on teachers in upper secondary' participation in collaborative professional learning, on average (Table 5.24).

Figure 5.10. Participation in collaborative professional learning among upper secondary education teachers



+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values

Difference by teacher characteristics		
Male - Female	More than 5 years of experience - Up to 5 years	Full-time - Part-time
	+	
-	-	+
-		
-		
-		
-	-	
		+

Education systems with a positive difference	0	1	2
Education systems with no difference	6	7	8
Education systems with a negative difference	4	2	0

Countries and economies are ranked in descending order of the percentage of teachers who reported that they participate in collaborative learning at least once a month.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/ecqmyx

At this level too, collaborative activities that require in-class participation, like providing feedback to other teachers about their practice and engaging in joint activities across different classes and age groups, are actions that have very low incidence (TALIS averages 14% and 12%, respectively) (Table 5.22).

How do upper and lower secondary levels compare?

Teachers in upper secondary education reported less engagement in all collaborative activities described here than their peers in lower secondary education. Very similar differences can be seen for exchange and co-ordination actions, between 5 and 7 percentage points difference (i.e. exchange teaching materials with colleagues, engage in discussions about the learning development of specific students, work with other teachers in this school to ensure common standards in evaluations for assessing student progress and attend team conferences). Relatively similar decreases in teacher participation for the four activities are shown in Slovenia (between 16 and 19 percentage points difference) and Sweden (between 6 and 10 percentage points difference) (Table 5.22).

Likewise, professional collaboration in lessons shows important differences as teachers in upper secondary engage less in these activities. As discussed above, practices that are considered more intrusive tend to show lower participation. Teaching jointly as a team in the same class and participation in collaborative professional learning show significant decreases among teachers in upper secondary (5 and 3 percentage points difference, respectively) (Table 5.22).

These differences could be explained in part by teachers' profiles and the organisation of secondary schools. Teachers at this level are often oriented and organised towards their course content and, in general, this concerns specific academic disciplines (Honingh and Hooge, 2014[42]; Van Veen et al., 2001[43]). Upper secondary schools also have a more diverse curriculum, especially when vocational tracks are offered in the school. Upper secondary schools can be large and its organisation may require sub-structures (e.g. departments by disciplines), which can reduce exchanges and collaboration at the school level (Honingh and Hooge, 2014[42]).

In addition, as noted above, some of the relationships found between principals' instructional leadership practices and teachers' participation in specific formal collaborative practices do not hold at the upper secondary level. These findings suggest that teachers in upper secondary miss important opportunities for sharing and enriching their teaching practice as collaboration is a relevant instrument when facing instructional challenges (Vescio, Ross and Adams, 2008[44]).

Box 5.4. Pre-pandemic collaborative research-based learning projects in Sweden

Sweden has introduced pedagogical training initiatives structured as collaborative research-based learning. These "Boost" programmes, for teachers of mathematics, reading and science were launched with a budget of EUR 28 million. The Boost for Mathematics (*Matematiklyftet*) programme (2012), for example, is available to all mathematics teachers, tutors and school principals. Materials are produced in collaboration with over 20 Swedish universities and colleges and published on line. Materials are organised according to year groups and school type, and all follow a four-part structure that helps teacher: 1) prepare independently, using the materials provided to them; 2) meet colleagues to discuss what they have read and collaboratively plan a lesson; 3) teach the lessons in their own classrooms; and 4) reconvene to evaluate and discuss their experiences. Weekly discussion meetings focus on didactic questions and are moderated by mathematics tutors trained by national authorities. During the programme, teachers exchange learning materials, ideas and experiences and enter into professional dialogue. The programme fosters collaborative teaching and enhances teamwork. School principals are also involved.

A final evaluation report (2016) from the Swedish National Agency for Education found that this collegial training model has had a positive impact. Over 35 000 teachers were found to have participated in the mathematics training, which corresponds to 75% of all mathematics teachers in compulsory and upper secondary education. The training is also available to tutors (1 668 had participated by 2016) and school principals (2 961 had also participated by 2015). Participants reported feeling more confident and secure in their classrooms, and their teaching was more varied and student-centred. In 2017, the total cost of the programme was estimated at EUR 56 million. The evaluation did not take into account the impact of the programme on students' learning outcomes, however. As of 2018, new mathematics modules are available on the Learning Portal, which aim to provide teachers, specialist teachers or specialist support teachers with tools to develop teaching for students with additional needs. In 2018/19, supervisors could take part in a web-based supervisor training to acquire the skills to supervise participant teacher groups.

In 2015, The Literacy Boost (*Läslyftet*, 2015-20), was launched to provide teachers in Sweden with an in-service training programme in literacy. The programme is also now being offered to preschool teachers as part of a broader effort to strengthen the educational mission of preschools and to promote the teaching of Swedish at an early age for, among others, children whose mother tongue is not Swedish. The Swedish Government allocated about SEK 50 million per year to The Literacy Boost programme during 2017-19 and about SEK 75 million in 2020. Furthermore, The Literacy Boost has been extended to 2021 (national information reported to the OECD).

According to the final evaluation from 2020, about 25% of all teachers and preschool teachers have participated in the Literacy Boost (*Läslyftet*). The final evaluation of *Läslyftet* (2020) found that two key goals have been met: developing different teaching methods for language development, and developing a collaborative teaching culture (national information reported to the OECD).

Source: OECD (2020[47]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://doi.org/10.1787/0a530888-en.

Exploring the impact of shortages in school personnel

Shortages of school personnel may have direct impacts on teachers' autonomy and agency. Shortages are often dealt with by increasing class sizes or student-teacher ratios, and working hours for teachers, (Carlo et al., 2013[48]; Santiago, 2002[49]), hindering their capacity to provide quality instruction. These shortages jeopardise school leaders' and teachers' empowerment as they challenge their capacity to act, get organised and innovate (see Box 5.1 for an overview on flexibility for innovation). School personnel shortages require special attention from school leaders, authorities and policy makers, as they may hinder the development of education systems, increase pressure over school staff and jeopardise the quality of educational provision (Santiago, 2002[49]).

Measures of the amount of human resources available in schools have been analysed, together with data on students' reading performance in PISA 2018, showing that shortages can be negatively associated to student achievement among 15-year-olds (OECD, 2020[18]).

Teacher shortages are one sensitive aspect of personnel shortcomings that pose significant pressure in some education systems. These may be the result of a number of issues, including changing demographics and attractiveness of the teaching profession (Guerriero, 2017[50]). However, even if they are essential players, teachers are only one of several professionals with active and significant roles in schools. Schools' support staff, special educators, teaching and classroom assistants, social workers, career guidance counsellors, caretakers and school guards are all key to schools functioning properly (see Table A B.4 for country details) (OECD, 2020[18]; OECD, 2019[40]).

TALIS 2018 asked school principals how personnel shortages hinder the school's capacity to provide quality instruction.

School personnel shortages in primary education

At primary level, shortages in support personnel come across as the main challenge to schools' capacity to provide quality instruction, with 42% of principals reporting this on average. The lack of support personnel in schools potentially increases teachers' work overload and is significant in some countries. Over half of primary principals in France (57%), Japan (56%) and Spain (53%) reported such challenges, and over 75% in the Flemish Community of Belgium and Viet Nam (Table 5.27).

One-quarter of primary principals (24%), on average, reported problems with teacher shortages. As discussed in Chapter 2, the attractiveness of the teaching profession and the systems' capacity to attract good candidates is a challenge faced by schools in some countries. This is a challenge for 7 out of 13 countries with available data, where at least 20% of school principals in primary education reported so. In Viet Nam, there is a strong demand for qualified teachers as 79% of primary principals reported instruction to be hindered by lack of qualified teachers (Table 5.27).

Teachers and educators with specific skills are important members of schools' pedagogical personnel. TALIS 2018 data show that an average of 27% of primary teachers work in schools where at least 10% of students have special needs and, in some education systems, more than 50% of primary teachers do (see Chapter 2 for further details). With policies on the inclusion of students with special needs in mainstream schools in several countries there is a more pressing need for staff with different sets of skills and training (OECD, 2019[40]).

In TALIS 2018, slightly more than a third of school principals in primary education reported shortages of teachers with competence in teaching students with special needs. While countries may differ in how and when special needs are diagnosed, previous findings show that teachers at lower levels of education are more likely to report higher proportions of students with special needs in their classrooms (OECD, 2014[35]).

For a majority of school principals in primary education in Viet Nam (67%) and in France (62%), shortage of teachers with competence in teaching students with special needs significantly hinders the school's capacity to provide quality instruction. In England (United Kingdom) only 10% of principals reported this type of challenge (Table 5.27).

As discussed in previous TALIS 2018 reports, one key issue for policy makers and school leaders is to address teachers' readiness to teach in multicultural settings (OECD, 2019[51]). Having trained personnel to work in diverse cultural classes at primary schools is relevant, as children in multicultural classes often have varied approaches to learning. Students benefit the most from their learning experiences when the teaching staff is prepared to build on their specific skills (OECD, 2019[51]).

Shortages of other staff with specific skills and training prove to be relevant as well. About a quarter of principals in primary schools consider the quality of instruction impaired in their schools by shortages of teachers with competence in teaching students in a multicultural or multilingual setting (25%) on average but almost half in France (49%) and Viet Nam (43%).

Finally, across countries, about 31% of primary principals reported that their capacity to provide quality education is hindered by shortages or inadequacy of time for instructional leadership[9] and one-quarter reported shortages or inadequacy of time with students (25%)[10], on average. Around 10% of primary principals reported that quality education was hindered by shortages of time with students in Sweden (12%), CABA (Argentina) (11%) and England (United Kingdom) (7%) but over 40% in Viet Nam (56%) and the Flemish Community of Belgium (41%) (Table 5.27). Good combinations of school personnel enable all school staff to carry out their tasks effectively and to better cope with students' demands and needs (OECD, 2019[40]). The right staffing mix allows school staff enough time to engage with students and

involve themselves in other instructional leadership activities (see Table A B.4 for country details on support staff).

How do primary and lower secondary levels compare?

Primary and lower secondary education principals have similar views on the challenges posed by shortages of educators and staff with specific skills to address the needs of specific students (e.g. students with special needs, teaching students in a multicultural or multilingual setting or from socio-economically disadvantaged homes).

One area that is less relevant at primary level concerns shortages of qualified teachers. According to principals' reports, the difference between levels reaches 4 percentage points, on average. This is especially so in England (United Kingdom) where more than a third of lower secondary principals reported these shortages (38%) compared to 12% at primary level (26 percentage points difference). Differences are also great in France (15 percentage points) and Japan (11 percentage points). Only in Spain did more school principals in primary education reported shortages in qualified teachers than their lower secondary peers (8 percentage points), although the percentage is low (14%) (Table 5.27).

School personnel shortages in upper secondary education

Challenging shortages that concern qualified teachers and support personnel are reported by slightly over a quarter, on average, of upper secondary principals. As addressed before, these shortages show the tension between the supply of qualified teachers, on one hand, and the need for a good mix of school staff to strengthen teacher agency on the other (see Table A B.4 for country details on support staff). Shortages of qualified teachers are particularly striking in Viet Nam (79%) and in Brazil (43%). Shortages in support personnel are reported by over half of school principals at this level in Viet Nam (60%) and in Portugal (57%) (Table 5.27).

As in primary education, at the upper secondary level teachers and educators with specific skills are of great importance. While primary and lower secondary teachers are more likely to report higher proportions of special needs students in their classrooms (OECD, 2014[35]), at the upper secondary level, the highest percentage of principals are concerned about shortages of teachers with competence in teaching students with special needs. On average, almost a third of principals reported these shortages (32%). This is a more pressing issue in some countries like Viet Nam (57%) and Brazil (55%), where instruction of quality hindered by these shortages is reported by over half of principals. Conversely, in Croatia (25%), Denmark (24%), Slovenia (21%), Alberta (Canada) (19%) and Sweden (17%), about a quarter or less of principals reported this (Table 5.27).

Ensuring the quality of education for students with special needs is more pressing, on average, than addressing the needs of other students. Shortages of teachers with other sets of specific skills concern about one-fifth or less of upper secondary principals. This includes shortages of teachers with competence in teaching students in a multicultural or multilingual setting (21%) and teachers with competence in teaching students from socio-economically disadvantaged homes (17%) (Table 5.27).

Staff with specific skills in secondary education include as well teachers and educators teaching in vocational programmes. Programme orientation at this level requires its own approach for staff supply and mix in schools as students' preferences may have an impact on the demand for specific types of teachers (Santiago, 2002[49]). Shortages of vocational teachers hindering the quality of education provision is reported by over a fifth of principals in upper secondary education (21%), on average, ranging from over 40% in Brazil to 15% or less in Slovenia (15%), Sweden (15%) and Croatia (7%) (Table 5.27). Demand in vocational programmes may also depend on other factors that vary across countries like labour market characteristics. Therefore, the supply of teachers with vocational skills is complex as very often teachers

and educators in these programmes are required to have working experience in their teaching domain (see Chapter 2).

As discussed above, getting the right combination of school personnel has the potential to increase school leaders and teachers' capacity for empowerment. Conversely, time available for school staff to get involved in other activities can be challenged by shortages in pedagogical personnel. About a quarter of upper secondary principals report, on average, shortages or inadequacy in the time spent with students (24%). In Viet Nam (49%) and Portugal (47%), almost half of principals reported this. Likewise, lack of time for instructional leadership is identified as hindering an instruction of quality by 31% of principals on average and by 64% in Portugal (Table 5.27).

How do upper and lower secondary levels compare?

Principals in upper and lower secondary education reported similar challenges to the quality of the education provision in their schools caused by personnel shortages. However, in some countries the picture is less homogeneous. In Brazil, shortages of teachers with specific skills (i.e. teachers with competence in teaching students in a multicultural or multilingual setting and teaching students from socio-economically disadvantaged homes) are significantly higher at the lower secondary level where about half of principals reported they hinder their capacity to provide quality instruction (54% and 50%, respectively). These percentages drop by 11 and 13 percentage points at the upper secondary level, respectively (Table 5.27).

One remarkable difference between the two levels concerns challenges posed by shortages of support personnel. The percentage of principals reporting these challenges drop, on average, 6 percentage points when moving from lower to upper secondary education. The difference is the strongest in Denmark (23 percentage points difference) and it is striking as well in Portugal (16 percentage points difference) and Viet Nam (13 percentage points difference) (Table 5.27). These differences suggest that upper secondary schools have, on average, better configurations and balances in staff mix. They could also signal the differences in staff needs across different levels.

Exploring shortages in resources affecting teachers' empowerment

Effective teaching and learning require good infrastructure and facilities: well-adapted instructional spaces, classrooms and classroom furniture, school buildings, and other features, like heating or cooling and lighting. Availability of good learning environments and educational resources are important elements for the provision of an education of quality as they have direct effects on students' and teachers' ability to engage in learning activities effectively (OECD, 2020[18]; Schneider, 2002[52]).

The relevance of material resources available for teachers and students has been put to the test during the COVID-19 pandemic. It is estimated that, at the peak of the crisis in 2020, school closures affected more than 1.5 billion students worldwide (UNESCO, 2021[53]). Teachers' agency has taken a turn that goes beyond the classroom walls.

Resources available to teachers also include instructional materials like textbooks or library materials as well as digital technology for instruction, including software, computers, tablets and Internet access. These are all key elements for the support of teaching practices in a context where teachers are faced with new challenges. They have to be well adapted to provide good support for instruction. Lack of or shortages in material resources can seriously jeopardise teacher's agency and self-efficacy.

The relationship between material resources and student performance has been analysed among 15-year-olds, based on PISA data (OECD, 2020[18]). These analyses have shown that this relationship is positive when a series of conditions are met: 1) material resources are available where they are most needed and in sufficient quantity, 2) they are appropriate in quality and type to meet students' needs and

3) they are used effectively (OECD, 2020, p. 112[18]). These conditions are particularly true for the use of digital technology for instruction as they seem to have limited impact in student performance (OECD, 2020[18]; OECD, 2015[54]). This underlines the importance of teachers' agency on this matter as digital technology in itself is often less relevant than teachers' effectiveness of instruction. Teachers' support through professional development to incorporate digital technology into teaching has to be taken into account when adopting these technologies in schools.

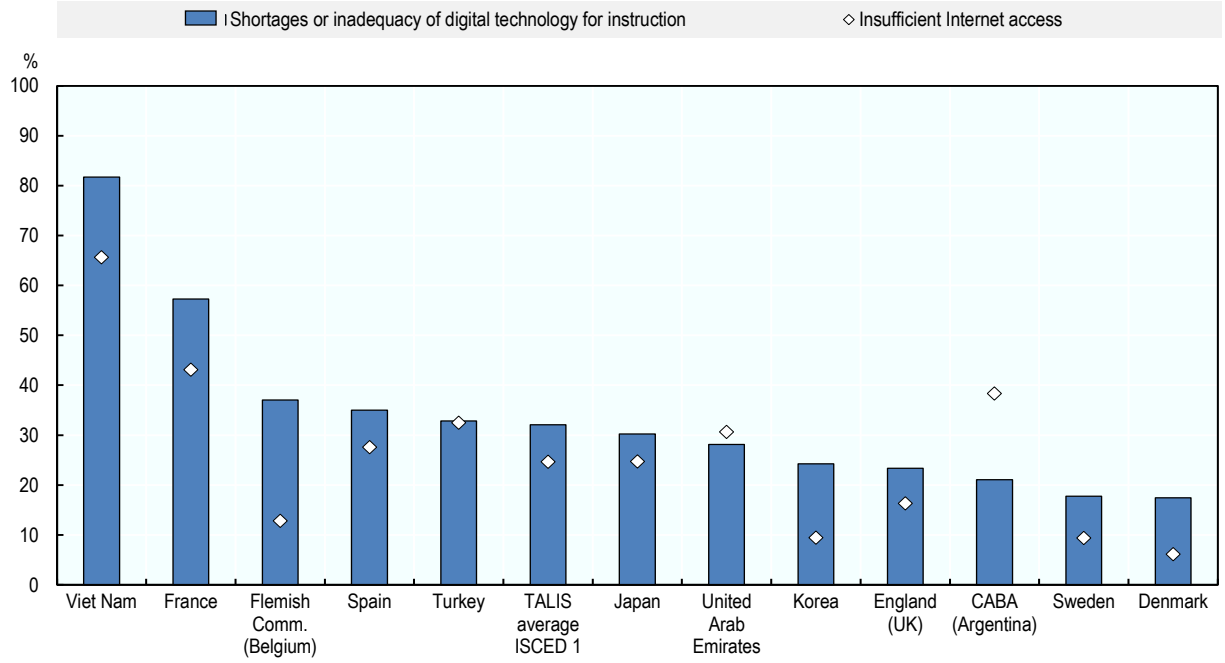
In 2018, TALIS asked school principals if shortages of material resources hinder their school's capacity to provide quality instruction, whether these concern instructional materials, digital technology, Internet access or even instructional space and physical infrastructure.

School material shortages in primary education

The highest percentage of principals reporting quality education provision to be hindered by shortages of resources at this level concerns digital technology for instruction (32%) (Figure 5.11). This includes software, computers, tablets and smart boards. Principals' reports differ across countries on this issue just as approaches do. The use of digital technologies in schools does not refer to a single type of approach but to different practices that are subject to schools' and teachers' learning objectives and strategies (Ross, Morrison and Lowther, 2020[55]).

Figure 5.11. Shortages in digital resources that hinder the school's capacity to provide quality instruction in primary education

Percentage of principals who reported that the following shortages hinder the school's capacity to provide quality instruction "quite a bit" or "a lot"



Countries and economies are ranked in descending order of the percentage of principals who reported that shortages or inadequacy of digital technology for instruction hinder the school's capacity to provide quality instruction "quite a bit" or "a lot".
Source: OECD, TALIS 2018 Database.

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Figure 5.11 shows that, in Viet Nam, 82% of primary principals reported that shortages in digital technology for instruction hinder their capacity to provide quality instruction, and slightly more than half reported this in France. About a third of principals in the Flemish Community of Belgium (37%), Spain (35%) and Turkey (33%) reported this problem while less than one-fifth did in Sweden (18%) and Denmark (17%), thus signalling better equipped primary schools (Table 5.28).

Likewise, on average, a quarter of principals reported insufficient Internet access (TALIS average: 25%). In Viet Nam, this concerns 66% of primary principals and 43% in France. Less than 10% of principals are concerned by this issue in Korea (9%), Sweden (9%) and Denmark (6%) (Figure 5.11).

On average, 30% of school principals in primary education consider that the quality of education in their school is hindered by the inadequacy of instructional space, including classrooms. In Viet Nam (70%) and the Flemish Community of Belgium (50%), at least half of principals reported so, over a third of principals in France (34%) and about a quarter in CABA (Argentina) (27%), England (United Kingdom) (27%), Sweden (27%), the United Arab Emirates (27%) and Japan (26%) (Table 5.28).

On average, just above a quarter of principals reported shortages or inadequacy of physical infrastructure (28%), like school buildings, classroom furniture, heating/cooling and lighting. Across countries, this is the case for 80% of primary principals in Viet Nam, about a third in the Flemish Community of Belgium (32%), and Japan (33%), and a fifth or less in Spain (20%), Denmark (19%) and England (United Kingdom) (18%) (Table 5.28).

How do primary and lower secondary levels compare?

Primary and lower secondary levels are very similar when it comes to shortages in material resources that may jeopardise the provision of an education of quality, as reported by principals.

Challenging shortages in schools' physical infrastructure and instructional space are comparatively similar across both levels. Likewise, shortages concerning instructional and library materials are equally low, on average.

However, there is an important difference to highlight. As mentioned above, the highest percentage of principals reporting education provision to be hindered by shortages of resources in primary education concerns digital technology for instruction, on average. This is also an area where the differences across levels are the most salient and where school principals in primary education show higher concerns than their lower secondary peers (5 percentage points difference). These concerns are strong in France (27 percentage points difference) and in the Flemish Community of Belgium (21 percentage points difference) and but inverse in CABA (Argentina) where fewer principals in primary education reported education to be hindered by shortages in digital technology for instruction (18 percentage points)) (Table 5.28).

This points to a relevant issue: the COVID-19 pandemic has shown the relevance of digital technology in schools not only in terms of the accessibility of software, computers, tablets and smart boards but also in terms of the capacity of teachers and school leaders to provide accurate support for students. This is particularly the case when considering the strong shift in the use of digital technology from the time when TALIS 2018 data were collected to the moment the pandemic reached its peak as it became the basic means by which to guarantee instruction. Moreover, it raises the question of the relevance of such infrastructure and support at lower levels of education, and on the possible evolution of hybrid learning for the future.

Another important difference concerns the relevance of having insufficient Internet access, which is also a significantly higher concern at primary level (3 percentage points difference), on average. In France and Turkey, the difference between both levels are the strongest (15 and 12 percentage points difference, respectively) (Table 5.28).

Principals' reports suggest that primary school teachers could find it more challenging to feel autonomous and confident in teaching with digital technologies.

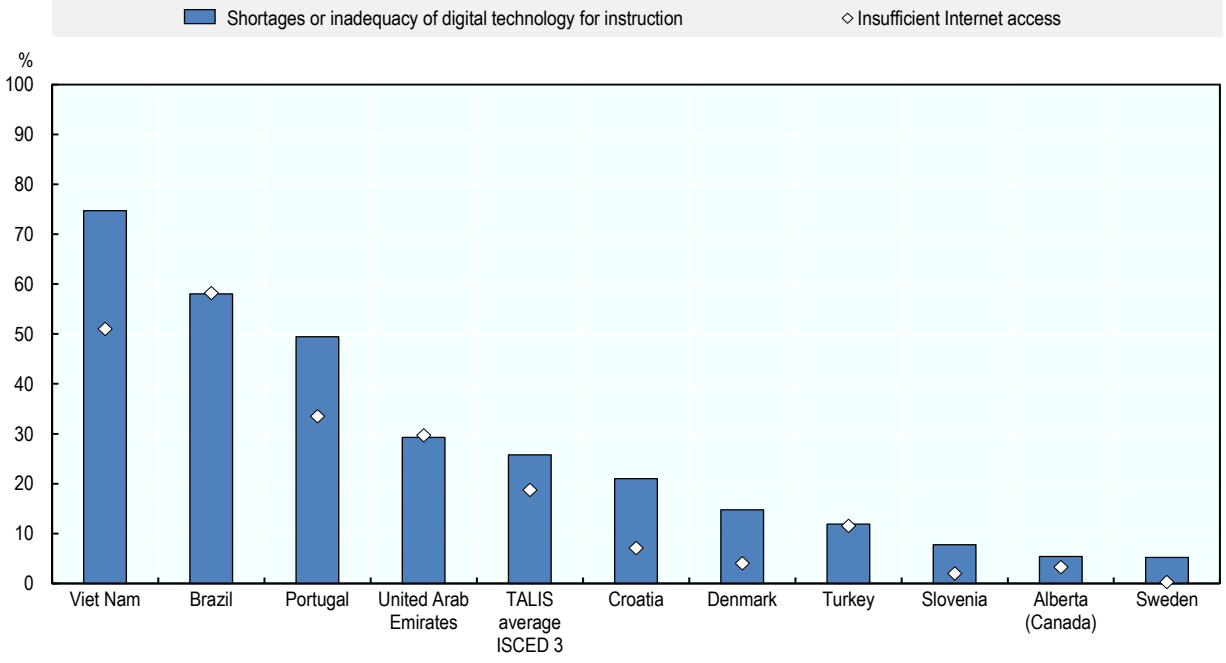
School material shortages in upper secondary education

Principals at this level are on average less concerned with shortages in resources available to teachers like library (17%) and instructional materials (16%). But inadequate digital technology tools for instruction (software, computers, tablets and smart boards) concern about a quarter of principals (26%) (Table 5.28).

Only in Viet Nam are about a half of upper secondary principals concerned about shortages in instructional and library materials (52% and 51%, respectively) while in Sweden, these concerns are almost inexistent (about 1%). However, as shown in Figure 5.12, the percentages of principals reporting that shortages in digital technology for instruction hinder their school's capacity to provide quality instruction show more variation. While three-quarters of upper secondary principals reported this issue in Viet Nam (75%), around half do so in Brazil (58%) and Portugal (49%) and over one-fifth in the United Arab Emirates (29%) and Croatia (21%). This is a considerably less pressing issue in Slovenia (8%), Alberta (Canada) (5%), and Sweden (5%) (Table 5.28).

Figure 5.12. Shortages in digital resources that hinder the school's capacity to provide quality instruction in upper secondary education

Percentage of principals who reported that the following shortages hinder the school's capacity to provide quality instruction "quite a bit" or "a lot"



Countries and economies are ranked in descending order of the percentage of principals who reported that shortages or inadequacy of digital technology for instruction hinder the school's capacity to provide quality instruction "quite a bit" or "a lot".
Source: OECD, TALIS 2018 Database.

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Below one-fifth of upper secondary principals believe there is insufficient Internet access in their schools (TALIS average: 19%). Across countries, this concern ranges from 58% of principals in Brazil to virtually none in Sweden (Table 5.28).

Programme orientation at the upper secondary level concerns several pathways that can be in high demand by both students and employers. About 21% of upper secondary principals reported that their capacity to provide quality education is hindered by a shortage or inadequacy of necessary materials to train vocational skills**.** As vocational education and training (VET) systems can be highly specialised, depending on differences in education systems and labour markets, it is not surprising to see important variations across countries. While in Brazil this concern is reported by half of principals (51%) and by about a third in Portugal (33%) and Viet Nam (36%), a quarter of upper secondary principals reported so in the United Arab Emirates (25%) and less than a fifth in Turkey (17%), Alberta (Canada) (14%) and Slovenia (9%). In Sweden, only 2% of principals share this concern (Table 5.28).

