Organisation for Economic Co-operation and Development

Skills Summit 2018 – Skills for a digital world

Issues for discussion

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Skills for a digital world

Risks and opportunities in a digital world: the changing landscape of skills needs

1. Information and communications technologies (ICT), advances in artificial intelligence (AI) and robotics are profoundly changing the way people work, interact with each other, communicate, and live. Most people now regularly use digital tools like computers, smartphones and/or tablets at work and at home. Digital technologies have also enabled the rise of the "platform economy", which has introduced new ways to create value, work, and socialise.

Digitalisation and the world of work

2. The world of work has undergone important changes that have major implications for the skills workers need and can develop on the job. In 2015, 57% of EU28 workers regularly used a computer or smartphone at work, a 20-percentage point surge relative to only 10 years earlier (Eurofound, 2017[1]). Even for those who do not use ICTs, the nature of their work is changing as some tasks are increasingly automated.

3. Digitalisation brings immense economic potential. Digital technology can generate productivity gains, spurring growth and creating new jobs. It can enrich the content of some occupations by allowing workers to increasingly focus on non-routine tasks, such as problem solving, creative and more complex communications activities. It can also enable individuals around the world to bring their ideas onto the market much more easily, boosting opportunities for entrepreneurship.

4. But there are fears about the consequences of digitalisation for labour markets. The digital transformation is profoundly transforming what people do at work, how and where they work, and by extension the type of skills and mix of skills needed to be successful in their careers, thus changing jobs and labour markets. The many facets that the digital transformation may take, including hardware, software, broadband or cloud computing as well as big data, robots, platforms and digital markets, are permeating countries and industries to different extent and at various speed. As a result, many jobs will change in nature, other might disappear as a result of automation, and new ones will be created thanks to platforms and digitally-enabled business opportunities.

5. Estimates of the risk of automation provide some indication of the share of workers whose jobs might change substantially or disappear because of automation. While considerable uncertainty and variation characterise these estimates, OECD work building on the Survey of Adult Skills (PIAAC), suggests that, on average in the countries that participated in the survey, about 14% of workers face a high risk of seeing their jobs automated, and another 34% face significant changes in their job tasks due to automation (Nedelkoska and Quintini, 2018[2]). In the same line, when literacy skills are considered (as tested in the Survey of Adult Skills), another OECD study found that 62%

of workers in OECD countries use these skills on a daily basis at work but with proficiency at a level that computers are close to reproducing (Elliott, 2017[3]).

6. As the skills requirements of the jobs that are emerging are not the same as those of jobs that are disappearing, some workers risk to be left behind. High-skilled workers have benefited relatively more from technological change as their skills set complements technology in the performance of non-routine tasks. Over the past two decades, most OECD countries have experienced labour market polarisation, whereby the share of employment in high-skilled (and to some extent in low-skilled jobs) has increased, while the share of employment in middle-skilled jobs has decreased (OECD, 2017[4]).

7. Looking forward, however, low-skilled workers are at risk to bear most of the costs of the digital transformation. They face increased competition for jobs from middle-skilled workers whose jobs have been disappearing; they are also least likely to be able to adapt to new technologies and working practices and to benefit from the new opportunities offered by the digital transformation.

8. Going digital may also exacerbate inequalities between cities/regions, as new jobs may appear in different places than those where jobs are destroyed. Evidence from the United States shows that, since the 1980s new jobs making high use of computers have mainly appeared in urban locations with a large share of high-skilled workers (Berger and Frey, 2016[5]). At the same time, digital technologies facilitate remote working and work practices that take advantage of ICT tools, thus making work and job opportunities more ubiquitous.

9. Workers need to have the right mix of skills to successfully navigate the transition to and thrive in the digital world of work. This mix of skills includes, first, strong general cognitive skills, such as literacy, numeracy and basic ICT skills. It also includes analytical skills and a range of complementarity skills such as problem solving, creative and critical thinking and a strong ability to continue learning. Interpersonal and communication skills, as well as emotional skills such as self-awareness, and the ability to manage stress and change, are also increasingly important.

10. The future of employment, fostering economic growth and reducing inequalities depend on policies accompanying and steering technological developments. Policies can shape the way technology develops and how it will affect economies. For example, policies may promote technologies and business models that can enhance human activities rather than replace them. Those that affect skills development and skills use – the so-called skills policies – have a crucial role to play in this policy package:

- Workers with strong foundation skills find it easier to adapt to new job requirements or to change jobs, industries or geographic location, if needed. They are better-positioned to acquire new knowledge and develop other skills, including analytical, social and emotional skills, and are best prepared to continue learning throughout life.
- Workers with the right mix of skills can benefit from new opportunities, including those emerging from the platform economy, and work in technology-rich environments.
- A skilled workforce enables the development and adoption of frontier technology and helps realise the productivity gains enabled by new technologies.

Digitalisation and societies

11. The digital transformation goes much beyond the world of work, affecting many aspects of daily life. ICT is more than an infrastructure that can facilitate access to information