Finally, regarding infrastructure and learning environments, less than a quarter of upper secondary principals regard shortages of instructional space and physical infrastructure as hindering their educational provision, on average (24% and 23%, respectively). However, in some countries this is quite relevant. In Viet Nam, half of upper secondary principals reported that shortages of instructional space hinder the school's capacity to provide quality instruction (50%), 38% in Brazil, 31% in Croatia, 30% in the United Arab Emirates and 29% in Portugal. Also in Viet Nam, 59% of principals reported these challenges due to shortages in physical infrastructure and half of principals in Brazil (50%) (Table 5.28).

How do upper and lower secondary levels compare?

Upper and lower secondary education show contrasting visions on how material shortages are perceived by school principals.

Apart from challenges concerning shortages of instructional materials, principals' reports are significantly different in upper secondary education. Shortages in material resources are perceived as less challenging in lower secondary education.

Inadequate digital technology for instruction and Internet access are not as much of a problem at the upper secondary level (4 and 6 percentage points difference, respectively) (Table 5.28).

When it comes to instruction materials, an important difference concerns library materials, which is less of a concern for upper secondary principals (5 percentage points difference). This is also true of the materials that are necessary for training vocational skills: upper secondary VET programmes come across as better equipped than programmes in lower secondary education (4 percentage points difference). Nonetheless, this is not a general rule as in Croatia, lower secondary school principals reported fewer shortages in instructional materials and materials to train vocational skills (14 and 13 percentage points difference, respectively) (Table 5.28).

Likewise, strong differences in principals' reports suggest a perception of better-equipped schools in upper secondary level when it comes to physical infrastructure (7 percentage points), and in some countries differences between these two levels can be big: 20 percentage points in Viet Nam, 14 percentage points in Portugal, 13 percentage points in Denmark and 10 percentage points in Sweden. In Slovenia, however, the opposite is observed, as lower secondary principals are less concerned with shortages in physical instruction by 6 percentage points (Table 5.28).

Looking at teachers' views on resource challenges

School principals' views on resource shortages are one way to voice the challenges faced in schools. Another important perspective is that of teachers as they are on the front lines of the learning process. As discussed in previous TALIS 2018 reports, principals' and teachers' views on resource priorities are quite

relevant. They can be seen as mechanisms of upward feedback for school leadership but also for administrators and policy makers (OECD, 2019[51]).

Listening to teachers on resource priorities is also a form of teacher empowerment and agency. It increases teachers' visibility and directs supportive resources to where they may be the most needed by means of shared decision making. Indeed, listening to teachers about school priorities can help establish pertinent school objectives and more transparent decision making (OECD, 2017[56]).

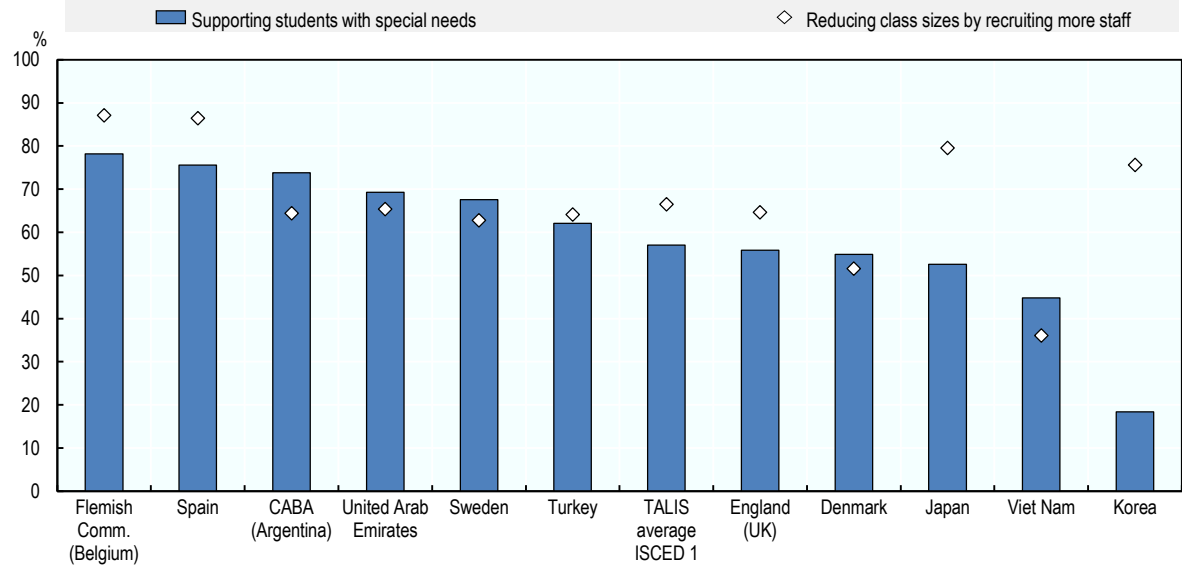
TALIS 2018 asked teachers to rank spending priorities if the budget for education were to be increased by 5%. Their take on these spending priorities signals challenges to schools' capacity for instruction and to their own self-efficacy but also points to development opportunities.

Teachers voicing their priorities in primary education

The largest percentage of teachers in primary education consider reducing class sizes by recruiting more staff (66%) as a spending priority of "high importance". In some countries, the proportion of teachers that reported this as a spending priority is high, as in the Flemish Community of Belgium, Japan, Korea and Spain where more than 70% of teachers reported so. In CABA (Argentina), England (United Kingdom), Sweden, Turkey and the United Arab Emirates, at least 60% of teachers reported this as a spending priority. Only in Viet Nam is the percentage below half of teachers (36%) (Figure 5.13). While the effect of class sizes on student outcomes is a matter of debate (Blatchford and Russell, 2019[57]), there is general consensus that smaller classes contribute to better learning as teachers' feelings of self-efficacy increases. In some contexts, teachers feel more confident about their instruction and class management by means of closer and better relationships with students (Ehrenberg et al., 2001[58]).

Figure 5.13. Teachers' spending priorities in primary education

Percentage of teachers who reported the following spending priorities to be of "high importance"



Countries and economies are ranked in descending order of the percentage of teachers who reported that supporting students with special needs is a spending priority of "high importance".
Source: OECD, TALIS 2018 Database.

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The second ranking priority, considered of high importance for more than half of teachers in primary schools, on average, is the improvement of their salaries (59%). However, this is not as relevant in all countries. In Denmark (18%), less than one-fifth of teachers in primary education consider this a high priority, and about a third in the Flemish Community of Belgium (34%). It is nonetheless a high priority for a majority of teachers in primary education in CABA (Argentina) and Viet Nam where over 80% of teachers reported so (Table 5.29).

Reducing teachers' administration load by recruiting more support staff is a topic that is also considered of high importance by 58% of teachers in primary education, ranked as the third highest priority on average (see Table A B.4 for country details on support staff). Teachers' administrative overload may be due to several reasons. In some systems, shortages of specific types of staff may increase the administrative burden of teachers. In others, teachers are burdened by a great deal of mandatory administrative requirements (OECD, 2020[13]; OECD, 2019[40]). Variations across countries show important differences. At least 60% of teachers in primary schools reported this as a high priority in England (United Kingdom), the Flemish Community of Belgium, Japan, Korea, Spain, and the United Arab Emirates. In Denmark, only 19% of teachers consider reducing their administration load by recruiting more staff a high priority (Table 5.29).

On average, more than half of teachers in primary education consider supporting students with special needs (57%) a high priority. This is in line with principals' reports discussed previously. As mentioned above, the inclusion of students with special needs in mainstream schools has increased in recent years. Schools have been required to find better mixes in teaching staff and to support teachers' acquisition of new teaching skills (OECD, 2019[40]). However, TALIS 2018 findings show that over a third of teachers in primary education reported that modifying lessons for students with special needs was a source of stress (Chapter 6). At primary schools, this is a pressing issue also for professional development. As discussed in Chapter 4, professional development covering special needs students is in high demand by teachers in primary education. Countries have different approaches on how to tackle these issues and variations on how teachers at this level consider supporting students with special needs as high priority are evidence of that. About three-quarters of teachers at primary level consider this a high priority in the Flemish Community of Belgium (78%), Spain (76%) and CABA (Argentina) (74%). Only 18% of teachers in primary schools consider this a high priority in Korea (Table 5.29).

How do primary and lower secondary levels compare?

Differences between primary and lower secondary teachers concerning spending priorities show some interesting contrasts. While reducing class sizes by recruiting more staff is the top priority for teachers in both levels, on average, more teachers in primary education consider this to be of high importance (3 percentage points difference). While in CABA (Argentina) and Denmark, the difference between the two levels is large (7 percentage points difference, each), in England (United Kingdom) the difference is inverse, as more teachers in lower secondary education consider this to be high priority (8 percentage points difference) (Table 5.29).

The second priority is also the same across the two levels, namely, increasing teachers' salaries. While there is no difference in the percentage of teachers that consider this as high priority, on average, across countries some differences are significant. In Turkey, more teachers in primary education consider increasing teachers' salaries a high priority (5 percentage points difference) (Table 5.29).

On average, reducing teachers' administrative load by recruiting more support staff is a more pressing issue among primary school teachers than for their lower secondary peers (see Table A B.4 for country details on support staff). They also reported this topic as being of high importance more often (2 percentage points difference) (Table 5.29).

A strong and significant difference between both levels can be seen in the priority given to supporting students with special needs. This is not only less relevant for teachers in lower secondary education

(ranking sixth) but significantly more teachers in primary schools, on average, consider this as high priority (10 percentage points difference). This is also a priority area that shows strong and significant differences across most countries, ranging from 19 percentage points difference in the Flemish Community of Belgium to 4 percentage points difference in Korea (Table 5.29). Other indicators discussed in this report (Chapters 4 and 6), including stress associated with adapting lessons to students' with special needs, as well as professional development needs, suggest that this is an area that jeopardises primary school teachers' feelings of self-efficacy and agency.

Moreover, another interesting difference between these two levels concerns the availability of high-quality professional development for teachers. This is the third most relevant topic for lower secondary teachers, even if more teacher in primary schools consider this as high priority on average (3 percentage points difference). Only in Sweden did more lower secondary teachers reported this as high priority (4 percentage points difference) (Table 5.29).

Teachers voicing their priorities in upper secondary education

At upper secondary level, the largest percentage of teachers reported improving teacher salaries as a spending priority of high importance, as almost two-thirds of teachers consider this a spending priority, on average (65%). In Brazil and Viet Nam over 80% of teachers in upper secondary reported this as high priority, about half in Slovenia (55%), and less than a quarter in Denmark (22%) (Table 5.29).

The second priority area for teachers in upper secondary concerns the availability of high-quality professional development for teachers. About 60% of teachers regarded this as high priority, on average. This is a relevant topic across counties as no less than a third of teachers in upper secondary reported so, ranging from over 90% in Brazil to over 60% in Croatia, Portugal, Turkey and the United Arab Emirates, and slightly above one-third in Alberta (Canada) (38%) and Denmark (36%). Interestingly, the offer of high-quality professional development is the first priority area for teachers in upper secondary in Slovenia (59%) and Turkey (74%) (Table 5.29).

After high-quality professional development, reducing class sizes by recruiting more staff is an issue of high importance for teachers at this level. PISA 2018 data suggests that the effects of class size on student performance are mixed and not homogeneous across countries (OECD, 2020[18]). Yet, this is not only a matter of student performance but of teachers' perception of working conditions. Almost 60% of teachers in upper secondary education reported "reducing class sizes by recruiting more staff" as high priority. This was the case for 90% of teachers in Portugal and 82% in Brazil, about half of teachers in Denmark (52%), Sweden (53%) and Slovenia (54%), and slightly more than a quarter in Viet Nam (27%) (Table 5.29).

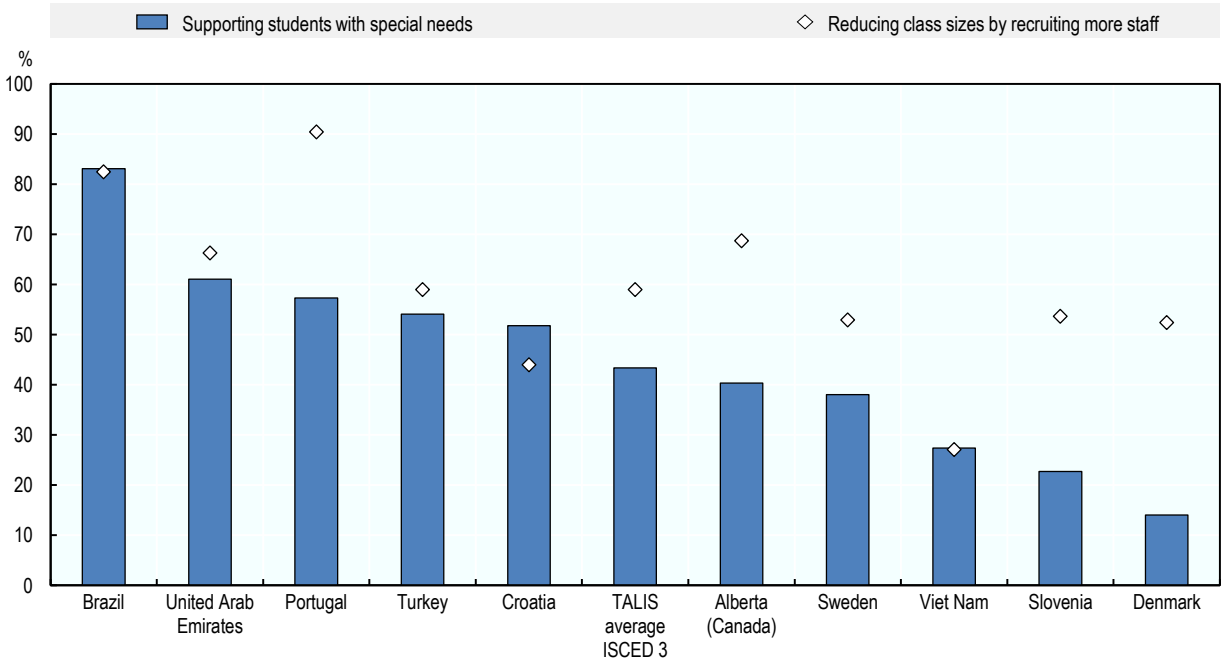
Administrative overload is an important issue that can lead to frustration and put teacher agency at risk. It can reduce the time available for tasks related to instruction like individual planning or preparation of lessons, marking students' work, and collaborating with other colleagues. In most of the countries with available data, teachers in upper secondary carry out general administrative work (including communication, paperwork and other clerical duties) that are a mandatory part of their job with no compensation for teaching time (OECD, 2020[13]). Inadequate distribution of administrative requirements can be a cause for teachers' administrative burden in some countries (OECD, 2019[40]). Half of teachers consider reducing teachers' administrative load by recruiting more support staff (51%) a spending priority of high importance (see Table A B.4 for country details on support staff). This ranges from 73% of teachers in Portugal and 70% the United Arab Emirates to 15% in Denmark (Table 5.29).

At the upper secondary level, about 43% of teachers consider supporting students with special needs as high priorities (ranking sixth), on average. However, variations across countries can be important, as shown in Figure 5.14. In Brazil 83% of teachers in upper secondary consider this high priority, and in Croatia (52%), Turkey (54%), Portugal (57%), and the United Arab Emirates (61%) more than half of

teachers do so. In Denmark, 14% of teachers in upper secondary level consider this high priority (Table 5.29).

Figure 5.14. Teachers' spending priorities in upper secondary education

Percentage of teachers who reported the following spending priorities to be of "high importance"



Countries and economies are ranked in descending order of the percentage of teachers who reported that supporting students with special needs is a spending priority of "high importance".
Source: OECD, TALIS 2018 Database.

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How do upper and lower secondary levels compare?

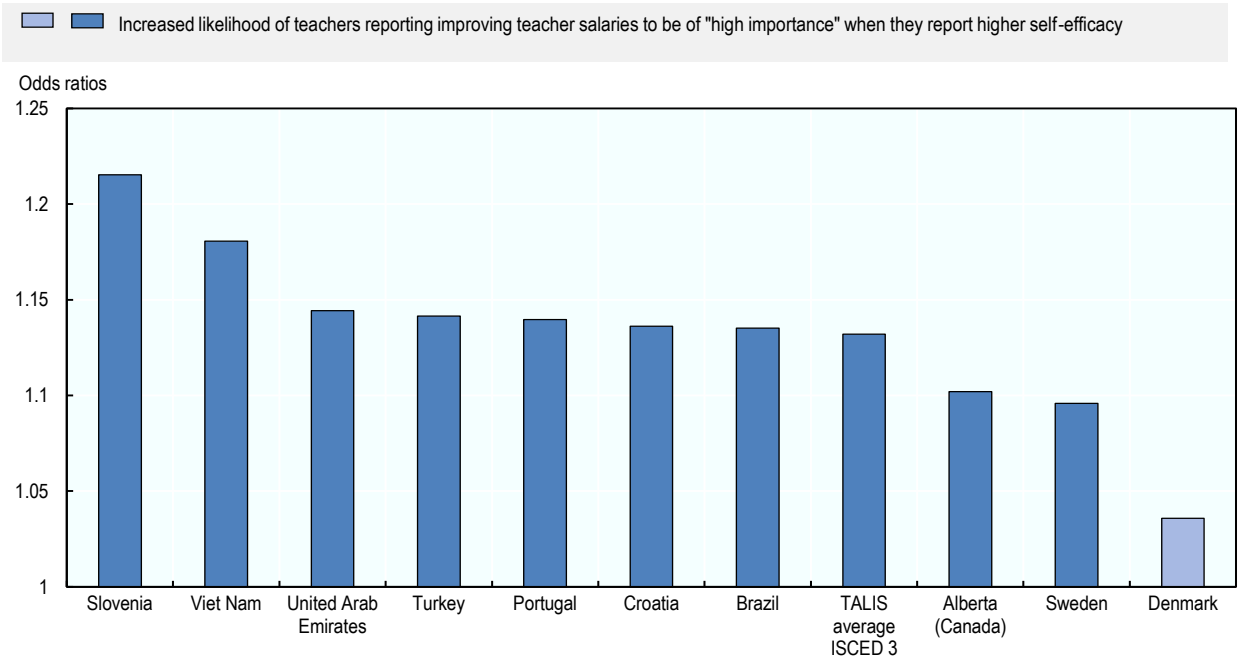
Teachers in upper and lower secondary education distribute relevance almost identically across topics that they consider high priority.

While the difference is small on average (1 percentage points), more teachers in upper secondary reported increasing teachers' salaries as a high importance priority than lower secondary teachers. This is a sensitive issue that requires further analysis. Teachers' salaries are comparatively lower than salaries of other professionals with the same level of qualification on average across OECD countries (OECD, 2020[13]). Moreover, salaries tend to be lower when teaching at lower education levels, partly due to the entry-level qualifications required. This is undoubtedly one important factor when weighing the reasons for salary dissatisfaction and related issues with work motivation (OECD, 2019[40]). This has also important consequences in the attractiveness of the teaching profession.

TALIS index of job satisfaction with the profession measures how teachers generally feel about the teaching profession, including whether they believe the advantages of being a teacher outweigh the disadvantages, or whether they think it would have been better to choose another profession. The index also measures teacher motivation, asking if they would still choose to work as a teacher if they could decide again. On average across countries with available data, teachers in upper secondary schools were about

7% less likely to consider an increase in teachers' salaries as high priority when they were more satisfied with the profession (odds ratio=0.93) after accounting for teacher characteristics (Table 5.31).

Figure 5.15. Relationship between teachers reporting improving teacher salaries to be of "high importance" with they report higher self-efficacy, in upper secondary education



Notes: Results of binary logistic regression based on the responses of teachers and principals in primary education. Controlling for the following: teachers' gender, age and working full-time.
An odds ratio indicates the degree to which an explanatory variable is associated with a categorical outcome variable. An odds ratio below one denotes a negative association: an odds ration above one indicates a positive association; and an odds ratio of one means that there is no association.
Statistically significant coefficients are marked in a darker tone.
Countries and economies are ranked in descending order of the increased likelihood of teachers reporting improving teacher salaries to be of "high importance" when they report higher self-efficacy.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/18qzgb

Undoubtedly, there are serval factors that influence this subject and it is possible that other "positive" aspects are involved. Previous TALIS 2018 reports have explored several factors that can have an effect on lower secondary teachers' likelihood of reporting that salary increases are highly important. These include motivational aspects, class configuration or school location (OECD, 2019[51]). As discussed in this chapter, teachers' self-efficacy is an important component of teachers' agency. Confident teachers not only feel validated in deciding how to perform their duties autonomously but they may also have expectations about the conditions in which to carry them out effectively. When assessing the relevance of salary increases, teachers may also be assessing their own skills and experience. Teachers in upper secondary that report higher levels of self-efficacy in classroom management are about 13% more likely to report salary increases as highly important (odds ratio=1.13) (Figure 5.15 and Table 5.33).

After increasing teachers' salaries, offering high-quality professional development for teachers is the second most important priority for teachers in upper secondary while it is third for their lower secondary peers. However, this is something that shows contrast across countries with available data. In 6 countries

out of 11 with available data, there are no differences across levels. In Croatia (8 percentage points difference), Alberta (Canada) (7 percentage points difference) and Slovenia (3 percentage points difference), more teachers in upper secondary consider this as high priority. In Brazil and Denmark, more lower secondary teachers consider offering high-quality professional development high priority than teachers in upper secondary (2 and 5 percentage points difference, respectively) (Table 5.29).

The strongest significant difference between both levels concerns supporting students with special needs. More lower secondary teachers reported this as high priority (6 percentage points difference). Differences are particularly strong in Denmark where the percentages of teachers go from over a third in lower secondary education (37%) to 14% among teachers in upper secondary (23 percentage points difference). In the United Arab Emirates, the proportion of teachers remains above 60% at both levels even if there is a change of 2 percentage points as more teachers in lower secondary schools consider this high priority (Table 5.29).

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Notes

[1] The use of the word “significant” does not refer to the statistical properties of the results but to the wording used in the questionnaire to phrase the question to principals. Whenever school leaders play an active role in decision making, they are considered as having “significant responsibility” for that task.

[2] A “considerable role” is when 25% to 50% of principals reported that a given actor has significant responsibility on average across participating countries.

[3] Differences in principals’ responses within a same system can be due to different reasons, including the extent of their participation in the process of determining either statutory salaries or additional payments, which can be dependent on other factors. For example, in some systems, private schools are not required to follow centrally regulated or national pay ranges as public schools do, even if in many cases they do observe them by choice (OECD, 2020[13]). Moreover, the relative autonomy of school principals can also be dependent on the status of teachers, for example, if they are considered civil servants or not and, therefore, if guidelines have to be consistent with other regulations.

Variations in principals’ responses may also be due to how they interpret the question. In some systems, additional payments that are added to statutory salaries can depend on many factors. Financial compensation can be offered for activities that are understood to be out of regular or required teachers’ work, like participating in extra-curricular activities, taking on student counselling or participating in special tasks like training student teachers. Thus, these financial compensations can have impacts on actual teachers’ salaries independently of the existence of regulated pay scales. Depending on the system, principals may have more or less autonomy in determining which of these activities can be offered in their school and also which teachers participate in them.

[4] Free school choice is understood as the possibility for parents or guardians to choose a school and, hence, students are not necessarily assigned to specific schools; or, if they are, they can opt for another school.

[5] Differences in responsibilities between primary and lower secondary teachers for choosing which learning materials are used can be due to several factors. In some countries, secondary schools are subject-oriented and, thus, secondary teachers are often given greater responsibilities concerning choosing learning materials than primary teachers. Likewise, in several systems, there is no option to choose learning materials like textbooks for main subjects (e.g. language of instruction, social science, mathematics, science) in primary schools; but in lower secondary schools they can be chosen from among various authorised texts. In these contexts, secondary teachers can have more responsibility for choosing learning materials than their primary peers.

[6] Teachers were asked about their control over these areas of their planning and teaching in a target class. Principals were asked to report who has a significant responsibility for determining course content, including national/regional curricula.

[7] The other form of collaboration that has been associated with the use of cognitive activation practices is when teachers participate in joint activities across different classes and age groups. Here, the focus is on collaborative professional learning only, given that it has been identified by teachers as an impactful professional development, and as a policy lever for initiating and extending a culture of collaboration in schools that requires a limited mobilisation of resources (OECD, 2020[6]).

[8] In some contexts, schools observe rules of privacy and non-interference that had been identified in the literature as potentially weakening efforts to encourage teachers to get involved in some types of collaborative actions (Levine and Marcus, 2010[59]). This sort of "informal" teacher collaboration is taken here as an indication of the existence of open teacher dialog and collaboration.

[9] As discussed in the first section of this chapter, instructional leadership can be direct and indirect, and it involves the active collaboration of principals and teachers on issues regarding instruction, curriculum, assessment and professional development.

[10] Shortages or inadequacy of time with students refers to the availability of contact time between school staff and students. For example, it may refer to the time teachers have for student-teacher interactions outside of working time devoted to preparing for classes, correcting students' work, and other activities related to their teaching and administrative tasks.

6 Building fulfilling working conditions, well-being and satisfactory jobs

This chapter explores teachers' perceptions of their working conditions in primary and upper secondary education by examining contract conditions and arrangements, working hours, job security and stability. The chapter also looks at reports on satisfaction with the profession, school, salaries and terms of employment. It also describes the levels and sources of stress and makes a comparison across levels to detect the most pressing needs at each level. The chapter concludes by examining the risk of attrition for teachers leaving the profession.

Highlights

Primary education

- Female teachers are more likely than their male colleagues to work part-time, be stressed, work longer hours and report that they would like to leave teaching in the next five years.
- Fixed-term contracts are relatively scarce in primary education: 8% have fixed-term contracts for more than one year, and 8% have a fixed-term contract for one year or less.
- Compared to their colleagues in lower secondary education, teachers in primary education spend more total working hours (1 hour more) and teaching hours (2.9 hours more), and fewer hours in non-teaching tasks (such as planning and marking).
- Almost half of teachers (47%) are satisfied with their salaries and 65% are satisfied with the terms of their employment (e.g. benefits, work schedule). Number of working hours is one of the main predictors of teachers' satisfaction with their employment.
- The main sources of stress as reported by teachers are "having too much administrative work to do" (47%); "being held responsible for students' achievement" (47%); "addressing parent or guardian concerns" (42%); and "addressing parent or guardian concerns" (42%). In contrast to lower secondary, "maintaining school discipline" and "modifying lessons for students with special needs" seems to be a particular source of stress.
- Twenty-one percent of teachers in primary education stated they would like to leave teaching in the next five years. Teachers satisfied with their salaries and terms of employment, and whose school provides opportunities to engage in discussion and has a collaborative culture are less likely to state they will leave teaching.

Upper secondary education

- Female teachers are more likely than their male colleagues to be stressed and to report that they would like to leave teaching in the next five years.
- Fixed-term contracts are relatively scarce in upper secondary education: 10% have fixed-term contracts for more than one year, and 10% have a fixed-term contract for one year or less.
- Teachers in upper secondary education spend more hours than their colleagues in lower secondary education in non-teaching tasks such as planning and marking,
- The share of teachers satisfied with the terms of employment and salary is higher in upper secondary than in lower secondary education. One of the main drivers of teachers' satisfaction with terms of employment is the number of working hours and classroom composition; in particular, the share of low achievers in the classroom.
- The main sources of stress as reported by teachers are "being held responsible for students' achievement" (47%); "having too much marking" (46%); and "having too much administrative work to do" (45%). In contrast to lower secondary, "being intimidated or verbally abused by teachers" seems to be a significant source of stress.
- Almost a quarter of teachers (23%) in upper secondary education stated they would like to leave teaching in the next five years. This is a higher share than in lower secondary education. Teachers satisfied with their salaries and terms of employment, and who consider the school provides opportunities to engage in discussion and has a collaborative culture are less likely to state they will leave teaching.

Introduction

The notion of promoting teacher professionalism in order to build a highly skilled workforce has been ingrained in the policy orientations of education systems worldwide (Schleicher, 2018[1]). That being said, education systems need to support teachers as professionals. This points to the necessity of providing stimulating, rewarding and supporting working conditions that will allow teachers to be effective in their work. Indeed, the quality of teachers' working conditions has increasingly become part of educational system inspections as teacher turnover has become a major concern (OECD, 2019[2]; Viac and Fraser, 2020[3]).

Working conditions can be understood as elements of the working environment affecting the daily work of teachers such as terms of employment (i.e. type of contract and working hours); workload (e.g. class sizes); reward and incentives structure (e.g. salaries); and supportive and collaborative working structures (OECD, 2019[2]). These elements can have an effect on teachers' job satisfaction, stress levels and their commitment to stay in the profession, which translates indirectly into the supply and retention of teachers (Viac and Fraser, 2020[3]). As such, the working conditions of teachers play an important role in empowering the individual and collective professional capacity of school leaders (OECD, 2019[2]).

Good working conditions such as the adequate allocation of resources along with supportive and collaborative working environments can improve teachers' overall well-being, job commitment and efficiency (Bakker and Demerouti, 2007[4]; Borman and Dowling, 2008[5]; Cochran-Smith, 2004[6]; Collie and Martin, 2017[7]; Hakanen, Bakker and Schaufeli, 2006[8]; Mostafa and Pál, 2018[9]). In contrast, unmanageable job demands and stressful working conditions can lead to low job satisfaction and well-being (Collie, Shapka and Perry, 2012[10]; Desrumaux et al., 2015[11]), lower levels of job commitment (Klassen et al., 2009[12]; Skaalvik and Skaalvik, 2016[13]) and burnout (Betoret, 2009[14]). They can also generate motivation to leave the profession (Skaalvik and Skaalvik, 2018[15]) and ultimately lead to actual attrition (Weiss, 1999[16]).

Although Teaching and Learning International Survey (TALIS) data were collected prior to the COVID-19 pandemic, many of the topics covered in this chapter invite reflections on teachers' working conditions during the crisis. School closures, along with the need to adopt a hybrid form of instruction mixing digital learning and some form of face-to-face interaction, have changed teachers' work organisation. The changes can affect everything from time allocation for lesson planning and instruction to the type of working contracts (OECD, 2021[17]). The data presented in this chapter is helpful in understanding different conditions in countries and economies to better inform policy implementation.

Analyses using TALIS 2018 have already provided a description of the main features of the working conditions in lower secondary education but less is known about primary and upper secondary education. Indeed, features such as class sizes, remunerations and teaching hours fluctuate across educational levels. Therefore, it is pertinent to observe whether the levels of teachers' job satisfaction, stress and job commitment change specific to each education level. The chapter will make use of TALIS 2018 indicators to describe the working conditions of teachers in primary and upper secondary education and highlight the main differences with lower secondary education. It will start by providing a description of the contractual job security and distribution of working hours. The following section explores the perceptions of teachers and school leaders of their work by reporting on satisfaction with their current working environment and their profession. Next, the chapter looks at occupational stress among teachers and school leaders as well as the sources of stress. The final section deals with the risk of attrition among teachers.

Job security and flexible time arrangements

The type of contract conditions (i.e. permanent and fixed-term employment) and working-time arrangement (i.e. full-time or part-time) play an important role in schools' management of their resources (Bertoni et al.,

2018[18]) while also affecting the attractiveness of teaching jobs (OECD, 2019[19]). The use of different contract modalities and work-time arrangements carry positive and negative aspects that need to be balanced carefully.

Fixed-term contracts can introduce some necessary flexibility to educational systems and allow schools to manage their human resources (Bruns, Filmer and Patrinos, 2011[20]). They allow schools to adjust staffing needs to respond to changing student demographics, keep long-term financial commitments in check and facilitate the evaluation of a teacher's skill and ability to grow before offering a permanent contract (OECD, 2019, p. 220[2]). That being said, in some national contexts, teachers under fixed-term contracts may not benefit from the same statutory rights as their colleagues on permanent contracts when it comes to professional development opportunities or career and salary progressions. In addition, fixed-term contracts can result in a perceived lack of stability by the teaching staff if temporary teachers are at the risk of being replaced by a teacher with a permanent appointment. This can hamper long-term relationships teachers foster with their colleagues, leaders, students and the community, and affect school climate and collaboration (Latifoglu, 2016[21]).

Working-time arrangements (i.e. full-time or part-time) allow teachers seeking to balance their work load at differences stages of their career and give schools the possibility to adjust to changing students numbers and capacities (Boeskens and Nusche, 2021[22]; OECD, 2019[2]). That being said, full-time or part-time may play an important role in teachers' satisfaction and well-being as part-time is not a voluntary decision but the result of a shortage of permanent positions in some systems. In those scenarios, teachers may feel the need to work in multiple schools to fulfil a full-time schedule (OECD, 2019[19]; OECD, 2014[23]). Although TALIS 2018 did not collect data on the reasons why teachers chose to work part-time, TALIS 2013 showed that almost half of the teachers in lower secondary education working part-time did not have the option of working full-time (OECD, 2014[23]). In contrast, full-time teachers may wish to work part-time but cannot afford to or are concerned about losing their job (Sharp et al., 2019[24]).

The COVID-19 pandemic may also have an impact on teachers' working arrangements in that additional staff has also been often required to provide extra support to students or compensate for prolonged teachers' absences. A recent survey of the OECD countries' responses to the COVID-19 pandemic showed that only a fraction adapted their recruitment practices to minimise the impact of school closure and enable school reopening. Nine of the 28 OECD countries who monitored recruitment practices recruited temporary teachers and/or other staff to support lower-secondary students in need during the pandemic in 2020 (OECD, 2021[17]). Box 6.1 shows two of these countries, Japan and Wales (United Kingdom), which show how recruitment policies may be used to respond to the COVID-19 pandemic.

Box 6.1. Staffing policies responding to the COVID-19 pandemic

Japan: Reinforcing human resources in schools

Japan committed considerable extra resources to support the reopening of schools after the initial lockdown measures. Firstly, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) reinforced human resources for schools that were dividing classes for staggered attendance. Additional teachers enabled multiple smaller classes to run among students in the final years of primary and lower secondary education in order to allow them to receive a sufficient amount of in-person teaching. Between one and three extra instructors were employed per school to assist classroom teachers and, in regions with a high infection rate, school support staff were assigned to schools to support lesson planning, parental contact and COVID-19 related administrative tasks. Finally, school counsellors and social workers were assigned on a school-by-school basis. Japan recruited these extra staff from the pool of retired teachers, tutors, university students and other education-related staff or

actors in the community. To facilitate the process, Japan eased qualification requirements for instructors, recognising temporary special licenses.

Wales (United Kingdom)

Wales recruited 600 extra teachers and 300 additional teaching assistants throughout the academic year 2020/21. These additional staff provided support to students at the end of upper secondary school as well as disadvantaged and vulnerable learners of all ages. They supported learners taking national end-of-cycle examinations in 2021 and those most affected by school closures. Professional learning resources was provided to support new and existing teachers. Staff were recruited on a one-year fixed-term contract and expected to move into educational roles in the following school year. The support package, provided at a school level often included extra coaching support, personalised learning programmes, and additional time and resources for exam-year pupils.

Source: OECD (2020[25]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://dx.doi.org/10.1787/0a530888-en.

This section presents findings prior to the COVID-19 pandemic from the TALIS 2018 study on work modalities in primary and upper secondary education. Teachers responded about their contract duration (i.e. "permanent"; "fixed-term for more than 1 year", "fixed-term for less than 1 year") and whether they were employed on a full-time basis (i.e. 90% or more of full-time hours) or on a part-time basis (i.e. between 71% and 90% of full-time hours or between 50% and 70% of full-time hours or less than 50% of full-time hours).

Contract conditions and working-time arrangements in primary education

On average across the TALIS participants in primary education, 84% of teachers have permanent contracts, 8% have fixed-term contracts for more than one year, and 8% have a fixed-term contract for one year or less (Table 6.1). Overall, there are no large differences in these percentages across participants. The United Arab Emirates is the only country with less than half of teachers reporting having a permanent contract (42%).

It is interesting to observe that for 9 out of the 13 participant teachers with available data, teachers who do not have a permanent contract are more likely to have a less-than-one-year contract instead of more-than-one-year (Table 6.1). Countries with the highest percentage of teachers in primary education with less-than-one-year contracts are Spain (22%), Japan (17%), the United Arab Emirates (14%) and the Flemish Community of Belgium (12%).[1]

On average across the TALIS participating countries and economies in primary education, the share of teachers with a permanent contract is much higher among experienced teachers (i.e. teachers with five years of experience or more, 88%) than novice teachers (i.e. teachers with less than five years of experience, 63%) (Table 6.2). This gap is significant for all participants in primary education but the cross-country variation is quite large. The difference is over 50 percentage points in the Flemish Community of Belgium and Spain while it is less than 10 percentage points in Denmark, Korea and the United Arab Emirates. The results may be pointing to the different regulatory frameworks for recruiting teachers across countries. For example, in the Flemish Community of Belgium, where teachers are employed by school boards, all beginning teachers are recruited on a temporary basis of one year before they can be appointed to a temporary position of continuous duration and ultimately on a permanent basis (Nusche et al., 2015[26]). This case of the Flemish Community reveals a selection effect: teachers who stay in the profession eventually get a permanent contract. However, a cohort effect might also be in place where newer generations are more likely to be employed under a fixed-term contract than previous generations of teachers (Paccagnella, 2016[27]).

Although the use of fixed-term contracts for novice teachers could be an adequate measure to assess novice teachers and have flexibility in attracting a wider scope of professional without necessarily engaging in a financial commitment, it is also important to acknowledge some of the trade-offs: teachers on fixed-term contracts tend to be less protected by pension schemes; are less often awarded study leave; and less entitled to benefits and rights, including family benefits and annual holiday pay (Stromquist, 2018[28]). This can affect the attractiveness of the profession.

On average among the TALIS participants in primary education, the share of teachers on permanent-term contracts in schools with more than 30% of students from socio-economically disadvantaged homes (henceforth, "disadvantaged schools") differs significantly from the share in non-disadvantaged schools (Table 6.2). The results are significant for only 5 out of 13 participants with available data and with considerable variation across countries. For example, there is a 22 percentage-point difference in Ciudad Autónoma de Buenos Aires (henceforth CABA [Argentina]) but only a 5 percentage-point difference for Turkey. This pattern could be explained by a series of factors characterising disadvantaged schools. For example, as discussed in Chapter 2 of this report, novice teachers are more likely to work in disadvantaged schools and, at the same time, novice teachers are more likely to be employed with a fixed-term contract. Furthermore, the intention to leave teaching is also higher in disadvantaged schools (see the last section of the chapter), which could present difficulties in staffing. These schools may rely on more flexible forms of contract such as fixed-term contracts. Beyond the specific factors explaining this pattern, the fact that teachers in more challenging contexts are employed under less favourable affects the overall equity of the system as it presents an asymmetry in the opportunity of attracting quality candidates to the schools (OECD, 2019[19]).

Regarding working arrangements, on average across the TALIS participants in primary education, 84% of teachers reported that they are employed full-time (all teaching employments included) (Table 6.4). A much smaller proportion reported that they are employed as teachers between 71% and 90% of full-time hours (10%); between 50% and 70% of full-time hours (5%); or less than 50% of full-time hours (2%). More than 20% of teachers work part-time in CABA (Argentina) (30%), Viet Nam (29%), the Flemish Community in Belgium (27%) and England (United Kingdom) (23%). In contrast, in Japan, Korea and the United Arab Emirates, 90% of teachers or more reported that they are employed full-time.

The prevalence of full-time work is unevenly distributed by gender across the teacher population. In primary education, male teachers reported working full-time more often than their female colleagues (a difference of 3 percentage points on average across the TALIS participants) (Table 6.5). The countries showing a difference over 10 percentage points are England (United Kingdom) (19 percentage points), the Flemish Community of Belgium (13 percentage points) and France (11 percentage points). On the contrary, the proportion of men reporting that they work full-time is lower than for women in Korea (3 percentage points) and particularly in Viet Nam (13 percentage points).

This pattern is not at odds with trends observed in other professions. Indeed, women are more likely to work part-time than men since they are more likely to take care of most of the childcare work (OECD, 2017[29]). Working part-time could be a decision of female workers to balance their professional personal and professional life. The cross-country variation in this pattern might be explained by institutional differences in teaching career and labour as well as cultural norms. For example, in some settings, the use of part-time contracts could be used as family-friendly working-time arrangements, and helps groups with traditionally low labour-force participation, such as mothers, to remain in work (Boeskens and Nusche, 2021[22]).

That being said it would be important to examine if this imbalance in the working commitment between male and female workers could affect the career progression of women in primary education. Indeed, evidence has pointed to the association between part-time and penalties in terms of pay, job security, benefits, promotion and training (OECD, 2017[29]). Indeed, there is a strong negative relation between the proportion of female teachers working part-time and the proportion of women working as a school leader

(the linear correlation coefficient is r=-1, based on 13 education systems with available data) (Tables 2.12 and 6.4). This means that at a system level a higher proportion of women working as a school leader is accompanied by a lower proportion of women working part-time. These estimates should be interpreted carefully as they are conservative estimates at the country level.

Regarding teaching experience, the proportion of experienced teachers who reported that they are employed full-time is significantly higher for novice teachers on average by two percentage points (Table 6.5). That being said, the breakdown by participants shows that cross-nationally, teachers engage in full-time working positions at different stages of their career. From higher to lower values, the countries showing that experienced teachers are more likely to work full-time than novice teachers are Spain (22 percentage points), France (11 percentage points), CABA (Argentina) (9 percentage points) and Korea (4 percentage points). In contrast, the proportion of experienced teachers reporting full-time employment is significantly lower than novice teachers for England (United Kingdom) (23 percentage points) and the Flemish Community of Belgium (8 percentage points). The results might reflect specific institutional configurations of the labour market in each system. For example, in CABA (Argentina), France, Korea and Spain, novice teachers might have more difficulties in finding available full-time position while in England (United Kingdom) and the Flemish Community of Belgium more experienced teachers seek to reduce their hours as they approach retirement (Boeskens and Nusche, 2021[22]).

In four education systems with available data for primary education, full-time employment is significantly more frequent among teachers in city schools (school in locations with over 100 000 people) than among their colleagues in rural or village schools (school in locations with up to 3 000 people) (Table 6.5). In England (United Kingdom), the Flemish Community of Belgium and Viet Nam, the difference between the shares of teachers working full-time in city schools and rural or village schools is at least of 10 percentage points. In contrast, in Turkey, teachers in rural or village schools are significantly more likely to report being employed on full-time contracts than their colleagues in city schools. The difference may correspond to geographical labour opportunities and changing demographics in the student population in rural areas in relation to urban areas.

Schools with over 30% of students from socio-economically disadvantaged homes also exhibit a significantly higher share of full-time teachers than other schools in France (17 percentage point difference), Sweden (6 percentage points), England (United Kingdom) (5 percentage points) and the United Arab Emirates (3 percentage points) (Table 6.5). This is, overall, a positive result as it shows teachers' dedication to schools with greater needs as full-time teachers spend more time face-to-face with their students and have more opportunities for interaction with parents and community. In contrast, in Viet Nam, the share of full-time teachers in school with a high concentration of disadvantaged students is 6 percentage points lower than in schools with a lower concentration of these students.

TALIS 2018 analysis conducted for lower secondary education spotlights some risk part-time working arrangements can present to effective teaching. These include the negative association between part-time work and level of self-efficacy (OECD, 2019[30]). One of the aspects that might be jeopardised is teachers' ability to establish professional collaboration networks within their school – one of the key characteristics of an effective educational system. But can this be established when some teachers work with less time commitment than others?

Regression analyses were conducted to examine the assumption that part-time teachers may not engage frequently and effectively in professional collaboration activities. The scale of professional collaboration[2] in lessons among teachers is regressed on teachers working full-time in their schools. The regression is controlled by type of contract, gender and age. For 6 out 13 countries with available data there is a positive association between teachers working full-time in their schools and participation in professional collaboration. The association between the contractual time engagement and collaboration is not all that conclusive as results are significant for less than half of the countries. On the other hand, more can be

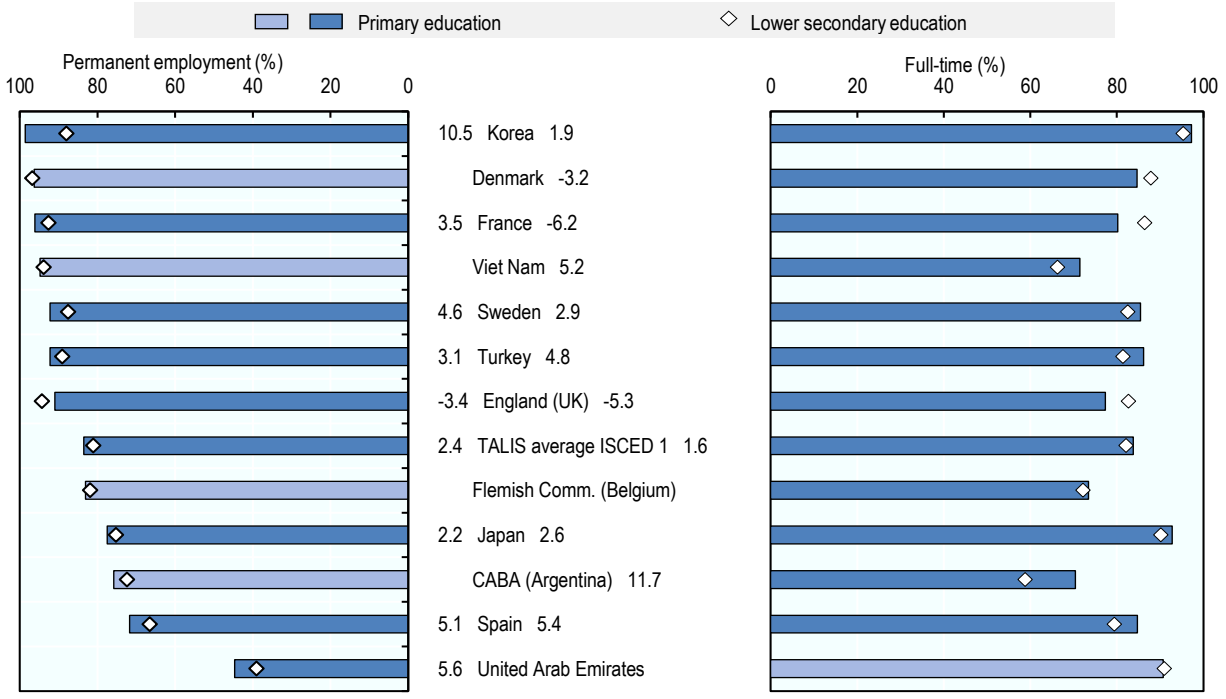
done to foster conditions to support teacher collaboration in schools, irrespective of their part-time/full-time status (Table 6.7).

How do primary and lower secondary levels compare?

In comparing the contractual and working arrangements of teachers across levels it is possible to note that permanent contracts are more prevalent among teachers in primary education than lower secondary education, although the average difference is small (an average difference of 2 percentage points) (Figure 6.1 and Table 6.1). The differences are particularly pronounced in Korea where 99% of teachers in primary education have a permanent contract in contrast to 88% in lower secondary education. In England (United Kingdom), the share of teachers in primary education with permanent contract is significantly lower than in lower secondary education (3 percentage points of difference).

Figure 6.1. Teachers' working arrangements in primary education

Percentage of teachers reporting having the following working arrangements



Note: Statistically significant differences between primary education and lower secondary education are shown in a darker tone. The values of these differences are indicated before (permanent employment) and after (full-time) the country/economy name.
Countries and economies are ranked in descending order of the percentage of teachers with a permanent contract in primary education.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/8vro2x

A similar pattern can be observed for teachers working full-time since the share of teachers working full-time is higher in primary education than lower secondary education, although by a small margin (an average difference of 2 percentage points) (Table 6.4). The contrast is particularly remarkable for CABA (Argentina) where 70% of teachers in primary education work full-time in contrast to just 59% in lower secondary education. On the contrary, the share of teachers in primary education working full-time is significantly lower in Denmark (3 percentage points of difference), England (United Kingdom) (5 percentage points of difference) and France (6 percentage points of difference).

The bottom line is that jobs in primary education seem somewhat more stable than in lower secondary education but might be lacking in the contractual flexibility exhibited in lower secondary education, particularly for some countries. The marginal prevalence of more flexible working arrangements in lower secondary could be explained by a greater demand in secondary education for specialist expertise, which can be addressed through part-time arrangements (Sharp et al., 2019[24]) (see Chapter 3).

Contract conditions and working arrangements in upper secondary education

Regarding upper secondary education, there is a predominance of permanent contracts, although in lower shares compared with lower secondary or primary. On average across the TALIS participants in upper secondary education, 80% of teachers have permanent contracts; 10% have fixed-term contracts for more than one year; and 10% have a fixed-term contract for one year or less (Table 6.1). In most countries, more than 80% of teachers have permanent contracts with the exceptions of Brazil (78%), Portugal (72%) and the United Arab Emirates (38%).

On average across the TALIS participating countries in upper secondary education, the proportion of teachers employed on a permanent contract is much higher among teachers with more than five years of experience (85%) than novice teachers with less than five years of experience (56%) (Table 6.3). This gap is significant for all participants in upper secondary education with the exception of the United Arab Emirates. The difference is over 50 percentage points in Portugal and Slovenia while it is the lowest in Denmark with a 17 percentage-point gap. The results might respond to different institutional configurations on the use of this type of contract. These results may obey a cohort effect (the implementation of fixed-term contracts have changed over time with new generations of teachers being particularly affected) or a selection effect (teachers with more experience are rewarded with permanent contracts as part of their career structure) (Paccagnella, 2016[27]). Beyond these possible explanations, participants should be mindful of some of the risks of relying too much on fixed-term arrangements for novice teachers: the risk of attrition is more common among beginning teachers and unstable job security could further aggravate this situation.

On average across the TALIS participants in upper secondary education, 81% of teachers reported that they are employed full-time (all teaching employments included) (Table 6.4). A much smaller proportion reported that they are employed as teachers between 71% and 90% of full-time hours (9%); between 50% and 70% of full-time hours (6%); or less than 50% of full-time hours (4%). For most countries, more than 80% of teachers work full-time in upper secondary education with the exception of Brazil (46%) and the Viet Nam (74%). The results for Brazil are explained by the fact that 20% of teachers work in more than one school (OECD, 2021[31]).[3]

In upper secondary education, the same pattern already apparent in primary education is seen, where male teachers more often than their female colleagues reported working full-time (a difference of 3 percentage points on average across the TALIS) (Table 6.6). The countries showing these differences between men and women are Alberta (Canada) (8 percentage points of difference), Brazil (6 percentage points), Denmark (14 percentage points) and Sweden (7 percentage points). In contrast, in Viet Nam, the proportion of men reporting that they work full-time is 5 percentage points lower than for women. In addition, the proportion of experienced teachers who reported that they are employed full-time is significantly higher than for novice teachers for most participants except Alberta (Canada), Turkey, the United Arab Emirates and Viet Nam. The results might be attributed to female workers' working preferences as part-time contracts may be a more family-friendly working-time arrangement. They also help groups with traditionally low labour force participation, such as mothers, to remain in work (Boeskens and Nusche, 2021[22]).

That being said it would be important to examine if this imbalance in the working commitment between male and female workers could affect the career progression of women in primary education. Indeed, evidence has pointed out the association between part-time and penalties in terms of pay, job security,

benefits, promotion and training (OECD, 2017[29]). There is a mild negative relation between the proportion of female teachers working part-time and the proportion of women working as a school leader (the linear correlation coefficient is r=-0.42, based on 11 education systems with available data) (Tables 2.12 and 6.4). This means that at a system level a higher proportion of women working as a school leader is accompanied by a lower proportion of women working part-time. These estimates should be interpreted carefully as they are conservative estimates at the country level and bear further examination.

Overall, in upper secondary education it is possible to observe a common trend with primary education (see previous section) and with lower secondary education (OECD, 2020[32]): there is a predominance of permanent contract and full-time working arrangements across the teaching profession. Although this predominance has a certain degree of variation by teacher characteristics such as gender and experience, these differences by type or the location of schools were not observed for upper secondary education, unlike primary education.

As the assumption that part-time teachers may not engage effectively in professional collaboration activities was examined for primary education, regression analyses were conducted for upper secondary education, as well. The scale of professional collaboration (see Note 1) in lessons among teachers is regressed on teachers' working full-time, controlling for other teachers' characteristics (gender, age, employment status). A significant negative association between teachers working part-time up to 70% and professional collaboration was found in just 2 out of the 11 countries with available data. The absence of a strong pattern across participants seems to show that types of contractual arrangements do not impede effective forms of collaboration (Table 6.8).

How do upper secondary and lower secondary levels compare?

TALIS data show that management of the teaching workforce is similar across lower and upper secondary education. Across these educational levels, there are no significant differences observed between the share of teachers with permanent contracts or working full-time (Tables 6.1 and 6.4).

Allocation of working hours

The effective use of working hours is a critical resource for education systems and schools to be able to achieve their educational goals. The decision of how a teacher should spend their hours is not always straightforward and an additional hour spent on teaching or instruction planning may have different consequences for the cost and quality of the learning process (Boeskens and Nusche, 2021[22]). It is important to note that the work of teachers is not limited to just classroom instruction; it also involves all the tasks supporting that instruction such as lesson planning, marking and other endeavours. In addition, increasingly, teachers are expected to be involved in areas not directly related to instruction but still considered fundamental such as engaging in extracurricular activities, counselling students, and being involved in administrative work. More often than not, these tasks compete with each other within the limited hours in a week of work. This can lead to stress and burnout (Viac and Fraser, 2020[3]).

In many OECD school systems, the regulation of teacher working hours is based on narrow conceptions of the profession, taking into account mainly or solely the amount of time teachers spend on teaching while vaguely defining the amount of time spent in non-teaching tasks (Boeskens and Nusche, 2021[22]; Nusche et al., 2015[26]; OECD, 2019[2]; Santiago et al., 2016[33]). Such systems do not adequately recognise the importance of the tasks teacher devote outside of the classroom, which can lead to teachers working excessive hours or not finding enough time to fulfil all their tasks (OECD, 2019[2]).

Teaching time and non-teaching time (e.g. the amount of time devoted to planning) is a product of national working regulations and school culture. In some countries, time spent on planning and lesson preparation may be a part of the mandated time schedule of teachers, whereas in other countries, time spent on this task may be due to teachers' discretion and can engage in it voluntarily at home or in informal spaces. Indeed, a recent study using TALIS 2018 evidence shows that there is significant variability in the weekly

teaching hours observed within some countries for lower secondary teachers (Boeskens and Nusche, 2021[22]). While for some countries (e.g. France, Sweden), the amount of time teachers spend on teaching falls around 3 hours on average (therefore indicating a relative low variance in the amount of teaching hours), in other countries (e.g. Alberta (Canada), Australia, Turkey) the amount of time spent on teaching falls around 12 hours on average (therefore indicating a relatively high variance in the amount of teaching hours).

Evidence has shown that spending time on lesson preparations is highly beneficial for the quality of instruction and may have an impact on student learning (Boeskens and Nusche, 2021[22]; Hargreaves, 1992[34]; Paniagua and Istance, 2018[35]). Preparation time helps teachers cope more effectively with these changes (OECD, 2019[19]). At the same time, some caution in interpretation is needed when observing a low or reduced number of hours devoted to planning and instruction as they might actually reflect teachers' experience and effective time allocation across their tasks. Teacher preparation has become more effective through the use of technology. Increasingly, courses are prepared on computers and can more easily be updated. There are more opportunities for sharing course materials and artefacts with other teachers through the Internet and social media (Paniagua and Istance, 2018[35]) In addition, more experienced teachers may need to spend less in actual class preparation due to acquired skills and know-how. The time spent on planning and preparation depends on the number of similar classes a teacher teachers; if the same lesson is replicated across student groups, then preparation is more efficient compared to lessons that cannot be replicated – which is usually the case in primary education.

Adequate understanding of the different tasks carried out by teachers along with their time allocation becomes especially imperative in the context of the COVID-19 pandemic. Evidence shows that increasing actual class time was the least used approach in high-income countries as a support measure (UNESCO, UNICEF, World Bank, 2020[36]). The sudden requirement for distance learning meant additional planning was required to transform face-to-face lessons into an online setting. Also, many teachers went through these adaptations without having the required training and tools to navigate digital instruction. The most recent survey of the OECD on how countries have responded to the COVID-19 pandemic revealed that 18 OECD countries provided nationwide guidelines for reducing the amount of overtime required to prepare a virtual classroom (OECD, forthcoming). Box 6.2 shows how Portugal has implemented a reallocation of hours to support the learning recovery of students.

Box 6.2. Portugal: School action plans for the recovery and consolidation of learning

Portugal has directed schools to focus the first five weeks of the new school year on learning recovery. All schools must develop an Action Plan for the Recovery and Consolidation of Learning (*Plano de Atuação para a recuperação/consolidação das aprendizagens*) that guides teaching and learning throughout the year, intensively so in the first weeks, and should be flexible enough to withstand possible future closures. To support schools, the government has produced a set of guidelines for the organisation of the school year along with a comprehensive roadmap for recovery and consolidation, which includes example activities and learning tools and approaches for schools. Specific support measures include an increase in hourly credits – the time allocated to schools for non-teaching-related activities including management, mentoring, tutoring and personalised learning as well as teacher planning and collaboration – for the academic year 2020/21. The extra time must be used exclusively for activities related to learning recovery and consolidation. Portugal has also extended the Specific tutorial support programme – originally reserved for students in secondary education who have repeated a year twice – to all students who did not pass the school year in 2019/20. All schools must also establish a peer mentoring programme in which volunteer mentors from the student body are paired with student mentees.

Source: OECD (2020[25]), *Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems*, https://dx.doi.org/10.1787/0a530888-en.

TALIS 2018 data make it possible to know, based on teachers' reports, how many 60-minute periods they spent working in total and on various tasks in their school during the most recent complete calendar week prior to the survey (including tasks that took place during weekends, evenings or other out-of-class hours) and before the crisis. This section will provide a description of the areas teachers devote the most time to and how they compare to each other.

Teaching, planning and marking in primary education

On average across the TALIS participants in primary education, full-time teachers spend 41.5 hours per week on all the tasks related to their job in their surveyed school, of which 22.7 hours are devoted to teaching[4] (Table 6.9). In other words, teachers spend slightly more than half of their working time teaching classes (55%).

It is important to note that there is a great degree of variation in the share of teaching hours across countries. The lowest shares (less than 50% of the total teacher working hours) are observed in England (United Kingdom) (24.3 teaching hours out of 52.2 total working hours), Japan (23.5 teaching hours out of 55.9 total working hours), Sweden (20.2 teaching hours out of 43.7 total working hours) and Viet Nam (22 teaching hours out of 44.4 total working hours) while the highest shares (equal or above 60%) are found in CABA (Argentina) (23.5 teaching hours out of 38.9 working hours), Korea (20.4 teaching hours out of 32.5 total working hours), Spain (23.5 teaching hours out of 36.1 total working hours), Turkey (26.3 teaching hours out of 31.9 total working hours) and the United Arab Emirates (24.4 teaching hours out of 39.3 total working hours) (Table 6.9). These differences result from the way teachers' hours are regulated, which varies among countries as well as from the country-specific school culture among other factors – see *Education at a Glance* (OECD, 2020[37]) indicators of the teaching hours per system in Table A B.5.

The next two most time-consuming activities in teachers' work are planning, lesson preparation, marking, and correcting student work. On average across the TALIS participants in primary education, teachers spend 6.7 hours a week on planning and lesson preparation (the equivalent of 16% of their total working time) (Table 6.9). At the lower end of the cross-national variation, teachers in Turkey dedicate the equivalent of 10% of their total time to preparing for classes while teachers in Denmark, France, Korea and Viet Nam spend the equivalent of 18% to 20% of their total working time on preparation.

Regarding time devoted for marking and correcting student work, teachers spend 4.3 hours a week on marking and correcting (the equivalent of 10% of their total working time). There are some sharp cross-country variations in the way teachers distribute their time; for example, in the share of time spent on marking and correcting student work, CABA (Argentina) and the United Arab Emirates spent the equivalent of 15% and 13%, respectively, on this task while in Denmark, teachers on average spent only 4% of their total working hours on these tasks. Recent evidence coming from the TALIS-PISA link study showed that, on average, the more time teachers spend on marking and correcting student work, the stronger students' self-concept of doing well on the Programme for International Student Assessment (PISA) test (e.g. their degree of confidence that they will perform well in the PISA test) and expectation of pursuing tertiary studies. While the findings are slightly less robust on student achievement, they also suggest that the more hours teachers spend on marking and correcting student school work, the better it is for student performance (OECD, 2021[38]). That being said, there is an important cross-country variation in the significance of this association across the participants in the TALIS-PISA link. A possible explanation is that "marking" can take multiple forms: it can be a validation of students' responses or a more formative process where there are concrete opportunities for students to correct and respond to their marking. This may show that it is not so much the total time devoted to marking and correcting students but that students are also involved in these evaluations that encourages their growth.

The relationship between the amount of time devoted to teaching, planning and marking deserves further inspection. A more detailed analysis into lower secondary TALIS 2018 data show that on average across

the OECD countries a gain of an hour in teaching comes at the expense of reduced time for planning and marking (Boeskens and Nusche, 2021[22]). The data for primary education seem to show the same association since there is a negative correlation between the hours devoted to teaching and the hours devoted to planning (the linear correlation coefficient is r= -.40, based on 13 education systems with available data) and marking and correcting student work, although quite weak (the linear correlation coefficient is r= -.09, based on 13 education systems with available data) (Table 6.9). Even though planning and marking are considered non-teaching tasks, they are undoubtedly important in quality instruction. Therefore, it is crucial to find the correct balance between these different tasks.

Another set of tasks corresponds to duties that teachers are expected to meet but do not necessarily contribute to quality instruction. Such is the case of time spent on general administrative work, 2.8 hours a week are spent on this tasks (the equivalent of 7% of the total working hours) (Table 6.9). This proportion can reach up to 13% in Korea to 2% for France. It is relevant to monitor the amount of time allocated to administrative work as previous TALIS analysis has shown that teachers' stress levels are quite sensitive to each additional hour spent on administrative work (OECD, 2020[32]).

In addition, teachers spend 2.1 hours a week counselling students (the equivalent of 5% of total working hours) and 1.2 hours in extracurricular activities (the equivalent of 3% of total working hours). Although time spent on extracurricular activities is not be directly related to good teaching, TALIS-PISA link analyses show that the more time teachers spend on extracurricular activities, the more students feel that the classroom is disciplined and the teacher is interested and motivated to teach (Table 6.9). These student are also more likely to expect to complete at least a tertiary degree. Time spent with students outside of regular classroom hours is particularly effective in establishing and nurturing good relationships with students (OECD, 2021[38]).

In recognition of the trade-offs between non-teaching and teaching time, education systems can provide a framework for regulating how teachers' instruction hours can be modified if they are assigned additional tasks outside the classroom such as counselling students or participating in extracurricular activities. A recent OECD review of 35 countries found that 16 of them always or sometimes reduce the teaching time of teachers who take on school management tasks. However, it is less common to reduce teaching hours to compensate for tasks directly related to teaching such as planning and marking (Boeskens and Nusche, 2021[22]). Indeed, this might not be the best approach as it can come across as undermining the quality of instruction and delegating these tasks to other school staff damages the profile of teachers as professionals. In order to make teachers' planning and marking time more productive, structured collaboration with peers may be a more promising strategy in saving teachers' time than disengaging from these tasks altogether (Boeskens, Nusche and Yurita, 2020[39]).

Many education systems are required by legislation to have additional support staff such as teaching assistants, special needs educators, career counsellors, health professionals, and social workers in primary education. In particular, France, Japan, Korea, Sweden, Turkey and the United Arab Emirates have a considerably diverse profile of professionals working in their schools (see Table A B.5). This allows holistic support to be provided to students and teachers to focus mainly on instruction.

Principals can also play a role in supporting their teachers in their core work, i.e. teaching. TALIS asks school principals about the proportion of time they spend on various activities throughout the school year. Among the six activities listed in the principal questionnaire, one is closely related to supporting teaching in their school: "curriculum and teaching-related tasks and meetings" (Table 6.15). On average across the TALIS participants in primary education, principals reported spending 20% of their working time on this type of activity. This makes it one of the most time-consuming task of principals after administrative tasks and meetings (26% of principals' working time) and leadership tasks and meetings (20%). There are also substantial cross-country differences in the way school leaders use their time. School leaders spend a higher share of their time on curriculum and teaching-related tasks in Viet Nam (28%) and Korea (25%) and the lowest percentage in Denmark and Sweden (13% for both). The amount of time spent on tasks

that can be understood as a form of instructional leadership (see Chapter 5), may respond to specific organisational patterns that vary cross-nationally. A recent analysis of TALIS 2018 data found that among the study participants different typologies of school leaders are predominant depending on the balance of administrative tasks and instructional and distributed leadership (Bowers, 2020[40]).

Several factors can drive teachers' amount of time spent on teaching tasks. In order to explore this association total teaching hours are regressed to class size, student to teacher ratio, and pedagogical personnel to teacher ratio, controlling for crucial teacher and school characteristics such as full-time employment. The results show that none of the predictors had a consistent result across participants. There is a positive association between the student-teacher ratio at the school level and teaching hours in 4 out of the 13 participants with available data, meaning that in schools where there are more students per each individual teacher, it is likely that teachers spend more hours teaching (see Table 6.12).

However, the variables related to teachers' socio-demographic characteristics, like gender and teaching experience, show a more interesting pattern. Female teachers are more likely to teach more hours than their male colleagues in 6 out of the 13 countries with available data (Table 6.12). The results point to particular gender configurations of the workload. For example, it could be that male teachers are more likely to split their time in other non-teaching tasks than female colleagues, such as administrative work.

In addition, the more experience a teachers have in their work the lower the number of hours they spend on teaching; that is the case for 5 out 13 countries with available data in primary education (Table 6.12). The results are understandable since more experienced teachers are more likely to devote time in non-teaching tasks (e.g. being a mentor or counsellor of students; taking on an administrative role) than less experienced teachers. That being said, results do point out as well that less experienced teachers spend more time teaching classes so necessary monitoring and support is needed to avoid classroom situations overwhelming individuals who are new to the profession.

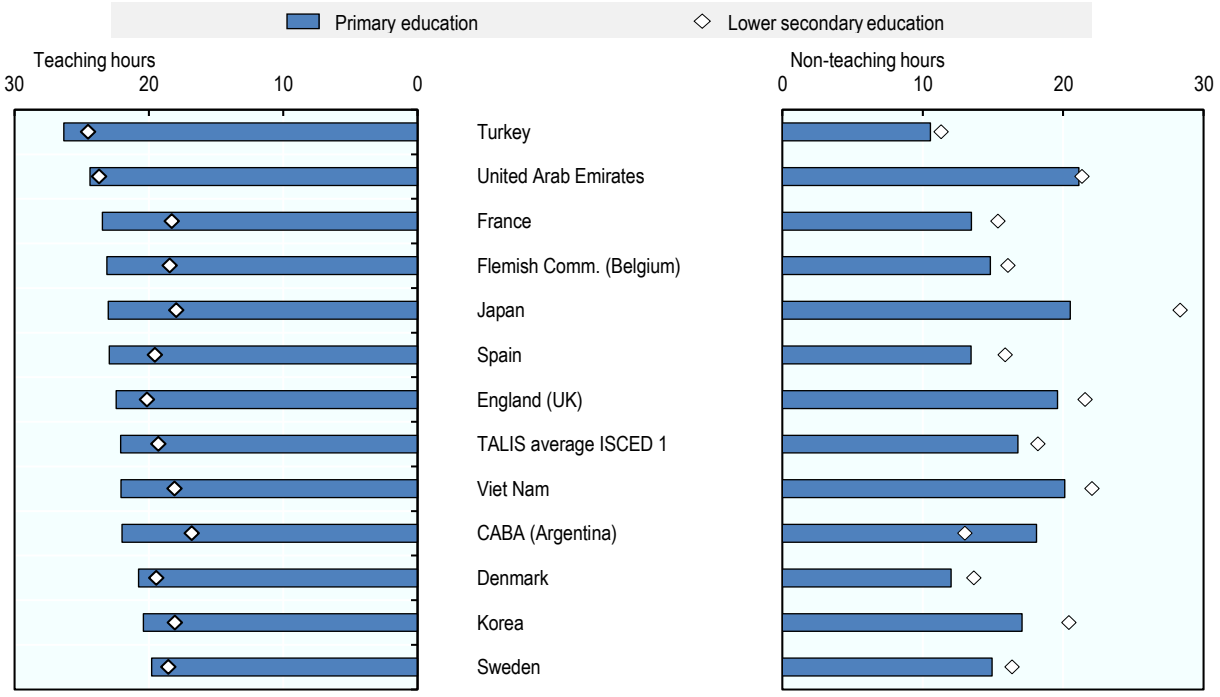
How do primary and lower secondary levels compare?

In comparison to lower secondary education, teachers reported a higher number of working hours in total in their last week of work prior to the survey and more hours devoted to teaching. Also, the total working hours allocated to teaching is 1 hour higher for primary education than in lower secondary education (55% of the total working hours in primary education in contrast to 49% of the total working hours in lower secondary education). On average across the participating countries with available data in both levels, teachers in primary education spend one additional hour working in total that their colleagues in lower education and 2.9 hours more in actual teaching (Figure 6.2 and Table 6.9). The differences in amount of time devoted to teaching are particularly pronounced for CABA (Argentina), the Flemish Community of Belgium, France and Japan, where the gap is around 5 hours or higher for teaching.

Given the trade-off between teaching and non-teaching tasks, the amount of time teachers in primary education spend in planning, marking, student counselling, administrative work and extracurricular work is significantly lower than for their colleagues in lower secondary education, although these difference are quite marginal (less than 0.5 hours) (Table 6.9). The most outstanding case in the cross-level comparison is CABA (Argentina), where the amount of time allocated to all tasks – teaching and non-teaching alike – is consistently higher than for their colleagues in lower secondary education by at least 1 hour with the exception of engaging in extracurricular activities amounting to a total of 8.6 additional total working hours for teachers in primary education.

Figure 6.2. Teachers' teaching and non-teaching hours in primary and lower secondary education

Average number of working hours (i.e. 60-minute hours) that full-time teachers spent on the following during the most recent complete calendar week



Notes: A "complete" calendar week is one that was not shortened by breaks, public holidays, sick leave, etc. It also includes tasks that took place during weekends, evenings or other out-of-class hours.
Analysis restricted to full-time teachers only.
Countries and economies are ranked in descending order of the number of hours primary education teachers report they spend teaching.
Source: OECD, TALIS 2018 Database.

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Teaching, planning and marking in upper secondary education

On average across the TALIS participants in upper secondary education, teachers (full-time) spend 40.2 hours per week on all the tasks related to their job in their surveyed school of which 20.4 hours are devoted to teaching (see Note 3) (Table 6.9). Just like in primary education, teachers spend slightly more than half of their working time teaching classes (51%). The lowest shares (less than 50% of the total teacher working hours) are observed in Croatia, Denmark, Portugal, Sweden and Viet Nam. In contrast Brazil and Turkey are the only participants where teachers' hours dedicated to teaching exceeds 60% of the total working hours in a week (65% and 71%, respectively). As mentioned in the previous section, these differences may result from the way teachers' hours are regulated, which varies among countries, as well as the country-specific school culture, among other factors – see indicators of the teaching hours per system drawn from *Education at a Glance* (OECD, 2020[37]) in Table A B.5 of this report.

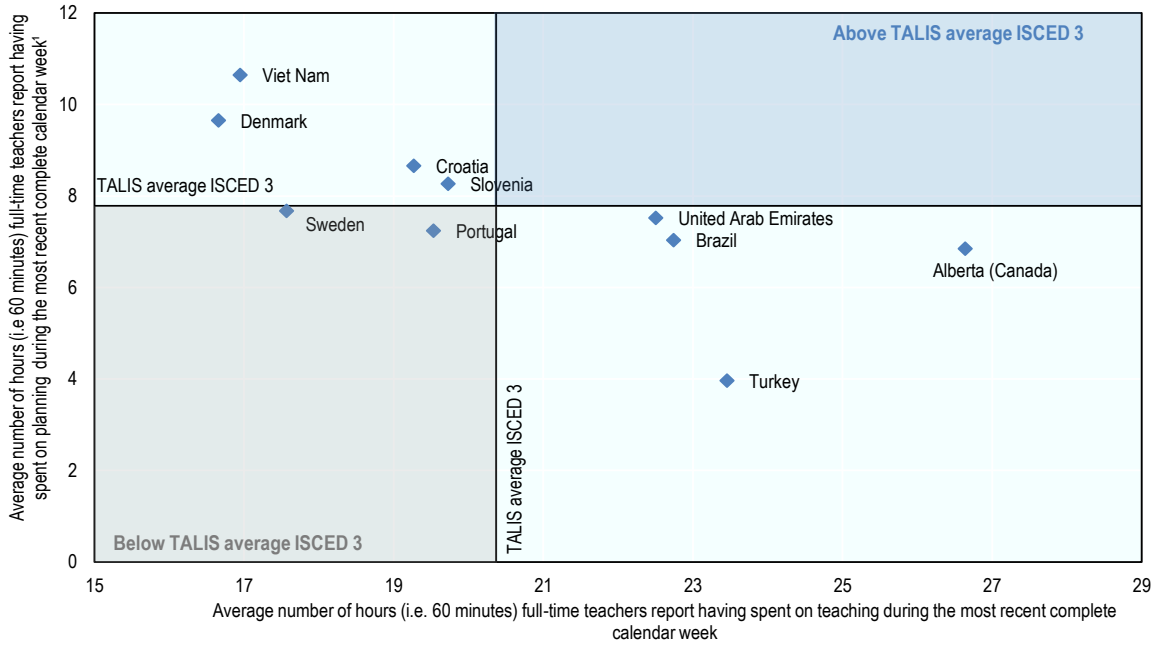
The next two most time-consuming activities in teachers' work for upper secondary education are planning, lesson preparation, marking, and correcting student work. On average across the TALIS participants in upper secondary education, teachers spend 7.8 hours a week on planning and lesson preparation (the equivalent of 19% of their total working time) and five hours a week on marking and correcting (the equivalent of 12% of their total working time). There are some interesting variations in the way teachers

distribute their time; in Croatia, Denmark, and Viet Nam, teachers devote around 22-25% of their time preparing lessons whereas teachers in Alberta (Canada) only allocate 14% of their time to these tasks. Just as in primary education Denmark and Viet Nam have the highest share of time devoted to lesson preparation. This indicates flexible institutional arrangements across educational levels. Regarding the time spent on marking and correcting the work of students, it is possible to observe a great degree of variation across participants, ranging from 18% of the total working time in Portugal to only 7% of the share time in Turkey (Table 6.9).

As mentioned in the section on primary education, there can be a trade-off between the time devoted to teaching and the time needed for marking and correcting student work. The same pattern can be observed for upper secondary education as there is a negative correlation between the hours devoted to teaching and lessons planning (Figure 6.3, the linear correlation coefficient is r= -.71, based on 11 education systems with available data), and marking and correcting student work, although quite weak (the linear correlation coefficient is r= -.22, based on 11 education systems with available data) (Table 6.9).

Figure 6.3. Average number of hours devoted to teaching and planning in upper secondary education

Results based on responses of teachers in upper secondary education



1. A “complete” calendar week is one that was not shortened by breaks, public holidays, sick leave, etc. It also includes tasks that took place during weekends, evenings or other out-of-class hours.
Source: OECD, TALIS 2018 Database.

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On general administrative work, 2.7 hours of a general working week (the equivalent to 7% of their total working time) is spent on these tasks on average among the TALIS countries participating in upper secondary education. The highest shares, between 8 and 9% of the total share of working hours, can be identified in Slovenia, Sweden and the United Arab Emirates. Regarding other non-teaching activities teachers spend 2.5 hours a week counselling students (the equivalent of 6% of total working hours) and 1.9 hours on extracurricular activities (the equivalent of 5% of total working hours) (Table 6.9).

TALIS asked school principals about the proportion of time they spend on various activities throughout the school year. Among the six activities listed in the principal questionnaire, one is closely related to supporting teaching in their school: "curriculum and teaching-related tasks and meetings" (Table 6.15). On average across the TALIS participants in upper secondary education, principals reported spending 17% of their working time on this type of activity. This makes it the third most time-consuming task of principals after administrative tasks and meetings (28% of principals' working time) and leadership tasks and meetings (22%). School leaders spend a higher share of their time on curriculum and teaching-related tasks in Viet Nam (24%) and the United Arab Emirates (20%) and the lowest percentage in Sweden, Portugal and Turkey (13-14%). As was the case in primary education, spending time in those tasks most related to teaching may not be the top priority for principals but this may have to do with the different national configurations of principals' role and profiles.

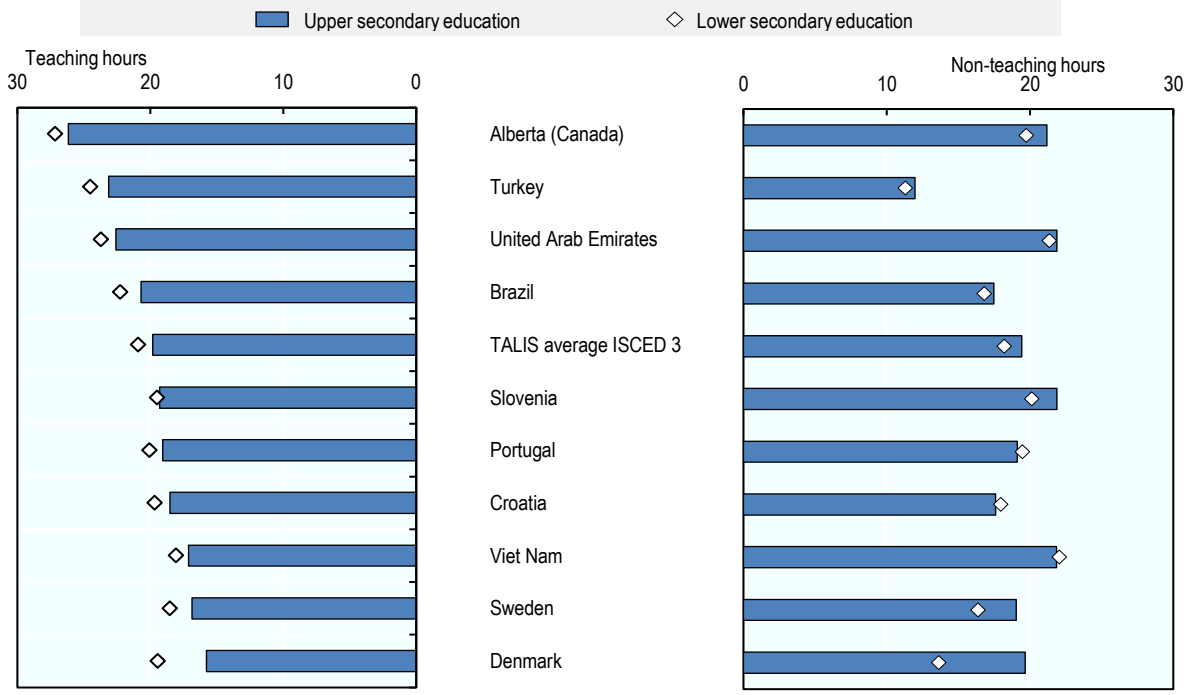
As for primary education, the associations between total teaching hours and class size, student-to-teacher ratio, and pedagogical personnel-to-teacher ratio are explored, controlling for crucial teacher and school characteristics. As was the case for primary education, teaching experience shows a significant association with the total number of teaching hours; that is, the more years of experience, the lower the number of hours devoted to teaching. That is the case for 5 out of the 11 countries and economies with available data (Table 6.13). This pattern could be explained by teachers' professional trajectories: as they become more experienced they allocate more hours to non-teaching tasks (e.g. mentorship, counselling, administrative tasks).

How do upper secondary and lower secondary levels compare?

In comparison to lower secondary education, teachers in upper secondary education reported a lower number of hours devoted to teaching; on average across countries participating in both levels, teachers in upper secondary spend 1.1 hours less in teaching than their colleagues in lower secondary education (Figure 6.4 and Table 6.9). Teachers in upper secondary spend more time in lesson planning and marking and counselling than their colleagues in lower secondary education, although these differences on average are less than one hour. For other tasks such as administrative work and extracurricular activities, there are no significant differences between upper secondary and lower secondary.

Figure 6.4. Teachers' teaching and non-teaching hours in upper and lower secondary education

Average number of working hours (i.e. 60-minute hours) that full-time teachers spent on the following during the most recent complete calendar week



Notes: A "complete" calendar week is one that was not shortened by breaks, public holidays, sick leave, etc. It also includes tasks that took place during weekends, evenings or other out-of-class hours.
Analysis restricted to full-time teachers only.
Countries and economies are ranked in descending order of the number of hours upper secondary education teachers report they spend teaching.
Source: OECD, TALIS 2018 Database.

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Satisfaction with the current working environment and the profession

This section examines how satisfied teachers are with their current working environment and profession. Job satisfaction can be understood as the sense of fulfilment and gratification teachers get from their occupation (Ainley and Carstens, 2018[41]). High levels of job satisfaction have a positive association with teachers' performance (Lortie, 1975[42]; Renzulli, Macpherson Parrott and Beattie, 2011[43]) and self-efficacy (Mostafa and Pál, 2018[9]), and it has strong implications for retention, attrition, absenteeism, burnout, commitment to education goals and teachers' job performance (Brief and Weiss, 2002[44]).

Job satisfaction can be analytically divided into two areas: satisfaction with the current work environment and satisfaction with the profession. Research evidence has shown the relevance of distinguishing one from the other as teachers tend to express satisfaction with elements directly related to teaching but dissatisfaction with elements related to working conditions (Crossman and Harris, 2006[45]). Teachers could be satisfied with the teaching profession because it fulfils their personal goals but, at the same time, dissatisfied with their current job and working conditions (Viac and Fraser, 2020[3]).

In addition, the most important motivations for teachers to join the profession are related to the sense of fulfilment they derive from serving the public, for example, by influencing children's development and contributing to society. Salary and working conditions influence teacher decisions not only to join the profession but also to stay (Bruns, Filmer and Patrinos, 2011[20]).

Schools and education systems need to offer attractive conditions to their staff both in absolute terms and relative to other jobs requiring similar qualifications. In addition, in a variety of countries and economic sectors, employees' satisfaction with their salaries also depends on the compensation structure, the related incentives and the mechanisms for the remuneration of performance implicit in appraisal systems.

This section will present information on teachers' and principals' satisfaction with their salary and the other terms of their employment as collected through the TALIS survey. TALIS 2018 measures job satisfaction among teachers by asking their level of agreement ("strongly disagree"; "disagree"; "agree"; or "strongly agree") with a set of specific statements covering both positive and negative connotations of their current work environment and their profession.

Job satisfaction in primary education

On average in primary education, a large majority of teachers responded to the following positive or negative statements: "the advantages of being a teacher clearly outweigh the disadvantages" (77% "agree" or "strongly agree"); "if I could decide again, I would still choose to work as a teacher" (77% "agree" or "strongly agree"); "I wonder whether it would have been better to choose another profession" (67% "strongly disagree" or "disagree"); and "I regret that I decided to become a teacher" (91% "strongly disagree" or "disagree") (Table 6.16). More than two-thirds of teachers (over 66%) supported these four indicators in CABA (Argentina), the Flemish Community of Belgium, Spain and Viet Nam.

Despite this overall high percentage of teachers in primary education being satisfied with their work, it is important to look closer at the cross-national variation. For example, 52% of the teachers in primary education in France do not agree that "the advantages of being a teacher clearly outweighs the disadvantages" while 46% of teachers in Denmark and 45% in Turkey "wonder whether it would have been better to choose another profession" (Table 6.16). Having almost half of the workforce wondering about choosing another profession signals dissatisfaction with the teacher profession as a whole in these countries.

If a response of "wonder whether it would have been better to choose another profession" can be interpreted as a proxy measure of teachers' desire to remain in the profession, part of the cross-national variation could arise from differences in the vibrancy and diversity of the broader labour markets and, hence, availability of attractive, alternative career options open to teachers in different countries and economies. Nonetheless, several age-related factors could explain this pattern. From a human capital perspective, younger teachers have accumulated less knowledge and fewer skills that are specific to the occupation. This could make them less risk-averse and more willing than their more senior colleagues to explore other professional paths.

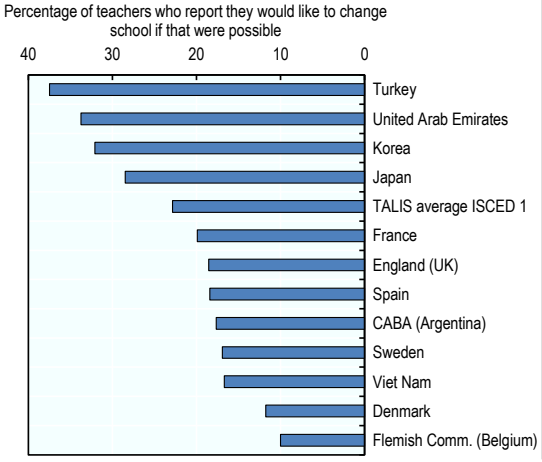
TALIS also asks teachers about their satisfaction with their current job and work environment. The results display remarkably high levels of satisfaction. For example, on average across countries and economies that took part in the TALIS study, 90% of teachers in primary education reported that, overall, they are satisfied with their job. However, teachers are a bit more nuanced with respect to recommending their school as a good place to work (82% agreement) and 23% express a wish to change to another school if that were possible (Table 6.16). Over 25% of teachers in primary education stated that they would like to change to another school in Japan, Korea, Turkey and the United Arab Emirates.

A breakdown by teachers' characteristics shows that in most countries and economies novice teachers (less than or equal to five years of experience) are more likely than their experienced counterparts (more than five years of experience) to "choose another school if possible") (Figure 6.5 and Table 6.17). Although

this difference is significant only for two countries; the United Arab Emirates (10 percentage points) and France (9 percentage points). On average, male teachers are also more likely to state they wish to change school than their female colleagues albeit by a small margin (2 percentage point difference). In addition, a higher proportion of teachers working part-time reported wishing to change to another school if possible compared to teachers working full-time (2 percentage points of difference); this is true for Korea, Turkey and the United Arab Emirates. This result may reflect the level of commitment of teachers have toward their work as teacher working full-time are more likely to stay with the same school than part-time workers. That being said, Japan shows the opposite pattern by having a larger proportion of teachers with full-time status wishing to change schools than teachers with part-time status (10 percentage point difference). This may respond to the fact that the career structure of Japan has as one of its components the transfer of teachers to different schools every few years (OECD, 2018[46]). As such, changing schools could be already embedded in the expectations of full-time teachers.

Figure 6.5. Desire to change school in primary education, by teacher and school characteristics

+	Positive difference
-	Negative difference
	Difference is not significant
	Missing values



	Difference by teacher and school characteristics			
	Male - Female	Teacher with more than 5 years of experience - Up to 5 years	Full-time - Part-time	High - Low concentration of students from disadvantaged homes[1]
Turkey	-		-	+
United Arab Emirates	+	-	-	
Korea			-	
Japan			+	
TALIS average ISCED 1	+	-	-	+
France		-		+
England (UK)				
Spain				+
CABA (Argentina)				
Sweden				
Viet Nam	+			
Denmark				
Flemish Comm. (Belgium)				+
Education systems with a positive difference	2	0	1	4
Education systems with no difference	9	10	8	5
Education systems with a negative difference	1	2	3	0

1. Socio-economically disadvantaged homes refer to homes lacking the basic necessities or advantages of life, such as adequate housing, nutrition or medical care.

Countries and economies are ranked in descending order of the percentage of teachers who report they would like to change school if that were possible.

Source: OECD, TALIS 2018 Database.

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When considering school type, on average across the participants 27% of teachers working in disadvantaged schools expressed that they wish to change to another school if that were possible, in

contrast to 22% of teachers in non-disadvantaged schools (Figure 6.5 and Table 6.17). These differences are observable in Turkey (12 percentage points of difference), Spain (10 percentage points), the Flemish Community of Belgium (10 percentage points) and France (7 percentage points). Usually, disadvantaged schools present more challenging settings for effective instruction due to a student population with higher needs and often a lack of resources. In addition, disadvantaged schools are characterised by a larger share of novice teachers (teachers with less than five years of experience) than in non-disadvantaged schools (see Table 2.10 in Chapter 2). Given the challenges of working in disadvantaged contexts, novice teachers might feel less prepared and thus want to change schools. In addition, in countries like France, early career teachers do not have a choice of deciding where they teach and they are often deployed in disadvantaged schools.

In that sense, it is interesting to observe those contexts when there are no significant differences in the proportion of teachers wanting to change schools between disadvantaged and non-disadvantaged schools; that is the case for five countries and economies. For example, Sweden has a low proportion of teachers wanting to change to another school and the percentage gap between different types of schools is marginal at best (0.1 percentage-point gap) (Table 6.17).

On the levels of satisfaction with their salaries, on average across the TALIS participants in primary education, almost half of teachers (47%) reported that they are satisfied with their salaries (Table 6.19). That being said, there is a considerable variation across countries on this perception. More than 50% of teachers reported being satisfied with their salaries in Denmark, the Flemish Community of Belgium, Korea and Viet Nam and less than 20% in CABA (Argentina) and France. The percentage of teachers supporting this statement is particularly elevated in the Flemish Community of Belgium (75%).

In terms of work experience, more experienced teachers are more likely to be satisfied with their salaries than novice teachers in England (United Kingdom), Korea, the United Arab Emirates and Viet Nam but novice teachers are more satisfied with their salaries than their more experienced colleagues in CABA (Argentina), France, Spain and Turkey (Table 6.19). These cross-national differences may respond to the specific salary scales in each national context. In shaping salary scales there is a trade-off between awarding high salaries at the entrance level and keeping them relatively stable throughout the career or having relatively middle-to-low salaries at the entrance level with significant salary increases across the career.

The data also show significant variation across types of schools. It is quite revealing to see that, on average, teachers working in rural schools are more likely to be satisfied with salaries than teachers in city schools (Table 6.19). The differences are particularly large (over 15 percentage points) in the United Arab Emirates (18 percentage points), Viet Nam (18 percentage points), and Spain (16 percentage points). A possible explanation for this gap could be explained by opportunity costs and cost of living in rural areas. Teachers in rural areas may be satisfied with salaries because of a lack of alternative jobs requiring equivalent skills and offering higher salaries. In cities, given the skills and qualifications of teachers, they might think alternative jobs pay much more. It might be also the case that teacher salaries are fixed at regional or national levels and does not take into consideration the cost of living, which tends to be lower in rural areas.

Teachers responded not only about their satisfaction with salaries but about the extent to which, apart from their salaries, they are satisfied with the terms of their teaching contracts or employment (e.g. benefits, work schedule). On average across the TALIS participants in primary education, 65% of teachers “agree” or “strongly agree” that, apart from their salaries, they are satisfied with their terms of employment (Table 6.19). Interestingly, this indicates that teachers tend to be much more satisfied with their general terms of employment than with their salaries (47%). The proportion of teachers who are satisfied with the other terms of their teaching contract or employment exceeds 70% in England (United Kingdom), the Flemish Community of Belgium, France and Viet Nam, and is the lowest in Denmark (31%) and Japan (48%).

It is interesting to observe that in some countries there is a considerable discrepancy between the share of teachers feeling satisfied with their salaries and the share of teachers feeling satisfied with the conditions of their work. In CABA (Argentina), France and Sweden, the difference between the share of teachers satisfied with the terms of their contract and those by their salaries was of more than 30 percentage points. On the contrary, a higher share of teachers are satisfied with their salaries than with their terms of contract in Denmark (Table 6.19).

What could be driving teacher satisfaction with their terms of employment in primary education? The total number of working hours is a crucial component of terms of employment. A regression analysis between the shares of teachers reporting being satisfied with their terms of employment and the total number of working hours, controlled by other variables such as the possession of a permanent contract, working arrangements (full-time, part-time), class size, and other relevant teacher and school characteristics, shows that the higher the number of hours the less likely teachers are satisfied with their terms of employment for 11 out of the 13 countries and economies with available data (Table 6.22). This finding points to the pivotal role that working arrangements have for the satisfaction of teachers. As satisfaction is a crucial consideration for the retention of teachers (OECD, 2020[32]), it is important to balance and efficiently allocate teachers' working hours.

How do primary education and lower secondary levels compare?

On average the differences across educational levels for countries with available data for primary and lower secondary education is significant but quite small (less than 3 percentage points) (Figure 6.6 and Table 6.16). The proportion of teachers in primary education supporting positive statements on the profession and the work (i.e. "If I could decide again, I would still choose to work as a teacher", "I enjoy working at this school", "I would recommend this school as a good place to work", "I am satisfied with my performance in this school", "All in all, I am satisfied with my job") is significant higher than in lower secondary education. Inversely, the proportion of teachers in primary education supporting negative statements on the profession ("I regret that I decided to become a teacher"; "I wonder whether it would have been better to choose another profession") is lower than in lower secondary education. Overall, it seems that the job satisfaction with the profession and working environment is slighter higher in primary education than in lower secondary education.

For example, the percentage of teachers in primary education stating that they wonder whether it would have been better to choose another profession is lower than the percentage in lower secondary (3 percentage point difference) (Table 6.16). This is true for England (United Kingdom), Japan, Spain, Turkey and Viet Nam. However, the opposite pattern is observed for Denmark.

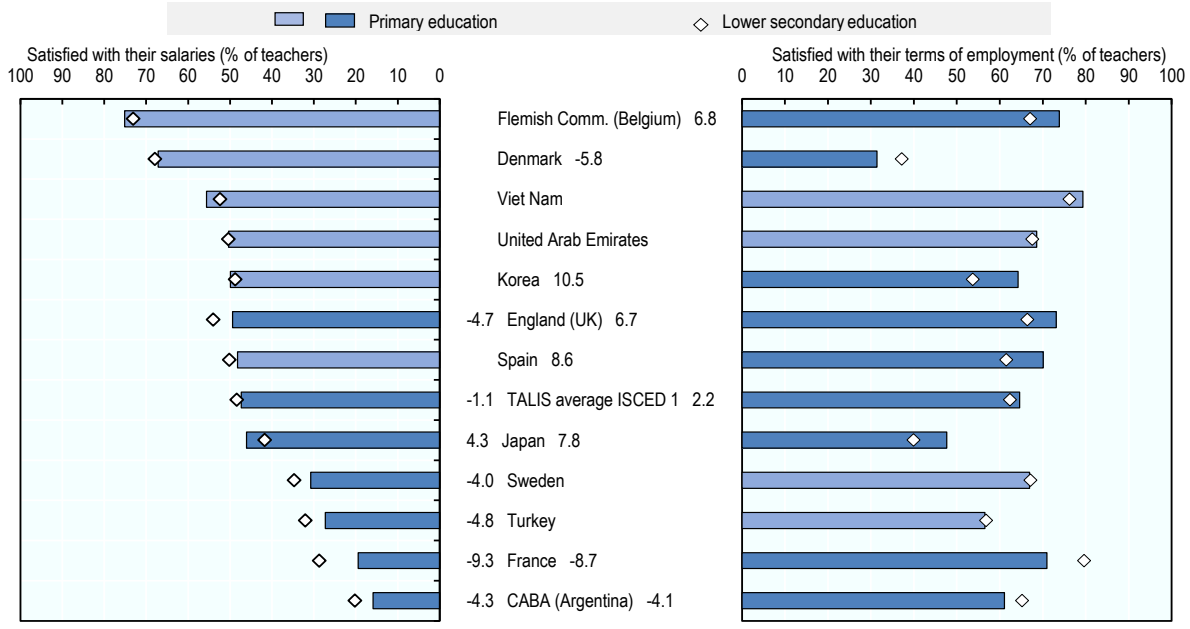
Regarding satisfaction with the salary, a lower share of teachers in primary education reported being satisfied with their salaries in primary education than their colleagues in lower secondary education in CABA (Argentina), England (United Kingdom), France, Sweden and Turkey (Table 6.19). Teachers' statutory salaries (after 15 years of service) are indeed lower for teachers in primary education than lower secondary teachers in France and Sweden but are the same across both levels in England (United Kingdom) and Turkey (see Table A B.4). Thus, factors other than actual statutory salaries might play a factor in the satisfaction of teachers with their salaries: perceptions of salaries in similar professions, for instance. Japan is the only country showing a different pattern where more teachers are satisfied with their salaries than in lower secondary education despite the fact that in terms of statutory salaries teachers in primary education earn less than their colleagues in lower secondary.

Finally, concerning terms of employment, there is no consistent pattern across countries although, on average, teachers in primary education are more likely to be satisfied with their terms of employment than teachers in lower secondary education (2 percentage points of difference) (Table 6.19). This is true for England (United Kingdom), the Flemish Community of Belgium, Japan, Korea and Spain. Teachers in

primary education are less likely to be satisfied with the terms of employment in CABA (Argentina), Denmark and France.

Figure 6.6. Teachers' satisfaction with their salaries and terms of employment in primary and lower secondary education

Results based on responses of teachers in primary education



Note: Statistically significant differences between primary education and lower secondary education are marker in a darker tone.
Countries and economies are ranked in descending order of the percentage of teachers in primary education who are satisfied with their salaries.
Source: OECD, TALIS 2018 Database.

StatLink https://stat.link/xo8urq

Job satisfaction in upper secondary education

On average across the TALIS participants in upper secondary education, more or less the same levels of positive responses about professional satisfaction can be observed: "the advantages of being a teacher clearly outweigh the disadvantages" (78% "agree" or "strongly agree"); "if I could decide again, I would still choose to work as a teacher" (77% "agree" or "strongly agree"); "I wonder whether it would have been better to choose another profession" (62% "strongly disagree" or "disagree"); and "I regret that I decided to become a teacher" (90% "strongly disagree" or "disagree") (Table 6.16). Croatia, Slovenia and Viet Nam are the only countries where the proportion of teachers expressing satisfaction with the profession exceeds two-thirds (66%) on all these four indicators. Despite this overall high percentage of teachers in upper secondary education who are satisfied with their work, it is important to look closer at the cross-national variation. For example, over 40% of the teachers in upper secondary education in Portugal, Turkey and the United Arab Emirates "wonder whether it would have been better to choose another profession".

Regarding satisfaction with their current job and work environment, the results display remarkably high levels of satisfaction (Table 6.16). For example, 90% of teachers in upper secondary education reported that, all in all, they are satisfied with their job. However, teachers are a bit more nuanced about stating their school as a good place to work (83% agreement) and 23% expressed a wish to change to another school

if that were possible. Over 30% of teachers in upper secondary education stated that they would like to change to another school in Turkey and the United Arab Emirates.

The responses on whether teachers want to change to other school varies more across schools than individual characteristics of the teachers (Table 6.18). For example, on average across the participants, 28% of teachers working in disadvantaged schools expressed that they would like to change to another school if that were possible in contrast to just 22% of teachers in non-disadvantaged schools. These differences are most pronounced in Sweden (11 percentage points difference) and Portugal (7 percentage points). Likewise, teachers in rural schools are more likely to state that they would like to change to other schools compared to their colleagues in city schools; this is true for Alberta (Canada), Portugal and Viet Nam while the opposite pattern can be observed for the United Arab Emirates. Teachers working in school offering VET (vocational education and training) programmes were more likely to report that they would like to change schools compared to their colleagues in non-VET schools. That being said, the results are only significant in 3 out of 11 countries.

The only teacher characteristic showing an interesting breakdown of teachers' responses is teaching experience; in most countries and economies, novice teachers (less than or equal to five years of experience) were more likely than their experienced counterparts (more than five years of experience) to report they would "choose another school if possible" (Table 6.18), although this difference is significant only for a few countries such as the United Arab Emirates (9 percentage points) and Turkey (7 percentage points). Interestingly, in Portugal it is possible to observe the opposite distinction where more experienced teachers reported they would like to change schools.

Concerning satisfaction with teacher salary in upper secondary education, 42% of teachers "agree" or "strongly agree" that they were satisfied with their salary in 2018 (Table 6.19). Just like primary education, an important cross-country variation needs to be taken into account. More than 66% of teachers in upper secondary are satisfied with their salaries in Alberta (Canada) and Denmark while this is the case for 30% of teachers or less in Brazil, Croatia, Portugal, Slovenia and Turkey. Brazil and Portugal show particularly low percentages of teachers in upper secondary satisfied with their salaries, with only 17% and 11% of teachers supporting this statement, respectively.

Novice teachers tend to be more satisfied with their salaries than their experienced colleagues in Brazil, Croatia, Portugal and Turkey (Table 6.21). The contrast is quite remarkable in Portugal (26 percentage-point gap) with only 10% of experienced teachers stating they are satisfied with their salaries in contrast to 36% of teachers of novice teachers.

As in primary education, the data also show significant variation across types of schools. On average teachers working in rural schools are more likely to be satisfied with their salaries than teachers in city schools in Alberta (Canada), Brazil and the United Arab Emirates while the opposite is true in Viet Nam. In addition, teachers in schools offering VET programmes are more likely than teachers in non-VET schools to feel satisfied with their salaries in Brazil, Turkey and the United Arab Emirates. The opposite pattern is shown in Denmark, where 44% of teachers in schools offering VET programmes feel satisfied with their salaries in contrast to 75% of their colleagues in non-VET schools (32 percentage-point gap).

Regarding the extent to which teachers, apart from their salaries, are satisfied with the terms of their teaching contract or employment (e.g. benefits, work schedule), on average across the participants, 63% of teachers "agree" or "strongly agree" that, apart from their salaries, they are satisfied with their terms of employment. As was the case with primary education, teachers tend to be much more satisfied with their general terms of employment than with their salaries (42%) (Table 6.19). Teachers who are satisfied with the other terms of their teaching contract or employment exceed 70% in Alberta (Canada), Slovenia, Sweden and in Viet Nam, and is the lowest in Brazil (47%) and Portugal (32%). The highest share of teachers feeling satisfied with their terms of their contract than their salaries by a difference of 30 percentage points or more is in Brazil, Croatia, Slovenia and Sweden.

The total number of working hours can be considered a crucial component of the terms of employment. A regression analysis was conducted between the shares of teachers in upper secondary education reporting being satisfied with their terms of employment and the total number of working hours, controlled by other variables such as the possession of a permanent contract, working arrangements (full-time, part-time), class size, and other relevant teacher and school characteristics. Results shows that the higher the number of hours the less likely upper secondary teachers are satisfied with their terms of employment for 6 out of the 11 countries and economies (Table 6.23) in the study. This finding points to the pivotal role that working arrangements have for teachers' satisfaction. That being said, the results were significant for just over a half of the countries taking part in the upper secondary study while for primary education results were significant for almost all participating countries and economies (Table 6.22). The results might be showing different factors driving satisfaction with terms of employment across the levels. For example, unlike in primary education, for five countries the higher the share of low academic achievers in the classroom the less likely teachers reported being satisfied with their terms of employment. Also, for three countries and economies, the higher the share of academically gifted students the more likely teachers reported being satisfied with their work. The results indicate that classroom composition might be an important consideration as well for teachers' satisfaction.

How do upper secondary and lower secondary levels compare?

Overall satisfaction with the profession and working environment is somewhat higher in upper secondary education than in lower secondary education (Table 6.16). Although the differences are somewhat small (less than 2 percentage points) the proportion of teachers in upper secondary education supporting positive statements about the profession and the work (i.e. "The advantages of being a teacher clearly outweigh the disadvantages", "If I could decide again, I would still choose to work as a teacher") is significantly higher than the proportion of teachers in lower secondary education. Inversely, the proportion of teachers in upper secondary education supporting negative statements about the profession ("I regret that I decided to become a teacher"; "I wonder whether it would have been better to choose another profession") is lower than the percentage of teachers in lower secondary education.

Regarding satisfaction with salary, although, on average, teachers in upper secondary education tend to be less satisfied with their salaries than their colleagues in lower secondary education, the difference is quite small and only significant for a couple of countries (Table 6.19). Concerning terms of employment, teachers in upper secondary tend to be more satisfied than their colleagues in lower secondary education in Denmark, Portugal and Sweden while the opposite is true in Brazil.

Sources and levels of stress

The pressure faced by teachers in their daily tasks may lead to feelings of stress and burnout (OECD, 2019[2]). Work-related stress can be viewed as an imbalance between work demands and environmental or personal resources at work. Workers can experience stress when the work demands placed on them do not match their support at work, knowledge, skills or ability to cope at work (Kyriacou, 2001[47]). These responses manifest themselves in disturbances to emotional, social, and/or physical health. Research has associated high levels of stress with lower self-efficacy for teaching, lower job satisfaction, lower commitment (Collie, Shapka and Perry, 2012[10])), burnout (Schaufeli, Leiter and Maslach, 2009[48]) and teachers leaving the profession (Kyriacou, 2001[47]).

Beyond the magnitude and impacts of stress, it is also useful to explore the factors that contribute to teachers' stress in their work. A relevant conclusion of this research is that the prevalence of stress differs depending on its sources (Bakker and Demerouti, 2007[4]; Hakanen, Bakker and Schaufeli, 2006[8]). For example, stress linked to classroom activities and student interactions seems more predominant than stress related to support or lack thereof from the school and government (Klassen, 2010[49]). The sources

of stress for teachers were classified into three different groups following the TALIS 2018 conceptual framework (Ainley and Carstens, 2018[41]): workload stress; student behaviour stress; and stress related to responsiveness to stakeholders.

The current COVID-19 pandemic may have also exacerbated teachers' stress and impacted their well-being due to increased workload, adapting to new technologies and the loss of support networks. And stress is likely to continue as schools reopen with the additional demands from blended learning arrangements in some countries and economies being placed on teachers. This can lead to attrition and burnout. Special attention should be paid to the pressure and expectations placed on teachers along with their working hours and workload.

TALIS 2018 can provide insightful information by identifying the main sources of stress prior to the pandemic. The next section describes the levels of stress reported by teachers and what they reported as their main sources of stress. TALIS 2018 asked teachers, for the first time, to what extent they experience stress in their work ("not at all"; "to some extent"; "quite a bit"; "a lot"). It will further explore the issues behind stress by asking both teachers and principals to what extent a series of work-related tasks constituted a source of stress ("not at all"; "to some extent"; "quite a bit"; "a lot").

Levels and sources of stress in primary education

On average across the participants in primary education, 17% of teachers reported experiencing a great deal of stress in their work (Table 6.24). However, there is much variation across the countries and economies participating in TALIS. More than 30% of teachers reported experiencing much stress in England (United Kingdom) and the Flemish Community of Belgium. By contrast, less than 10% of teachers reported experiencing much stress in their work in Turkey and Viet Nam. Previous analysis conducted by TALIS at the lower secondary level have also highlighted the extent of cross-country variation in the reported levels of stress. This cross-national differences may obey different institutional and cultural norms as well as individual perceptions of what constitutes a stressful situation (Diener and Tay, 2015[50]; Ng et al., 2009[51]).

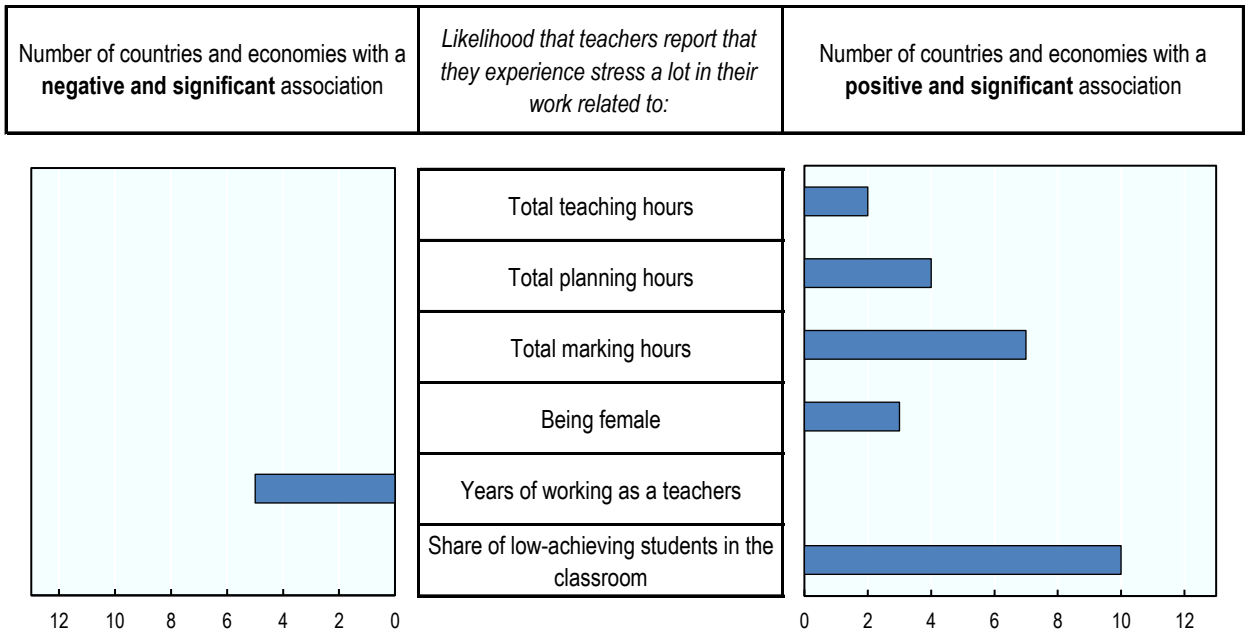
Looking at how results differ according to teachers' characteristics, female teachers reported experiencing stress a lot more frequently than their male peers (18% of female teachers compared to 14% of male teachers) (Table 6.25). Differences are particularly large in the Flemish Community of Belgium (10 percentage points) and the United Arab Emirates (8 percentage points). The differences across gender should be interpreted carefully as they may respond to different working configurations or arrangements (as seen in the previous section) and career expectations defined by gender. That being said, gender differences reported in the levels of stress deserves more scrutiny as it might reflect unbalanced and unequal working conditions in the workplace.

In addition, teachers working in schools in city areas in some countries were more likely to report experiencing much stress than their colleagues in schools in villages or rural areas and schools with lower concentrations of students from socio-economically disadvantaged homes (Table 6.25). Differences in stress reported by teachers working in schools in different geographic locations are significant in three countries and economies: Spain (14 percentage points), England (United Kingdom) (11 percentage points) and Viet Nam (6 percentage points).

The likelihood of experiencing stress a lot at their work is correlated with hours at work and classroom composition (Table 6.27). In particular, the more hours teachers allocated to marking on a weekly basis the more likely teachers reported experiencing a lot of stress in their work; this is the case for 7 out of the 13 countries and economies with available data (Figure 6.7. Furthermore, the higher the share of low-achieving students the more likely teachers reported experiencing a lot of stress in their work. The results point to not only how time devoted to concrete tasks such as marking contribute to teachers' stress but also how classroom composition might affect teachers' assessment of their levels of stress.

Figure 6.7. Factors associated with experiencing stress a lot in primary education

Number of TALIS countries and economies showing a significant association between teachers reporting experiencing stress a lot in their work and the following variables



Note: Results of binary logistic regression based on the responses of teachers and principals in primary education. Controlling for the following: full-time work, the share of students with special needs in the classroom and the share of academically gifted students in the classroom.
Source: OECD, TALIS 2018 Database.

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The results on marking warrant some reflection. It is worth noting that marking is important in teachers' work in order to track student progress and provide feedback to students when it is used in the form of formative assessments. Time spent on marking is an important trade-off to consider as it may only be efficient in some conditions. Conditions where marking can be effective include opportunities for students to correct and respond to their marks, i.e. quality of marking over quantity matters. Thus, by making the process of marking more efficient it would be possible to diminish the number of hours devoted to these tasks and reduce the stress levels of teachers (Elliott et al., 2016[52]).

Teachers also shared the extent to which their job negatively affects their mental and physical health. On average across the participants in primary education, 8% of teachers reported that their job negatively affects their mental health a lot while 7% reported that it negatively affects their physical health a lot (Table 6.24). Ten percent or more of teachers answered "a lot" for both indicators in Korea and the United Arab Emirates.

Another indicator of the impact of teachers' stress is whether the work leaves room for the individual's own personal time. It is argued that an important element of work-life balance is having the ability to unwind after work hours or being able to switch off from work responsibilities. To balance the demands of a stressful job, teachers need time to recover, which they may find during the school day, between working days and during more extended periods throughout the school year and at different points of their careers (Boeskens and Nusche, 2021[22]). On average across the participants in primary education, only 9% of teachers consider that their work leaves room for their personal life (Table 6.24). However, there is a great degree of variation across TALIS countries and economies on this indicator. More than 10% of teachers

feel that their work leaves time for their personal life in Denmark, the Flemish Community of Belgium, Sweden and the United Arab Emirates. The share is particular high in Denmark (27%). In contrast, only 5% of teachers or less in CABA (Argentina), England (United Kingdom), and Viet Nam agree with this statement.

The research literature has identified workload as a source of stress as it shows a strong association with teachers' life balance and burnout (Bakker et al., 2007[53]). On average across the participants in primary education, the workload-related sources of stress reported by teachers ("quite a bit" or "a lot") are the following: "having too much administrative work to do" (47%); "having too much marking" (36%); "having too much lesson preparation" (36%); "having too many lessons to teach" (30%); and "having extra duties due to absent teachers" (23%) (Table 6.29). Principals in primary education show a very similar pattern to teachers with an average of 64% stating they have too much administrative work to do; 34% reporting having extra duties due to absent teachers and 29% reporting having too much teacher appraisal and feedback work to do (Table 6.31).

To note, there are several countries where more than half (over 50%) reported one of the workload indicators as a source of stress. Some of these countries are Denmark (57% of teachers signalled "having too much administrative work to do" as a source of stress and 62% signalled "having too many lessons to teach" as a source of stress), the Flemish Community of Belgium (70% of teachers signalled "having too much administrative work to do" as a source of stress), France (73% of teachers signalled "having too much lesson preparation" as a source of stress and 57% of teachers signalled "having too much marking" as a source of stress) and the United Arab Emirates (55% of teachers signalled "having too much marking" as a source of stress) (Table 6.29).

Another source of stress relates to managing classrooms and student behaviour. Disruptive pupil behaviours are considered a major cause of psychological strain for teachers (Hakanen, Bakker and Schaufeli, 2006[8]). Three TALIS indicators consider these elements: "being held responsible for students' achievement" (reported "quite a bit" or "a lot" as a source of stress by 47% of teachers across participating countries and economies in primary education); "maintaining classroom discipline" (41%); and "being intimidated or verbally abused by students" (11%) (Table 6.30). There is a similar response from principals as, on average, 46% stated that being held responsible for students' achievement is a source of stress; 36% consider maintaining school discipline as a source of stress; and just 8% consider being intimidated or verbally abused by students as a sources of stress (Table 6.31).

In some countries over 50% of teachers reported one of the indicators of managing classroom as a source of stress. Some of these are France (79% of teachers considered "being held responsible for students' achievement" as a source of stress; 65% considered "maintaining classroom discipline" as a source of stress) and Viet Nam (51% considered "maintaining classroom discipline" as a source of stress) (Table 6.30).

Finally, a last set of indicators refers to teachers' ability to respond to the requirements and needs of evolving educational systems and stakeholders. The additional tasks generated by these responsibilities can create extra work pressure on teachers and can negatively affect teachers' sense of professional well-being (Valli and Buese, 2007[54]). On average across the participants, 42% of teachers consider that "keeping up with changing requirements from local, municipal/regional, state or national/federal authorities" is a predominant source of stress and 42% of teachers are stressed by "addressing parent or guardian concerns". In addition, shifts in societal demands regarding the inclusion of special needs students in regular schools have brought about additional demands on teachers such as "modifying lessons for students with special needs", which 37% of teachers reported as a source of stress (Table 6.30). Regarding principals, 49% consider that "keeping up with changing requirements from local, municipal/regional, state or national/federal authorities" is a predominant source of stress; 48% consider "addressing parent or guardian concerns" as source of stress; and 36% consider accommodating students with special needs as a source of stress (Table 6.31).

France shows a consistent high share of teachers identifying these indicators as sources of stress in contrast to the average; 71% of teachers reported as a source of stress "keeping up with changing requirements"; 71% mention "addressing parent or guardian concerns" and 80% mention "modifying lessons for students with special needs" (Table 6.30).

The different share of teachers citing one source or another across countries and the lack of a consistent pattern across participants is somewhat expected as these responses might reflect specific institutional configurations and norm regulations for each country.

How do primary education and lower secondary levels compare?

On average across the participants in primary education, there is a higher share of teachers in primary education stating they experience stress a lot in their work but this difference is marginal (less than 1 percentage point) (Table 6.24). There is also no consistent pattern across participants; for example, in CABA (Argentina) 16% of teachers in primary education reported experiencing stress in their work in contrast to just 8% in lower secondary education while in England (United Kingdom) the opposite pattern is observed with 31% of teachers in primary education reporting stress in contrast to 38% in lower secondary education. Box 6.3 uses a gap decomposition to explore the differences in the levels of stress more deeply.

Box 6.3. Difference in teachers' workplace well-being and stress between primary education and lower secondary education – a gap decomposition analysis

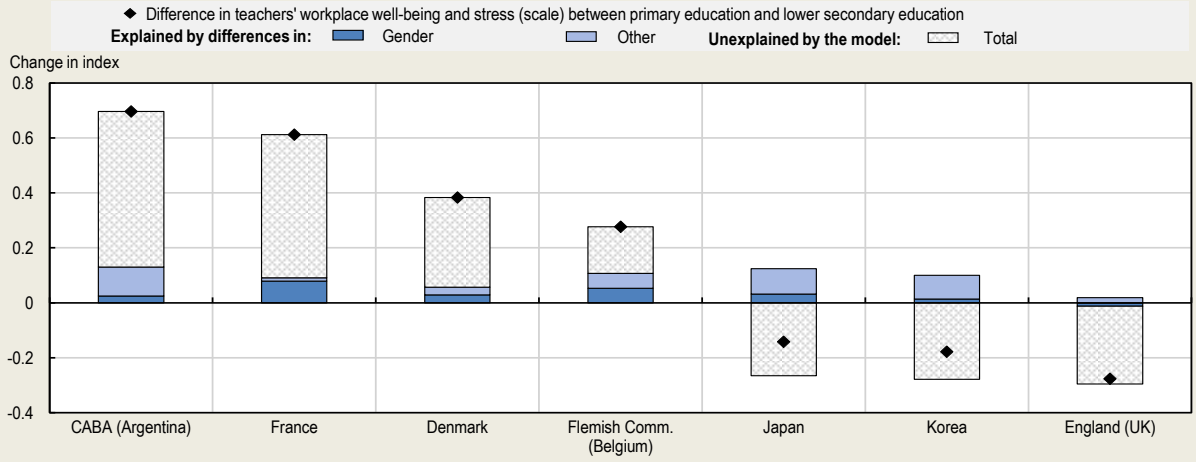
For a selected group of countries and economies it was possible to observe that the share of teachers reporting experiencing stress at their work varies across primary and lower secondary education. The differences could be explained by elements pushing teachers' level of stress, such as working conditions or teachers' socio-demographic characteristics.

A Blinder-Oaxaca decomposition of the differences in teachers' workplace well-being and stress across education levels has been used to analyse the effects of mediating factors (Blinder, 1973[55]; Oaxaca, 1973[56]). This type of analysis is able to discern whether observable differences between two groups on a variable of interest reflect underlying differences in factors known to be associated with that variable. In this case, the analysis will be used to understand whether the observed differences in the levels of teachers' workplace well-being and stress are due to select factors concerning teacher and school characteristics. As the dependent variable, the scale of teachers' workplace well-being and stress was selected; the higher the values of the scale, the higher the levels of stress reported by teachers. The difference in the scale across primary and lower secondary teachers is decomposed to three components: the difference attributed to the gender composition of the workforce, differences attributed to other variables of consideration (such as teachers working arrangements, experience and school characteristics) and differences attributed to variables not captured by the model (Table 6.32).

To start, it is interesting to observe that, for all countries with available data, there is a significant difference between the levels of teachers' stress between primary and upper secondary education (Figure 6.8). In the case of CABA (Argentina), Denmark, France and the Flemish Community of Belgium, the level of workplace stress are higher among teachers in primary education than in lower secondary. In contrast, for England (United Kingdom), Japan and Korea, the levels of stress and well-being are higher for teachers in lower secondary than in primary education.

It is important to notice that most of the differences cannot be explained by observable factors included in the model; this residual gap is represented by the white bars. As such, the results presented here should be interpreted cautiously: the main explanation for each gap might be found among variables that are unique to each education level, or to each education system, and which were not included in the survey or in the model.

Figure 6.8. Differences in teachers' workplace well-being and stress between primary education and lower secondary education



Notes: Predictors include teachers' gender (reference: male), highest educational attainment (reference: below ISCED level 5), participation in formal induction at current school, participation in effective forms of professional development, experience as a teacher and in non-education roles, teaching hours, having a permanent employment contract, class size, the share of students with special needs in the school and the share of students who come from disadvantaged homes in the school.
All differences in the scale between primary education and lower secondary education are statistically significant.
Countries and economies are ranked in descending order of the difference in the index of teachers' workplace well-being and stress between primary education and lower secondary education.
Source: OECD, TALIS 2018 Database.

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From Figure 6.8 it is possible to observe that the gender composition might explain a part of these differences, in particular, in Denmark, France, the Flemish Community of Belgium and Japan (dark blue). A possible explanation for this situation is that reported levels of stress varies by teachers' gender; there is a higher share of female teachers reporting stress than male teachers (see Table 6.25). As there are more female teachers in primary education than in lower secondary education, this could partially explain the observed differences. The difference is particularly pronounced in France and in the Flemish Community of Belgium, where a greater share of the gap attributed to gender differences between primary education and lower secondary education can also be observed. Interestingly, gender does not seem such a crucial factor for those countries and economies where the teachers in lower secondary education are the ones showing higher levels of stress (see Table 6.32 for details).

Source: OECD, TALIS 2018 Database.

That being said, the share of teachers identifying different sources of stress contrast considerably between primary education and lower secondary education (Table 6.29). Regarding indicators related to workload, there is a lower share of teachers in primary education than in lower secondary education identifying marking as a source of stress (6 percentage points difference); having too many lessons to teach is a source of stress (2 percentage points difference); and having too much administrative work as a source of stress (1 percentage point difference). On marking, this pattern holds true for 8 out of the 13 countries with available data and Denmark, England (United Kingdom), and Turkey displayed large gaps of at least 15 percentage points. The exception to this trend is the Flemish Community of Belgium, Japan and the United Arab Emirates, where the share of teachers in primary education reporting marking as a source of

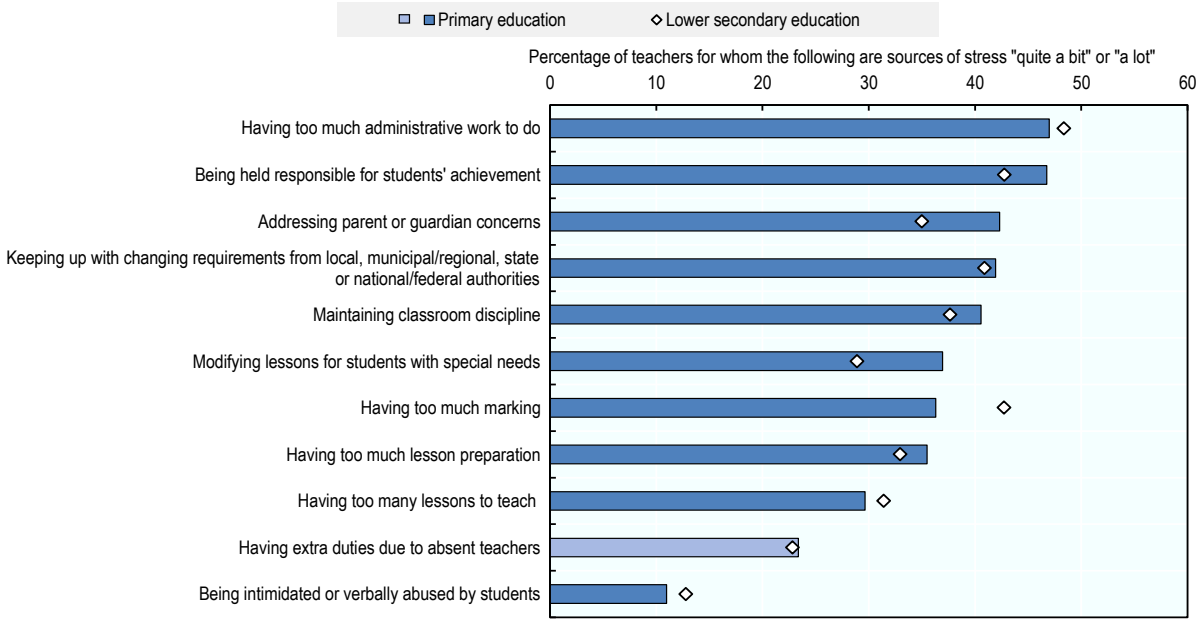
stress is actually higher. In understanding these results it is important to keep in mind that class size tends to be smaller in primary education (Table 6.14) and teachers spend fewer hours on marking than their colleagues in lower secondary education (Table 6.9). Indeed, the difference in the share of teachers reporting marking as a source of stress is weakly correlated to the difference in class size across education levels (the linear correlation coefficient r is r=.32 among TALIS countries and economies) and hours devoted to marking (the linear correlation coefficient r is r=.42 among TALIS countries and economies).

In addition, a higher share of teachers in primary education than in lower secondary education reported having too much lesson preparation as a source of stress (3 percentage-point gap) (Table 6.29). This pattern holds true for 6 out of the 13 countries with available data, and France and Japan showed exceptionally large gaps (15 and 9 percentage points, respectively). This difference is revealing as teachers in primary education spend fewer hours planning than their colleagues in lower secondary education (Table 6.9). Teachers in primary education teach multiple subjects, thus, there is less likelihood of replicating lessons across classes. Therefore, they may have less time to prepare multiple lessons and are, hence, more stressed. In the case of principals, there is a higher proportion in primary education than in lower secondary education reporting having too much administrative work to do (4 percentage-point gap) and extra duties due to absent school staff (4 percentage-point gap) (Table 6.31) as a source of stress.

Regarding indicators related to classroom management and student behaviour, a higher share of teachers in primary education than in lower secondary education reported being held responsible for student achievement as a source of stress (4 percentage-point gap) and for maintaining classroom discipline (3 percentage-point gap) (Figure 6.9 and Table 6.30). In the case of being held responsible for student achievement, this pattern holds true for 7 out of the 13 countries with available data and France showed a large gap of 24 percentage points.

Figure 6.9. Sources of stress in primary and lower secondary education

TALIS average across countries and economies from primary education



Note: Statistically significant differences between primary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

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In contrast to the results for teachers, there is a lower share of principals in primary education than in lower secondary education stating that maintaining school discipline is a source of stress (9 percentage- point gap) (Table 6.31). It is important to keep in mind that principals and teachers are speaking at different levels; while principals are addressing discipline at the school level as a source of stress, teachers are referring to classroom discipline.

A lower share of teachers in primary education reported being stressed because of intimidation or verbal abuse by students than their colleagues in lower secondary education (2 percentage points difference) (Figure 6.9 and Table 6.30). This is true for 8 out of the 13 countries with available data. In England (United Kingdom), the Flemish Community of Belgium, France and Korea this gap is of 5 percentage points or more. Noteworthy exceptions are CABA (Argentina) and Denmark where there is a higher percentage of teachers reporting stress because of abuse in primary education than in lower secondary education (5 and 7 percentage-point gaps, respectively). Again, this contrasts with the pattern observed for principals, where there is a higher share in primary education than in lower secondary education reporting intimidation and abuse by students as a source of stress. Then again, the difference is of only 2 percentage points and this holds true only for France (16 percentage-point gap) (Table 6.31).

In the final group of indicators related to the evolving needs of educational systems, a consistent pattern can be observed where inclusive education is a bigger cause of stress in primary education than in lower secondary education. A higher share of teachers in primary education than in lower secondary education reported as a source of stress modifying lessons for students with special needs (8 percentage-point gap); addressing parents' or guardians' concerns (7 percentage-point gap) and keeping up with changing requirements (1 percentage-point gap) (Figure 6.9 and Table 6.30). For the modification of lesson for special needs students, this is true for all participants except Sweden and Viet Nam. A higher share of principals in primary education than in lower secondary education reported accommodating students with special needs as a source of stress (8 percentage-point gap). This holds true for CABA (Argentina), England (United Kingdom), the Flemish Community and France with gaps of at least 14 percentage points (Table 6.31).

The results could be explained by teachers not being prepared for dealing with students with special needs. Indeed, results show that the share of teachers in primary education reporting a need for professional development in teaching students with special needs is higher than in lower secondary education (see Table 4.24 in Chapter 4). In this case, the correlation between the difference in the share reporting modifying lessons as a source of stress and the difference in the share of teachers reporting professional development needs is mild and positive (the linear correlation coefficient r is r=.54).

Another explanation could be that there is a larger share of principals reporting working with schools with more than 10% of students with special needs in primary education than in lower secondary education (see Table 2.24 in Chapter 2). However, the level of association between the difference in the share of teachers reporting modifying lessons as a source of stress and the difference in the share of schools with students with special needs is positive but weak (the linear correlation coefficient r is r=.31). A similar result is obtained when correlating the difference in the share of principals signalling accommodating students with special needs as a source of stress and the difference in the share of schools with more 10% of students with these characteristics (the linear correlation coefficient r is r=.47).

In terms of addressing parents' or guardians' concerns, this pattern holds true for 9 out of the 13 countries with available data and CABA (Argentina), Denmark and France show important gaps of 15 percentage points or more (Figure 6.9 and Table 6.30). In terms of keeping up with changing requirements, the pattern holds true for 5 out of the 13 countries with available data. Spain shows the opposite pattern: there is a lower share of teachers in primary than lower secondary education stating that keeping up with requirements is a source of stress.

Level and sources of stress in upper secondary

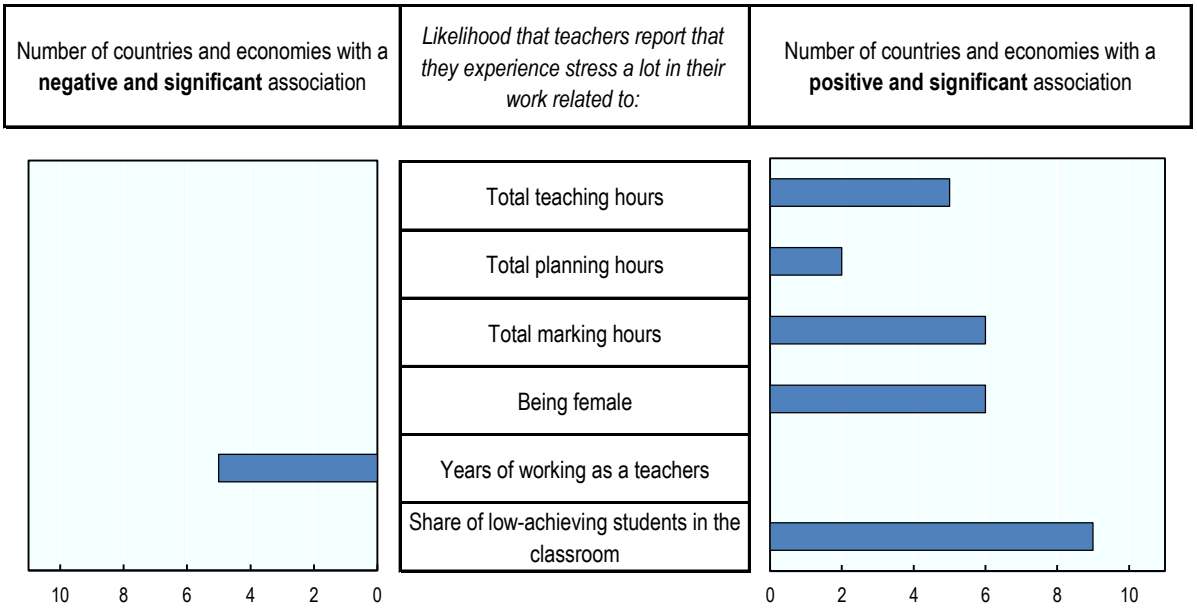
On average across the participants in upper secondary education, 15% of teachers reported experiencing stress a lot in their work (Table 6.24). More than 20% of teachers reported experiencing stress a lot in Alberta (Canada), Portugal and the United Arab Emirates. In contrast, less than 10% of teachers reported experiencing stress a lot in their work in Croatia, Turkey and Viet Nam.

Female teachers reported experiencing stress a lot more frequently than their male peers (17% of female teachers compared to 13% of male teachers) (Table 6.26). This difference is statistically significant in all participants except for Brazil, Slovenia and Turkey. Differences are particularly large in Portugal (11 percentage points) and the United Arab Emirates (8 percentage points).

As is the case in primary education, the likelihood of experiencing much stress at work is correlated with hours at work and classroom composition in upper secondary education (Figure 6.10 and Table 6.28). In 6 out of 11 countries and economies, the more hours teachers allocate to marking on a weekly basis the more likely teachers reported experiencing a lot of stress in their work. Furthermore, in 9 out of 11 countries and economies, the higher the share of low-achieving students, the more likely teachers reported experiencing a lot of stress in their work. The results point to not only how time devoted to concrete tasks such as marking, contribute to teachers' stress but also how classroom composition might affect teachers' assessment of their levels of stress.

Figure 6.10. Factors associated with experiencing stress a lot in upper secondary education

Number of TALIS countries and economies showing a significant association between teachers reporting experiencing stress a lot in their work and the following variables



Note: Results of binary logistic regression based on the responses of teachers and principals in upper secondary. Controlling for the following: full-time work, the share of students with special needs in the classroom and the share of academically gifted students in the classroom
Source: OECD, TALIS 2018 Database.

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In addition, 7% of teachers reported that their job negatively affects their mental health a lot while 6% reported that it negatively affects their physical health a lot (Table 6.24). Ten percent or more of teachers answered “a lot” for both indicators in Portugal and the United Arab Emirates.

Regarding the impact of teachers’ stress is whether work leaves room for the individual’s own personal time. On average across the participants in upper secondary education, only 9% of teachers consider that their work leaves room for their personal life (Table 6.24). At least 10% of teachers consider their work leaves time for their personal life in Denmark, Sweden and the United Arab Emirates. The share is particular high in Denmark (23%). In contrast, only 5% of teachers or less in Alberta (Canada) and Viet Nam agree with this statement.

Regarding the sources of stress related to workload, teachers and principals were asked about “having too much marking” (46%); “having too much administrative work to do” (45%); “having too much lesson preparation” (36%); “having too many lessons to teach” (36%); and “having extra duties due to absent teachers” (21%) (Table 6.29). Principals in upper secondary education show a very similar pattern to teachers with an average of 63% stating they have too much administrative work to do; 33% reporting having extra duties due to absent teachers; and 32% reporting having too much teacher appraisal and feedback work to do (Table 6.31).

The countries showing more than half of teachers (over 50%) identifying one of these indicators as a source of stress are Denmark (60% of teachers signalled “having too much marking”), Portugal (69% of teachers signalled “having too much administrative work to do” as a source of stress; 62% signalled “having too much lesson preparation” as a source of stress; 76% of teachers signalled “having too much marking” as a source of stress; and 71% of teachers signalled “having too much administrative work to do”), Sweden (60% of teachers reported “having too much administrative work to do”) and the United Arab Emirates (55% of teachers reported “having too much marking” and 52% stated “having too much lesson preparation”) (Table 6.29).

Regarding the sources of stress related to managing classrooms and student behaviour, the results are the following for upper secondary education: “being held responsible for students’ achievement” (reported “quite a bit” or “a lot” as a source of stress by 47% of teachers across the 11 participants); “maintaining classroom discipline” (34%); and “being intimidated or verbally abused by students” (11%) (Table 6.30). For principals 52% stated that being held responsible for students’ achievement is a source of stress, 41% consider maintaining school discipline as a source of stress and 11% considers being intimidates or verbally abused by students as a sources of stress (Table 6.31).

The countries showing more than half of teachers (over 50%) identifying one of these indicators as a sources of stress are Brazil (54% of teachers reported as a source of stress “being held responsible for students’ achievement”), Portugal (81% of teachers signalled being held responsible for students’ achievement as a source of stress and 60% signalled “maintaining classroom discipline” as a source of stress), Slovenia (53% of teachers reported as a sources of stress “being held responsible for students’ achievement”), the United Arab Emirates (53% of teachers reported as a sources of stress “being held responsible for students’ achievement”) and Viet Nam (55% of teachers reported as a sources of stress “being held responsible for students’ achievement”) (Table 6.30).

The last set of indicators refers to teachers’ ability to respond to the requirements and needs of evolving educational systems and stakeholders. On average across the participants in upper secondary, 34% of teachers consider that “keeping up with changing requirements from local, municipal/regional, state or national/federal authorities” is a predominant source of stress; 27% of teachers do so with respect to “addressing parent or guardian concerns”; 26% of teachers reported modifying lessons for students with special needs as a source of stress (Table 6.30). Regarding principals, 47% consider that “keeping up with changing requirements from local, municipal/regional, state or national/federal authorities” is a predominant source of stress; 34% consider “addressing parent or guardian concerns” as source of stress; and 23% consider modifying lessons for students with special needs as a source of stress (Table 6.31).

The country showing more than half of teachers identifying one of these indicators as a source of stress is Portugal (55% signalled “addressing parental concerns” as a source of stress and 53% of teachers signalled “modifying lessons for students with special needs” as a source of stress) (Table 6.30).

How do upper secondary and lower secondary levels compare?

On average across the participants in upper secondary education, there is a lower share of teachers in upper secondary education stating they experience stress a lot in their work but this difference is marginal (less than 1 percentage point) (Table 6.24).

Regarding the indicators related to workload as a source of stress, there is lower share of teachers in upper secondary than in lower secondary identifying as a source of stress having too much administrative work (3 percentage-point gap) and having extra duties due to absent teachers (3 percentage-point gap) (Table 6.29). Regarding administrative work, this pattern is true for 5 out of the 11 countries with available data with Croatia, Denmark and Slovenia displaying the largest gap (over 10 percentage points). The opposite pattern can be observed for Alberta (Canada). In the case of having duties due to absent teachers the patterns holds true just for 4 countries, with Sweden showing the largest at 20 percentage points.

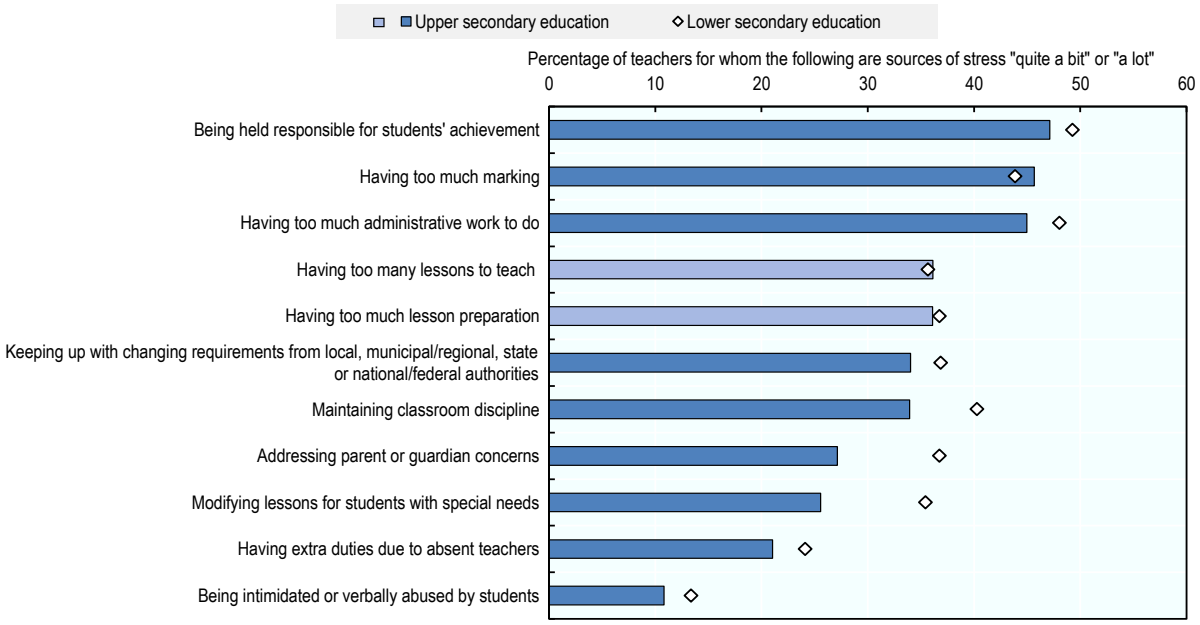
A higher share of teacher in upper secondary education reported “having too much marking” as a source of stress than their colleagues in lower secondary education (2 percentage-point gap) (Table 6.29). This is true for 4 out of the 11 countries with available data, with Brazil and Denmark showing the largest gap (over 5 percentage points). Portugal is the only country showing the opposite pattern.

In the case of principals, there is a lower proportion in upper secondary education than in lower secondary education reporting extra duties due to absent school staff as a source of stress (6 percentage-point gap) (Table 6.31).

Regarding indicators related to classroom management and student behaviour, a lower share of teachers in upper secondary education than in lower secondary education reported as a source of stress being held responsible for student achievement (2 percentage-point gap); maintaining classroom discipline (6 percentage-point gap) and being intimidated or verbally abused by students (3 percentage-point gap) (Figure 6.11 and Table 6.30). On managing classrooms as a source of stress, this pattern holds true for most participants with available data and Alberta (Canada), Denmark, Portugal, Slovenia and Sweden show particularly large gaps (9 percentage points or higher). A possible explanation is that teachers might feel better prepared to manage student behaviour and classroom management after concluding their training than their colleagues in lower secondary education (see Table 3.13 in Chapter 3). Results showed that the difference in the share of teachers reporting classroom management as a source of stress across levels is mildly correlated with the share of teachers feeling prepared for classroom management (the linear correlation coefficient r is r=.-52 among TALIS countries and economies). The results are also somewhat echoed by a lower share of principals in upper secondary education than in lower secondary education reporting managing school discipline as a source of stress (4 percentage points difference).

Figure 6.11. Sources of stress in upper and lower secondary education

TALIS average across countries and economies from upper secondary education



Note: Statistically significant differences between upper secondary education and lower secondary education are marked in a darker tone.
Source: OECD, TALIS 2018 Database.

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Finally, regarding the evolving needs of educational systems, a consistent pattern can be observed where a lower share of teachers in upper secondary than lower secondary education reported as a source of stress the modification of lessons for special needs students (10 percentage-point gap); addressing parents' or guardians' concerns (10 percentage-point gap); and keeping up with changing requirements (3 percentage-point gap) (Figure 6.11 and Table 6.30). This is reflected for principals as well as there is a lower share of principals in upper secondary than in lower secondary reporting the modification of lesson for special need students as a sources of stress (5 percentage-point gap) and addressing parents' or guardians' concerns (13 percentage-point gap) (Table 6.31).

For the modification of lessons for special needs, this is true for teachers in all participating countries and economies except Viet Nam. Croatia, Denmark, Portugal, Slovenia and Sweden showed exceptionally large gaps of 14 percentage points or more (Table 6.30). Denmark showed a particularly large gap of 30 percentage points; 17% of teachers in upper secondary education consider that modifying lessons for students with special needs is a source of stress in contrast with 47% in lower secondary education. As in the case of primary education, the difference in the share of teachers reporting stress could be explained by structural features such as the fact that there is a lower share of schools with more than 10% of students with special needs in upper secondary education than in lower secondary education (see Table 2.24 in Chapter 2). However, the level of association between the difference in the share of teachers reporting modifying lessons as a source of stress and the difference in the share of students with special needs in the schools is positive but weak (the linear correlation coefficient r is r=.27). Level of training could also be an explanation as the share of teachers with a need for professional development in teaching students with special needs is lower in upper secondary than in lower secondary. The correlation between the difference in the share of teachers reporting modifying lessons as a source of stress and the difference in

the share of teachers reporting a need for professional development is positive and mild (the linear correlation coefficient r is r=.65).

For addressing parents' or guardians' concerns, this pattern holds true for 9 out of the 11 countries with available data and Croatia, Denmark, Slovenia, Sweden and Turkey show important gaps of 10 percentage points or more (Table 6.30). Once again, Denmark shows a particularly large of 34 percentage points; 4% of teachers in upper secondary education consider that addressing parents' or guardians' concerns is a source of stress in contrast to 38% in lower secondary education.

Teachers' risk of attrition

Attrition (which refers to teachers permanently leaving their profession) has become a severe problem. Attrition can have a detrimental impact on student learning (Borman and Dowling, 2008[5]; Ronfeldt, Loeb and Wyckoff, 2013[57]) and can be a severe problem affecting particular school contexts such as staff shortages in challenging environments, disadvantaged schools (Boe and Cook, 2006[58]; Ingersoll, 2001[59]). Such actions also imply significant financial costs for educational systems as they need to replace qualified teachers in the affected schools (Barnes, Crowe and Schaefer, 2007[60]). Finally, attrition also entails efficiency costs for schools as they need to spend time and resources integrating new teachers into the school organisation and culture (Darling-Hammond and Sykes, 2003[61]).

TALIS 2018 includes questions that may function as proxies for measuring attrition and are able to capture this form of absence and provide a descriptive picture of the situation.[5] One proxy measure for the risk of attrition is teachers' intention to remain in teaching: teachers were asked how many more years they would like to keep working. It is possible that although teachers and school leaders reported planning to stop work relatively soon, they may want to continue in the profession in another capacity, such as on the school management team or a role outside the school, such as in the local or national administration or as a researcher. Nevertheless, whatever plans teachers and school leaders may have, the indicator provides an idea of when they expect to stop being in the classroom or in charge of the school.

Teachers' intention to leave teaching in primary education

On average across the participants in primary education, teachers reported that they would like to continue working as teachers for an additional 15 years (Table 6.34). Since the average age of teachers is 41 (see Table 2.1 in Chapter 2), an additional 15 years takes teachers close to retirement age for the majority of countries and economies participating in primary education. The data does not show a great degree of cross-country variation as the range goes from 13.5 additional years in Turkey to 18.6 years in the Flemish Community of Belgium.

In order to identify countries and economies experiencing more pressing concerns in retaining and providing the necessary support to the teaching workforce, TALIS looked at the percentages of teachers who want to leave teaching within the next the next five years. Across participants, 21% of teachers stated they want to leave teaching within the next five years (Table 6.34). The countries and economies with particularly high shares (equal to or above 25) are Sweden (29%), the United Arab Emirates (29%), and Denmark (26%). The average age of the teacher population workforce could explain these high percentages; Denmark and Sweden have a teacher population older than the average – see Table 2.1 in Chapter 2. That being said, there is a weak country-level correlation between teachers wanting to leave teaching and the proportion of teachers age 50 and above (the linear correlation coefficient r is r=.13 among TALIS countries and economies). Thus, these results might be explained by other factors besides the regular life cycle of the teacher workforce in each country.

In looking at the breakdown of these results, on average across teachers in primary education, female teachers are more likely to state they would like to leave teaching in the next five years than their male

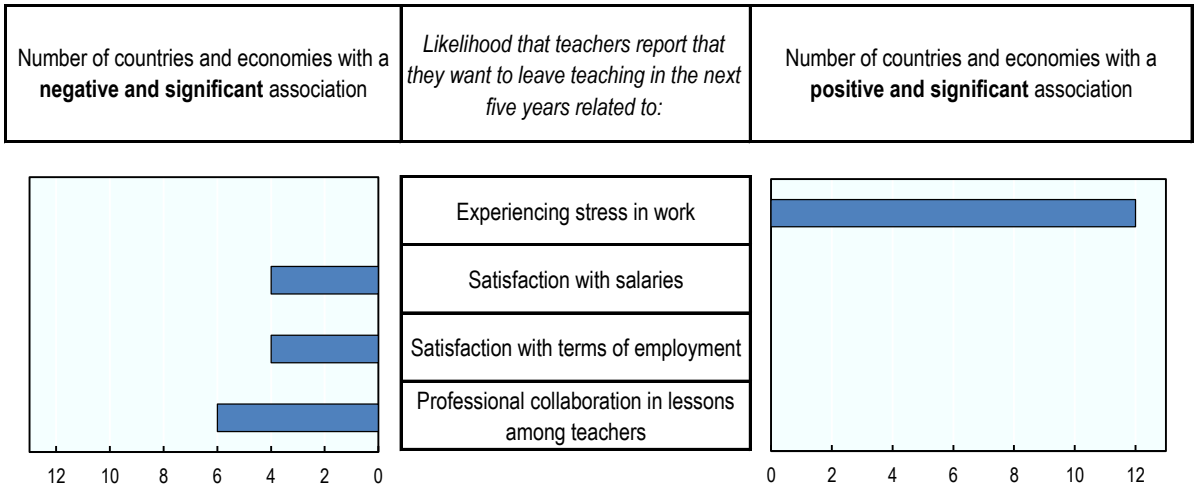
colleagues (Table 6.35). This is true for 7 out of the 13 countries with available data. Japan presents a particularly large gap of 9 percentage points. In contrast, male teachers are more likely to state they want to leave teaching in the next five years than their female colleagues in Denmark and Turkey. As primary education is an education level that is particularly struggling to attract male candidates it would be important to understand reasons why they want to leave the profession in these two countries.

Regarding differences between novice and experienced teachers, on average more experienced teachers are more likely to state they want to leave the teaching profession in the next five years than novice teachers (Table 6.35). This is not surprising as experience is intertwined with age and the life cycles of teachers.

Regarding the main factors associated with teachers wanting to leave their work, stress plays a crucial role. Teachers who reported experiencing a great deal of stress in their work are more likely to state they would like to leave teaching in the next five years in 12 out of the 13 countries with available data even if control by satisfaction with salaries, terms of employment and professional collaboration (Figure 6.12 and Table 6.39). That being said, satisfaction with salaries and terms of employment plus professional collaboration have a negative association with intention to leave teaching in around half of the countries, which might be pointing to a possible role in retaining teachers.

Figure 6.12. Factors associated with the intention to leave teaching in the next five years in primary education

Number of TALIS countries and economies showing a significant association between teachers reporting wanting to leave teaching in the next five years and the following variables



Note: Results of binary logistic regression based on the responses of teachers and principals in primary education. Controlling for the following: gender, work experience as a teacher, the share of low academic achievers in the classroom, the share of students with special needs in the classroom and the share of academically gifted students in the classroom.
Source: OECD, TALIS 2018 Database.

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In addition, teachers who reported that there is a collaborative school culture were less likely to report they will leave teaching in the next five years in 9 out of the 13 countries with available data and the same is the case for teachers reporting that the school provides staff with opportunities to participate in school decisions in 6 out of the 13 countries with available data (Table 6.37).

What do these results show? They point to the pivotal role that teachers' stress levels play in their intention to remain in the profession. If not attended to, stress levels may translate into more than just intentions to leave but actual attrition from the profession (Weiss, 1999[16]) That being said, coping mechanisms can lessen the impact that stress has on teachers' intention to leave the profession (Kyriacou, 2001[47]). In particular, school support and peer collaboration can play an important role in improving the well-being of teachers (Bakker et al., 2007[53]; Borman and Dowling, 2008[5]; Collie, Shapka and Perry, 2012[10]; Desrumaux et al., 2015[11]; Hakanen, Bakker and Schaufeli, 2006[8]). TALIS 2018 findings echo these results as participation in decision making and collaborative environments are negatively correlated with the intention to leave teaching. Finally, working engagement and arrangement such as terms of employment and salaries are also attractive elements to keep teachers in the profession (Bakker et al., 2007[53]). Interestingly, results show that terms of employment is a significant factor in more countries and economies than salaries, which points to the importance of the working conditions of teachers for their satisfaction.

How do primary education and lower secondary levels compare?

Overall, there are no major differences in the intention to leave teaching between primary education and lower secondary education. On average across countries with available data, teachers in primary education are less likely to state they would like to leave in the next five years than their colleagues in lower secondary education, although the percentage difference is quite small (less than 1 percentage point difference) (Table 6.34). This is true for England (United Kingdom), Korea and Sweden. That being said, the opposite pattern can be observed in Turkey and Viet Nam, where a higher percentage of teachers in primary education stated they would like to leave the profession.

Teachers' intention to leave teaching in upper secondary education

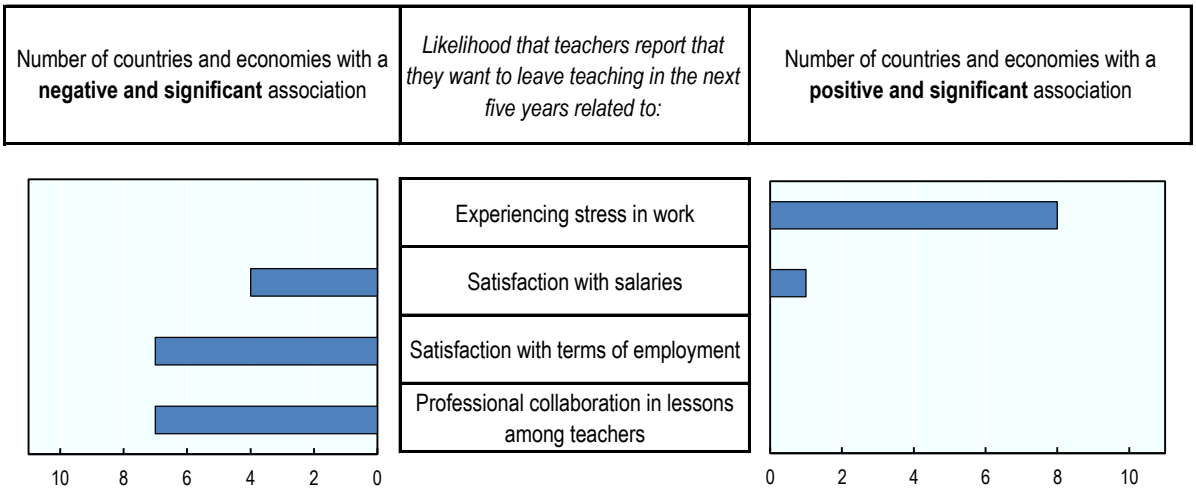
On average across the participants in upper secondary education, teachers reported that they would like to continue working as teachers for an additional 14.6 years (Table 6.34). Since the average age of teachers across is 44 (see Table 2.1 in Chapter 2), an additional 15 years takes teachers in upper secondary education close to retirement age for the majority of participating countries and economies. The data does not show a great degree of cross-country variation as the range goes from 12.1 additional years in Sweden to 18.9 years in Viet Nam.

In order to identify those countries and economies experiencing more pressing concerns to renew their teaching workforce, TALIS looked at the percentages of teachers who want to leave teaching within the next five years. Across participants, 23% of teachers stated they want to leave teaching within the next five years (Table 6.34). The countries and economies with particularly high percentages (equal to or above 25) are Sweden (34%), the United Arab Emirates (29%), Croatia (27%), Denmark (26%) and Slovenia (25%). Results showed that there is a mild country-level correlation between teachers wanting to leave teaching and the proportion of teachers age 50 and above (the linear correlation coefficient r is r=.42 among TALIS countries and economies).

Stress plays a crucial role in the desire to leave teaching within the next five years. Teachers who reported experiencing much stress in their work are more likely to state they would like to leave teaching in the next five years in 8 out of the 11 countries with available data, even if controlled by teachers' satisfaction with salaries, satisfaction with terms of employment, professional collaboration in lessons among teachers and other key teachers and school characteristics (Table 6.40). That being said, satisfaction with salaries and terms of employment plus professional collaboration have a negative association with intention to leave teaching in around half of the countries, which might be pointing to a possible role in retaining teachers (Figure 6.13).

Figure 6.13. Factors associated with the intention to leave teaching in the next five years in upper secondary education

Number of TALIS countries and economies showing a significant association between teachers reporting wanting to leave teaching in the next five years and the following variables



Note: Results of binary logistic regression based on the responses of teachers and principals in upper secondary education. Controlling for the following: gender, work experience as a teacher, the share of low academic achievers in the classroom, the share of students with special needs in the classroom and the share of academically gifted students in the classroom.
Source: OECD, TALIS 2018 Database.

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Looking deeper into school factors that could be help retention, teachers who reported that there is a collaborative school culture were less likely to report they will leave teaching in the next five years in 4 out of the 11 countries with available data. The same is found for teachers reporting school provides staff with opportunities to participate in school decisions in 8 out of the 11 countries and economies with available data (Table 6.37).

Results point to the pivotal role that teachers' stress levels play in their intention to remain in the profession. If not attended to, stress levels can translate into more than just intentions to leave, but, rather, actual attrition from the profession (Weiss, 1999[16]) That being said, coping mechanisms can lessen the impact that stress can have on teachers' intentions to leave the profession (Kyriacou, 2001[47]). In particular, school support and peer collaboration can play an important role in improving the well-being of teachers (Bakker et al., 2007[53]; Borman and Dowling, 2008[5]; Collie, Shapka and Perry, 2012[10]; Desrumaux et al., 2015[11]; Hakanen, Bakker and Schaufeli, 2006[8]). TALIS 2018 findings echo these results as participation in decision making and collaborative environments are negatively correlated with the intention to leave teaching. In contrast to primary education, participation in decision making seems to be a particularly salient factor for teachers' intention to remain in teaching. Finally, working engagement and arrangement such as terms of employment and salaries are also attractive elements to keep teachers in the profession (Bakker et al., 2007[53]). Interestingly, results show that terms of employment is a significant factor in more countries and economies than salaries, which points to the importance of the working conditions of teachers for their satisfaction.

How do upper secondary education and lower secondary levels compare?

On average across the countries with available data, teachers in upper secondary education are more likely to state they would like to leave the teaching profession than their colleagues in lower secondary education. This is true for 5 out of the 11 countries with available data. The difference is particularly pronounced for Turkey with a 9 percentage-point gap. The only exception to this pattern is Viet Nam, where teachers in upper secondary education are less likely to state they want to leave the profession than their colleagues in lower secondary education (Table 6.34).

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Notes

[1] Note that TALIS sampling does not include “substitute” teachers. Thus, teachers working under “fixed-term” contracts should not be confused for “substitute” teachers. For more information on the TALIS sampling, see Annex A.

[2] The scales of professional collaboration in lessons were drawn from teachers’ responses on how often (i.e. “Never”, “Once a year or less”, “2-4 times a year”, “5-10 times a year” , “1-3 times a month”, “Once a week or more”) they do the following: 1) Teach jointly as a team in the same class, 2) Provide feedback to other teachers about their practices, 3) Engage in joint activities across different classes and age groups (e.g. projects) and 4) Participate in collaborative professional learning.

[3] A national survey in Brazil also reveals that around one-third of teachers have an additional job to complement their income. This is particularly common among those working shorter hours or with a temporary contract. This can not only hinder attempts to build a cohesive school community and positive stakeholder relationships, but also has important implications for teachers’ professional development and students’ performance. For more information, see the most recent OECD Education Policy review *Education in Brazil: An International Perspective* (OECD, 2021[31]).

[4] Note that this indicator refers to the total hours teachers reported spending teaching in the last week in the surveyed schools. The actual teaching and learning time might be even lower as, in a typical lesson, time is also spent on classroom management and administrative work, which leaves less time for actual teaching and learning (see Chapter 3).

[5] TALIS does not survey substitute teachers. This group may be particularly inclined to leave the profession as they are unable to secure ongoing employment. This means that TALIS data very likely underestimates potential attrition rates. For more information on the sampling of teachers, see Annex A.

Annex A. Technical notes on TALIS 2018

The objective of the Teaching and Learning International Survey (TALIS) in 2018 was to obtain, in each participating country or economy, a representative sample of teachers for each International Standard Classification of Education (ISCED) level in which the country or economy participated. TALIS 2018 identified policy issues that encompass the classroom, teachers, schools and school management, so the coverage of TALIS 2018 extends to all teachers of each concerned ISCED level and to the principals of the schools where they teach. The international sampling plan prepared for TALIS 2018 used a stratified two-stage probability sampling design. This means that teachers (second stage units, or secondary sampling units) were to be randomly selected from the list of in-scope teachers in each of the randomly selected schools (first stage units, or primary sampling units). A more detailed description of the survey design and its implementation can be found in the *TALIS 2018 Technical Report* (OECD, 2019[1]).

A teacher of ISCED level 1, 2 or 3 is one who, as part of his or her regular duties in their school, provides instruction in programmes at that ISCED level. Teachers who teach a mixture of programmes at different ISCED levels in the target school are included in the TALIS universe. There is no minimum cut-off for how much teaching these teachers need to be engaged in at any of the three ISCED levels.

The international target population of TALIS 2018 restricts the survey to those teachers who teach regular classes in ordinary schools and to the principals of those schools. Teachers teaching adults and teachers working in schools exclusively devoted to children with special needs are not part of the international target population and are deemed out of scope. Unlike in TALIS 2008, however, teachers working with special needs students in a regular school setting were considered in scope in TALIS 2013 and 2018. When a school is made up exclusively of these teachers, the school itself is said to be out of scope. Teacher aides, pedagogical support staff (e.g. guidance counsellors and librarians) and health and social support staff (e.g. doctors, nurses, psychiatrists, psychologists, occupational therapists and social workers) were not considered to be teachers and, thus, not part of the TALIS international target population.

For national reasons, participating countries/economies could choose to restrict the coverage of their national implementation of TALIS 2018 to parts of the country. For example, a province or state experiencing civil unrest or in an area struck by a natural disaster could be removed from the international target population to create a national target population that does not include these provinces, states or areas. Participating countries were invited to keep these exclusions to a minimum by keeping the national survey population to at least 95% of the teachers.

TALIS 2018 recognised that attempting to survey teachers in very small schools can be inefficient and difficult. For each ISCED level, surveying teachers in schools with no more than three teachers at a specific ISCED level and those teaching in schools located in geographically remote areas could be a costly, time-consuming and statistically inefficient exercise. Therefore, participating countries were allowed to exclude those teachers for TALIS 2018 data collection, thus creating a national survey population different from the national target population. The national project manager (NPM) for each country/economy was required to document the reasons for exclusion, the size, the location, the clientele, etc., of each excluded school. This documentation was required for each ISCED level in which a country/economy participated.

Within a selected in-scope school, the following categories of teachers were excluded from the sample:

- teachers teaching in schools exclusively serving special needs students
- teachers who also act as school principals: no teacher data collected, but school principal data collected
- substitute, emergency or occasional teachers
- teachers on long-term leave
- teachers teaching exclusively adults
- teachers who had taken part in the TALIS 2018 field trial.

Sample size requirements

For each ISCED level, the same requirements for sample size and precision of estimates were established. To allow for reliable estimation and modelling, while allowing for some amount of non-response, the minimum sample size was set at 20 teachers within each participating school. A minimum sample of 200 schools was to be drawn from the population of in-scope schools. Thus, the nominal international sample size was a minimum of 4 000 teachers for each ISCED level in which a country or economy participated. Participating countries and economies could choose to augment their national sample by selecting more schools, by selecting more teachers within each selected school or by increasing both. Some countries and economies were asked to increase the within-school sample to counterbalance the effect of selecting too many schools with fewer than 20 teachers. The sample size requirement was reduced for some participating countries and economies because of the smaller number of schools available for sampling. In a few cases, because the average number of teachers in the schools was fewer than expected in the international plan, the number of schools sampled was increased to maintain a minimum total number of participating teachers.

In many countries/economies, the separation of grades in ISCED levels does not correspond to a physical separation of school buildings or administrations: schools that offer grades 8 to 12 straddle ISCED levels 2 and 3, but all of ISCED level 2 would not be covered by those schools. Arrangements were made with the NPM and their team to optimise the selection of the school sample either by minimising the overlap of the respective samples (one school is selected for participation in only one ISCED level) or maximising the sample overlap (a selected school contributes to all concerned ISCED levels). However, in the case of maximised overlap, teachers who taught at more than one level would be asked to participate in only one.

Definition of teachers

As in previous cycles, TALIS 2018 followed the INES (Indicators of Educational Systems) data collection definition of a teacher for sampling and analysis: “A classroom teacher (ISCED 0-4) is defined as a person who plans, organises and conducts a group of activities with the aim of developing students’ knowledge, skills and competencies as stipulated by educational programmes.” (OECD, 2018, p. 43[2]).

Adjudication process

The basic principle that guides the adjudication is to determine, for each participating country or economy and for each of the TALIS options, whether the data released to the countries and economies are fit to provide policy relevant, robust international indicators and analysis on teachers and teaching in a timely and cost effective manner.

To establish fitness for use, a number of quality assurance processes were designed and activated throughout the survey process. Some processes relied on expert advice and opinion; some relied on qualitative information and learned judgement; some relied on quantitative information. For more detailed information, please refer to the *TALIS 2018 Technical Report* (OECD, 2019[1]).

During the adjudication session, each individual dataset – that is, the combination of participating countries/economies, survey options and questionnaire types – was submitted to the same examination. For the first time in a TALIS cycle, principal data were evaluated on their own. In other words, principal and teacher data received separate adjudication evaluation per TALIS option and per country/economy.

The issues evaluated concerned the questionnaire adaptation to national context, translation and verification, quality of the sampling frame, handling of out-of-scope and refusal units (i.e. teachers and/or schools), within-school sampling, data collection, data cleaning, the reports of quality observers, participation rates and overall compliance with the technical standards. Once each survey process had been assessed, a recommended rating was formulated, accounting for the participation rates, and for any unresolved issues.

The adjudication rules, based on participation rates for principals and teachers, are displayed in Table A A.1 and Table A A.2. An explanation of the codes used is given below.

Table A A.1. Adjudication rules for school or principal data in TALIS 2018

School participation (returned principal questionnaires)		Risk of school non-response bias	Rating
Before replacement	After replacement		
≥75%	≥75%		Good
50% - 75%	≥75%		Fair (A)
	50% - 75%	Low	Fair (C)
		High	Poor (D)
<50%			Insufficient

Table A A.2. Adjudication rules for teacher data in TALIS 2018

School participation (minimum teacher participation)		Teacher participation after school replacement	Risk of teacher non-response bias	Rating
Before replacement	After replacement			
≥75%	≥75%	≥75%		Good
		50% - 75%		Fair (A)
50% - 75%	≥75%	≥75%		Fair (B)
		50% - 75%	Low	Fair (C)
			High	Poor (D)
50% - 75%	50% - 75%			Poor (E)
< 50%	≥75%			Poor (F)
< 50%	< 75%			Insufficient

The following bulleted list is a simple guide to help data users appreciate the limitations on use or quality:

- **Good:** The participating country's/economy's data can be used for all reporting and analytical purposes and can be included in international comparisons.
- **Fair (A):** National and sub-national estimates can be produced; some teacher characteristics may suffer from a larger standard error (S.E.), hence the warning "Fair", and no additional warnings to users appear necessary.

- **Fair (B, only for teacher data adjudication):** National and sub-national estimates can be produced; some sub-national estimates may be of lower precision (larger S.E.) if sample size is locally low, hence the warning "Fair", and no additional warnings to users appear necessary.
- **Fair (C):**
  - National and sub-national estimates can be produced.
  - Some sub-national estimates may be of lower precision (larger S.E.) if sample size is locally low, hence the warning "Fair", but a note on data quality could appear pointing to the outcome of the non-response bias analysis (NRBA).
  - Since school participation is somewhat lower than under (B), comparing sub-national estimates should be done with care, as some of those results are based on few schools.
  - Comparing small sub-national estimates with similar groups from other countries/economies is likely to uncover any statistically meaningful differences, as the S.E. are likely too large.
- **Poor (D):**
  - In addition to the warnings issued for the previous category, a note should warn users of indications of non-response biases in some estimates.
  - Comparisons of sub-national estimates should be limited to the groups with the larger sample sizes.
  - At this point, the sample represents between 37% and 56% of the teaching workforce, from a rather small sample of schools.
  - Comparisons with similar groups in foreign countries would not be encouraged.
- **Poor (E, only for teacher data adjudication):** Sub-national estimates would not be recommended; there should be a note pointing out the difficulty of obtaining a representative sample of schools.
- **Poor (F, only for teacher data adjudication):** Limitations similar to those of line E, but there should be a note pointing out the difficulty of obtaining at least 50% participation of the selected sample of schools; risks of having a non-representative sample of schools.
- **Insufficient:** Weights should not be calculated for any official tabulations; hence, data should not be incorporated into international tables, models, averages, etc.

The participation rates and the adjudication rating per participating country/economy and by ISCED level are presented in Table A A.3 to Table A A.8.

Notes regarding the use and interpretation of the data

This section lists issues to be noted regarding the sampling or field operations that should be considered when interpreting the data reported for these countries.

- **Alberta (Canada):**
  - TALIS data collection was conducted during a labour dispute.
  - Non-response bias analysis shows no evidence of high risk of school non-response bias on the investigated variables for teachers or principals in ISCED 2 or ISCED 3 and, as such, their rating was upgraded from "poor" to "fair".
- **Australia:**
  - For both ISCED 1 and 2, the data collection window for both teachers and principals was extended from the end of the academic year in 2017 to the beginning of the following academic year in 2018.

- For ISCED 1 principals and teachers and for ISCED 2 principals, data from Australia are located below the line in selected tables in this report and not included in the calculations for the international average. This is because Australia did not meet the international standards for participation rates, as shown in Table A A.3 to Table A A.5.

- **Denmark:** Non-response bias analysis shows no evidence of high risk of school non-response bias on the investigated variables for teachers or principals in ISCED 1, ISCED 2 or ISCED 3 and, as such, their rating was upgraded from "poor" to "fair".
- **Flemish Community of Belgium:** For both ISCED 1 and 2, entries on the sampling frame are administrative units and not "schools" as they are usually defined; a "school" may be comprised of one or several administrative units and the principal would be reporting for the school and not only the selected administrative unit. Therefore, users should exercise care when analysing and comparing school level statistics.
- **Korea:** For ISCED 2, in four schools, teacher listings were found to be incorrect; those schools were set to "non-participant".
- **Netherlands:**
  - For ISCED 1 and 2, the Netherlands had a six-week early start and extended collection window.
  - For ISCED 1 and 2, the Netherlands had an unapproved collection protocol that resulted in the inclusion of some 50 "national" schools that were not included in the international dataset but left on the national dataset; participation rates were computed on the international dataset.
  - For ISCED 1 principals and teachers, data from the Netherlands are located below the line in in the result tables of this report. This is because the Netherlands did not meet the international standards for participation rates, as shown in Table A A.3 and Table A A.4.
- **United Arab Emirates:** Because of the selection of multi-level schools, the principal data were copied from the original ISCED level 2 principal questionnaire to the ISCED level 1 and ISCED level 3 corresponding forms, except for Question 17 in the principal questionnaire.

Table A A.3. ISCED 1 principals' participation and recommended ratings

	Number of participating principals	Estimated size of principal population	Principals' participation before replacement (%)	Principals' participation after replacement (%)	Recommended rating
Australia	223	6 522	48.8	77.9	Insufficient
Flemish Community (Belgium)	184	2 193	70.0	92.2	Fair
CABA (Argentina)[1]	175	878	85.0	87.5	Good
Denmark	145	1 567	56.6	73.2	Fair
England (UK)	161	16 945	76.4	89.5	Good
France	178	29 636	89.3	91.5	Good
Japan	197	19 962	97.2	99.5	Good
Korea	161	5 913	78.0	80.5	Good
Netherlands	135	6 158	40.7	69.6	Insufficient
Spain	436	13 305	98.2	98.2	Good
Sweden	166	3 983	84.7	87.4	Good
Chinese Taipei	200	2 644	99.8	100.0	Good
Turkey	171	17 696	99.3	99.3	Good
United Arab Emirates	502	554	90.6	90.6	Good
Viet Nam	194	15 318	100.0	100.0	Good

1. CABA (Argentina): Ciudad Autónoma de Buenos Aires, Argentina.

Table A A.4. ISCED 1 teachers' participation and recommended ratings

	Number of participating schools	Number of participating teachers	Estimated size of teacher population	School participation before replacement (%)	School participation after replacement (%)	Teacher participation in participating schools (%)	Overall teacher participation (%)	Recommended rating
Australia	213	3 030	133 915	48.8	74.0	76.4	56.5	Insufficient
Flemish Community (Belgium)	177	2 662	30 192	66.3	88.5	92.2	81.7	Fair
CABA (Argentina)[1]	167	2 514	16 221	81.0	83.5	86.9	72.5	Good
Denmark	154	2 592	34 166	58.6	77.8	87.5	68.1	Fair
England (UK)	152	2 009	225 194	74.3	85.9	85.0	73.1	Fair
France	178	1 429	209 981	88.6	91.2	92.1	84.0	Good
Japan	197	3 308	354 795	97.0	99.5	98.8	98.3	Good
Korea	182	3 207	128 831	86.0	91.0	91.9	83.6	Good
Netherlands	130	1 504	68 640	39.3	67.0	86.8	58.2	Insufficient
Spain	442	7 246	210 627	99.3	99.5	95.4	95.0	Good
Sweden	178	2 404	57 183	90.0	93.7	78.8	73.8	Good
Chinese Taipei	200	3 494	89 608	99.5	100.0	97.6	97.6	Good
Turkey	172	3 204	212 347	99.4	99.4	98.5	97.9	Good
United Arab Emirates	552	9 188	16 372	99.6	99.6	96.6	96.2	Good
Viet Nam	194	3 991	385 301	100.0	100.0	98.3	98.3	Good

1. CABA (Argentina): Ciudad Autónoma de Buenos Aires, Argentina.

Table A A.5. ISCED 2 principals' participation and recommended ratings

	Number of participating principals	Estimated size of principal population	Principals' participation before replacement (%)	Principals' participation after replacement (%)	Recommended rating
Alberta (Canada)	129	1 038	54.4	66.2	Fair
Australia	230	2 680	49.0	75.7	Insufficient
Austria	277	1 483	96.0	100.0	Good
Flemish Community (Belgium)	188	721	82.5	94.0	Good
Brazil	184	52 187	88.0	95.4	Good
CABA (Argentina)[1]	121	488	77.5	82.6	Good
Croatia	188	896	95.0	95.6	Good
Denmark	140	1 457	51.5	71.4	Fair
England (UK)	157	3 990	71.9	81.8	Fair
France	195	6 770	97.6	98.0	Good
Japan	195	10 071	93.9	99.4	Good
Korea	150	3 134	68.1	77.8	Fair
Netherlands	125	524	56.2	85.6	Fair
Portugal	200	1 255	97.7	100.0	Good
Slovenia	119	448	74.8	79.3	Good
Spain	396	6 861	98.7	99.2	Good
Sweden	171	1 739	85.9	89.1	Good
Chinese Taipei	202	935	100.0	100.0	Good

	Number of participating principals	Estimated size of principal population	Principals' participation before replacement (%)	Principals' participation after replacement (%)	Recommended rating
Turkey	196	16 100	99.0	99.0	Good
United Arab Emirates	476	521	91.4	91.4	Good
Viet Nam	196	10 799	100.0	100.0	Good

1. CABA (Argentina): Ciudad Autónoma de Buenos Aires, Argentina

Table A A.6. ISCED 2 teachers' participation and recommended ratings

	Number of participating schools	Number of participating teachers	Estimated size of teacher population	School participation before replacement (%)	School participation after replacement (%)	Teacher participation in participating schools (%)	Overall teacher participation (%)	Recommended rating
Alberta (Canada)	122	1 077	9 991	51.8	62.6	83.0	52.0	Fair
Australia	233	3 573	116 679	50.3	76.6	77.7	59.6	Fair
Flemish Community (Belgium)	182	3 122	18 615	80.0	91.0	84.4	76.8	Good
Brazil	185	2 447	568 510	89.9	96.6	94.9	91.6	Good
CABA (Argentina)[1]	130	2 099	10 218	81.3	86.7	88.6	76.8	Good
Croatia	188	3 358	15 762	95.4	96.2	87.0	83.7	Good
Denmark	141	2 001	22 475	51.1	72.0	86.8	62.5	Fair
England (UK)	149	2 376	193 134	72.7	81.5	83.6	68.1	Fair
France	176	3 006	197 013	87.3	87.8	88.1	77.3	Good
Japan	196	3 555	230 558	92.4	99.5	99.0	98.5	Good
Korea	163	2 931	75 654	70.5	81.5	92.2	75.1	Fair
Netherlands	116	1 884	66 672	56.7	79.5	80.9	64.3	Fair
Portugal	200	3 676	39 703	97.9	100.0	92.7	92.7	Good
Slovenia	132	2 094	7 422	82.2	88.0	91.5	80.5	Good
Spain	399	7 407	186 171	99.5	100.0	94.6	94.6	Good
Sweden	180	2 782	31 421	89.1	93.9	81.3	76.3	Good
Chinese Taipei	200	3 835	53 208	99.0	99.0	97.2	96.2	Good
Turkey	196	3 952	277 187	99.0	99.0	98.5	97.5	Good
United Arab Emirates	521	8 648	14 489	100.0	100.0	96.0	96.0	Good
Viet Nam	196	3 825	295 033	100.0	100.0	96.3	96.3	Good

1. CABA (Argentina): Ciudad Autónoma de Buenos Aires, Argentina.

Table A A.7. ISCED 3 principals' participation and recommended ratings

	Number of participating principals	Estimated size of principal population	Principals' participation before replacement (%)	Principals' participation after replacement (%)	Recommended rating
Alberta (Canada)	115	606	51.8	59.6	Fair
Brazil	187	27 140	91.4	97.5	Good
Croatia	145	391	96.7	96.7	Good
Denmark	96	372	58.3	70.8	Fair
Portugal	195	834	98.0	99.5	Good
Slovenia	103	148	69.6	69.6	Fair
Sweden	174	1 160	91.6	93.8	Good
Chinese Taipei	151	496	100.0	100.0	Good
Turkey	448	9 256	98.0	98.0	Good
United Arab Emirates	366	408	89.7	89.7	Good
Viet Nam	199	2 899	100.0	100.0	Good

Table A A.8. ISCED 3 teachers' participation and recommended ratings

	Number of participating schools	Number of participating teachers	Estimated size of teacher population	School participation before replacement (%)	School participation after replacement (%)	Teacher participation in participating schools (%)	Overall teacher participation (%)	Recommended rating
Alberta (Canada)	112	1 094	7 819	51.6	56.6	80.2	45.4	Fair
Brazil	186	2 828	421 593	92.3	97.4	94.5	92.0	Good
Croatia	147	2 661	14 818	97.9	97.9	89.7	87.9	Good
Denmark	111	1 670	16 726	72.2	85.6	84.7	72.4	Fair
Portugal	195	3 551	36 188	99.0	99.7	91.3	91.0	Good
Slovenia	119	2 200	5 393	80.4	80.4	87.8	70.6	Good
Sweden	181	2 933	26 891	95.3	97.8	81.7	79.9	Good
Chinese Taipei	148	2 800	41 220	98.1	98.1	95.8	94.1	Good
Turkey	457	8 342	252 277	100.0	100.0	98.0	98.0	Good
United Arab Emirates	405	6 118	10 143	99.3	99.3	95.7	95.0	Good
Viet Nam	199	3 884	175 061	100.0	100.0	97.7	97.7	Good

References

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Annex B. Technical notes on analyses in this report

Use of teacher and school weights

The statistics presented in this report were derived from data obtained through samples of schools, school principals and teachers. The sample was collected following a stratified two-stage probability sampling design. This means that teachers (second-stage units or secondary sampling units) were randomly selected from the list of in-scope teachers for each of the randomly selected schools (first-stage or primary sampling units). For these statistics to be meaningful for a country/economy, they needed to reflect the whole population from which they were drawn and not merely the sample used to collect them. Thus, survey weights must be used in order to obtain design-unbiased estimates of population or model parameters.

Final weights allow the production of country/economy-level estimates from the observed sample data. The estimation weight indicates how many population units are represented by a sampled unit. The final weight is the combination of many factors reflecting the probabilities of selection at the various stages of sampling and the response obtained at each stage. Other factors may also come into play as dictated by special conditions to maintain the unbiasedness of the estimates (e.g. adjustment for teachers working in more than one school).

Statistics presented in this report that are based on the responses of school principals and that contribute to estimates related to school principals were estimated using school weights (SCHWGT). Results based only on responses of teachers or on responses of teachers and principals (i.e. responses from school principals were merged with teachers' responses) were weighted by teacher weights (TCHWGT).

Use of complex variables and scales

In this report, several scale indices are used in regression analyses. Descriptions of the construction and validation of these scales can be found in Chapter 11 of the *TALIS 2018 Technical Report* (OECD, 2019[1]).

International averages

The Teaching and Learning International Survey (TALIS) averages, which were calculated for most indicators presented in this report, correspond to the arithmetic mean of the respective country/economy estimates in each International Standard Classification of Education (ISCED) level. When the statistics are based on responses of teachers and principals in primary education, the TALIS average covers 13 countries and economies (Table A B.1). Although 15 countries and economies took part in the study, since the data of Australia and the Netherlands was not adjudicated, they were not incorporated in the TALIS average. In the case of analysis based on responses of teachers and school leaders in upper secondary education, the TALIS averages cover 11 countries and economies. Finally a TALIS average for lower secondary education was estimated for those countries participating in primary education and upper secondary education.

Table A B.1. Country coverage of international averages in TALIS 2018 per educational level

	TALIS average-ISCED 1	TALIS average-ISCED 1/ Lower secondary	TALIS average-ISCED 3	TALIS average-ISCED 3/ Lower secondary
Alberta (Canada)	–	–	x	x
Australia	–	–	–	–
Flemish Comm. (Belgium)	X	X	–	–
Brazil	–	–	x	x
CABA (Argentina)[1]	X	X	–	–
Croatia	–	–	x	x
Denmark	x	X	x	x
England (UK)	X	X	–	–
France	X	X	–	–
Japan	X	X	–	–
Korea	X	X	–	–
Netherlands	–	–	–	–
Portugal	–	–	x	x
Slovenia	–	–	x	x
Spain	X	X	–	–
Sweden	x	X	x	x
Chinese Taipei	x	X	x	x
Turkey	x	X	x	x
United Arab Emirates	x	X	x	x
Viet Nam	x	X	x	x

1. CABA (Argentina): Ciudad Autónoma de Buenos Aires, Argentina.

Standard errors and significance tests

The statistics in this report represent estimates based on samples of teachers and principals, rather than values that could be calculated if every teacher and principal in every country/economy had answered every question. Consequently, it is important to measure the degree of uncertainty of the estimates. In TALIS, each estimate has an associated degree of uncertainty that 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. The reported standard errors were computed with a balanced repeated replication (BRR) methodology.

Differences between sub-groups

Differences between sub-groups along teacher characteristics (e.g. female teachers and male teachers), school characteristics (e.g. schools with a high concentration of students from socio-economically disadvantaged homes and schools with a low concentration of students from socio-economically disadvantaged homes) and across educational levels (e.g. teachers in primary education and teachers in lower secondary education) were tested for statistical significance. All differences marked in bold in the data tables of this report are statistically significantly different from 0 at the 95% confidence level.

In the case of differences between sub-groups at the same level, the standard error is calculated by taking into account that the two subsamples are not independent. As a result, the expected value of the covariance might differ from 0, leading to smaller estimates of standard error as compared to estimates of

standard error calculated for the difference between independent subsamples. In the case of differences between educational levels, the standard error is calculated by considering that the two subsamples are independent.

Statistics based on regressions

Regression analysis was conducted to explore the relationships between different variables. Multiple linear regression was used in those cases where the dependent (or outcome) variable was considered continuous. Binary logistic regression was employed when the dependent (or outcome) variable was a binary categorical variable. Regression analyses were carried out for each country/economy separately. Similarly to other statistics presented in this report, the TALIS averages refer to the arithmetic mean of country/economy-level estimates.

Control variables included in a regression model are selected based on theoretical reasoning and, preferably, limited to the most objective measures or those that do not change over time. Controls for teacher characteristics include: teacher's gender, age, employment status (i.e. full-time/part-time) and years of teaching experience. Controls for class characteristics include: variables of classroom composition (i.e. share of students whose first language is different from the language of instruction, low academic achievers, students with special needs, students with behavioural problems, students from socio-economically disadvantaged homes, academically gifted students, immigrant students or students with an immigrant background, refugee students) and class size.

In the case of regression models based on multiple linear regression, the explanatory power of the regression models is also highlighted by reporting the R-squared (R^2), which represents the proportion of the observed variation in the dependent (or outcome) variable that can be explained by the independent (or explanatory) variables.

Multiple linear regression analysis

Multiple linear regression analysis provides insights into how the value of the continuous dependent (or outcome) variable changes when any one of the independent (or explanatory) variables varies while all other independent variables are held constant. In general, and with everything else held constant, a one-unit increase in the independent variable (x_i) increases, on average, the dependent variable (Y) by the units represented by the regression coefficient (β_i):

$$Y = \beta_0 + \beta_1 x_1 + \cdots + \beta_i x_i + \varepsilon$$

When interpreting multiple regression coefficients, it is important to keep in mind that each coefficient is influenced by the other independent variables in a regression model. The influence depends on the extent to which independent variables are correlated. Therefore, each regression coefficient does not capture the total effect of independent variables on the dependent variable. Rather, each coefficient represents the additional effect of adding that variable to the model, considering that the effects of all other variables in the model are already accounted for. It is also important to note that, because cross-sectional survey data are used in these analyses, no causal conclusions can be drawn.

Regression coefficients in bold in the data tables presenting the results of regression analysis are statistically significantly different from 0 at the 95% confidence level.

Binary logistic regression analysis

Binary logistic regression analysis enables the estimation of the relationship between one or more independent (or explanatory) variables and the dependent (or outcome) variable with two categories. The

regression coefficient (β) of a logistic regression is the estimated increase in the log odds of the outcome per unit increase in the value of the predictor variable.

More formally, let Y be the binary outcome variable indicating no/yes with 0/1, and p be the probability of Y to be 1, so that $p = prob(Y = 1)$. Let $x_1, \ldots x_k$ be a set of explanatory variables. Then, the logistic regression of Y on $x_1, \ldots x_k$ estimates parameter values for $\beta_0, \beta_1, \ldots, \beta_k$ via the maximum likelihood method of the following equation:

$$Logit(p) = \log(p/(1-p)) = \beta_0 + \beta_1 x_1 + \cdots + \beta_k x_k$$

Additionally, the exponential function of the regression coefficient (e^{β}) is obtained, which is the odds ratio (OR) associated with a one-unit increase in the explanatory variable. Then, in terms of probabilities, the equation above is translated into the following:

$$p = \frac{e^{(\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k)}}{(1 + e^{(\beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k)})}$$

The transformation of log odds (β) into odds ratios (e^{β}; OR) makes the data more interpretable in terms of probability. The odds ratio (OR) is a measure of the relative likelihood of a particular outcome across two groups. The odds ratio for observing the outcome when an antecedent is present is:

$$OR = \frac{p_{11}/p_{12}}{p_{21}/p_{22}}$$

where p_{11}/p_{12}represents the "odds" of observing the outcome when the antecedent is present, and p_{21}/p_{22} represents the "odds" of observing the outcome when the antecedent is not present. Thus, an odds ratio indicates the degree to which an explanatory variable is associated with a categorical outcome variable with two categories (e.g. yes/no) or more than two categories. An odds ratio below one denotes a negative association; an odds ratio above one indicates a positive association; and an odds ratio of one means that there is no association. For instance, if the association between being a female teacher and having chosen teaching as first choice as a career is being analysed, the following odds ratios would be interpreted as:

- **0.2:** Female teachers are five times less likely to have chosen teaching as a first choice as a career than male teachers.
- **0.5:** Female teachers are half as likely to have chosen teaching as a first choice as a career than male teachers.
- **0.9:** Female teachers are 10% less likely to have chosen teaching as a first choice as a career than male teachers.
- **1**: Female and male teachers are equally likely to have chosen teaching as a first choice as a career.
- **1.1:** Female teachers are 10% more likely to have chosen teaching as a first choice as a career than male teachers.
- **2:** Female teachers are twice more likely to have chosen teaching as a first choice as a career than male teachers.
- **5:** Female teachers are five times more likely to have chosen teaching as a first choice as a career than male teachers.

The odds ratios in bold indicate that the relative risk/odds ratio is statistically significantly different from 1 at the 95% confidence level. To compute statistical significance around the value of 1 (the null hypothesis), the relative-risk/odds-ratio statistic is assumed to follow a log-normal distribution, rather than a normal distribution, under the null hypothesis.

Gap decomposition analysis

The main goal of this report was to identify those variables displaying significant changes across educational levels and attempt to understand what factors could explain these differences. In particular differences in teacher and school characteristics across educational levels are used to understand the differences in certain outcomes, such as teachers' perceptions of feeling valued in society, amount of time devoted to instruction, the level of need for professional development and teachers' overall well-being (see Boxes 2.1, 3.2, 4.5 and 6.3)

The method chosen to conduct these explorations was the Blinder-Oaxaca decomposition. It was originally developed to study different labour market outcomes across groups, such as gender or race, but it can be used to investigate any group differences in outcomes. Starting with a set of relevant characteristics that differ across groups, the methodology can be applied to divide the group differences in outcomes into a portion explained by group characteristics and a residual or unexplained component (OECD, 2018, p. 181[2]). In general, the Binder-Oaxaca decompositions analyse the differential of the average of a teacher characteristic (Y) between two groups (P [primary education] and LS [lower secondary education]) to determinate the share that is due to differences in a set of observable predictors (S) and the share left unexplained.

Based on linear models, the difference in the mean outcome can be expressed as:

$$\overline{Y_p} - \overline{Y_{ls}} = \beta_p \overline{S_p} - \beta_{ls} \overline{S_{ls}}$$

It can be divided into two components, using a "twofold" decomposition.

$$\beta_p (\overline{S_p} - \overline{S_{ls}})$$

The equation above represents the "explained effects", which reflects the extent to which the differences in the outcomes are explained by the mean differences in a series of teacher and school characteristics between primary and lower secondary education.

$$(\alpha_p - \alpha_{ls}) + (\beta_p - \beta_{ls}) \overline{S_{ls}}$$

The equation above represents the "unexplained effects" that could be capturing the residual effects (i.e. return effects) of the teacher and school characteristics on the model, along with differences in unobservable components. Results on the residual term are presented in the graph for the sake of clarity, but they are not commented on because their interpretation is cumbersome.

Pearson correlation coefficient

Correlation coefficient measures the strength and direction of the statistical association between two variables. Correlation coefficients vary between -1 and 1; values around 0 indicate a weak association, while the extreme values indicate the strongest possible negative or positive association. The Pearson correlation coefficient (indicated by the letter r) measures the strength and direction of the linear relationship between two variables.

In this report, Pearson correlation coefficients are used to quantify relationships between country/economy-level statistics.

Definition of education levels

The classification of levels of education is based on the International Standard Classification of Education (ISCED). ISCED is an instrument for compiling statistics on education internationally. ISCED-97 was revised, and the new International Standard Classification of Education (ISCED-2011), formally adopted

in November 2011, is now the basis of the levels presented in this publication. It distinguishes between nine levels of education.

Table A B.2. ISCED-2011 categories

	Category descriptions
Level 0	**Early childhood education** Refers to early childhood programmes that have an intentional education component and aim to develop cognitive, physical and socio-emotional skills necessary for participation in school and society. Programmes at this level are often differentiated by age.
Level 01	*Early childhood educational development*
Level 02	*Pre-primary education*
Level 1	**Primary education** Designed to provide a sound basic education in reading, writing and mathematics and a basic understanding of some other subjects. Entry age: between 5 and 7. Typical duration: 6 years.
Level 2	**Lower secondary education** Completes provision of basic education, usually in a more subject-oriented way with more specialist teachers. Programmes may differ by orientation, general or vocational, though this is less common than at upper secondary level. Entry follows completion of primary education and typical duration is 3 years. In some countries, the end of this level marks the end of compulsory education.
Level 3	**Upper secondary education** Stronger specialisation than at lower secondary level. Programmes offered are differentiated by orientation: general or vocational. Typical duration is 3 years.
Level 4	**Post-secondary non-tertiary education** Serves to broaden rather than deepen the knowledge, skills and competencies gained in the upper secondary level. Programmes may be designed to increase options for participants in the labour market, for further studies at tertiary level, or both. Usually, programmes at this level are vocationally oriented.
Level 5	**Short-cycle tertiary education** Serves to deepen the knowledge developed at previous levels by imparting new techniques, concepts and ideas not generally covered in upper secondary education.
Level 6	**Bachelor's or equivalent level** Designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Typical duration: 3-4 years full-time study.
Level 7	**Master's or equivalent level** Stronger specialisation and more complex content than bachelor's level. Designed to provide participants with advanced academic and/or professional knowledge. May have a substantial research component.
Level 8	**Doctoral or equivalent level** Designed to lead to an advanced research qualification. Programmes at this level are devoted to advanced study and original research, and exist in both academic and professional fields.

Source: UNESCO-UIS (2012[3]), *International Standard Classification of Education: ISCED 2011*, http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf.

Collection of system-level data

Although the ISCED classification seeks to provide a common framework to make data internationally comparable, education systems are multi-layered and complex, and some nuances may still escape analysis. In other words, educational programmes, even within the same educational level, could vary greatly across countries/economies, and any analysis of the data should take that into consideration. In order to provide additional country/economy-level information that will help contextualise information and provide some nuances to national comparison, national-level information was collected from TALIS 2018 participants in primary and upper secondary education. The data comes for the most part from administrative sources taken from other OECD publications, such as *Education at Glance* and publications related to the Programme for International Student Assessment (PISA). All data are displayed in Tables A B.3, A B.4 and A B.5.

References

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OECD (2018), *OECD Handbook for Internationally Comparative Education Statistics 2018: Concepts, Standards, Definitions and Classifications*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264304444-en. [4]

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Annex C. List of tables available on line

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StatLink https://stat.link/927n1o

TALIS

Teachers Getting the Best out of Their Students

FROM PRIMARY TO UPPER SECONDARY EDUCATION

Developing, promoting and maintaining a good professional teaching workforce from primary to upper secondary education is a policy imperative for education systems around the world. The data drawn from the OECD Teaching and Learning International Survey (TALIS) can help policy makers and education practitioners design policies and practices that enhance teaching across education levels. This report presents TALIS 2018 findings for countries and economies that took part in the primary and upper secondary education survey. It focuses on the following research questions: What are the levels of teachers' and school leaders' professionalism in primary and upper secondary education? What are some of the educational challenges unique to each education level? What are the factors that could explain differences in the levels of professionalism across education levels? The findings offer a broader view of teachers and school principals across all levels of compulsory education and the similarities and differences in the issues they face. The report also offers policy reflections on these findings.

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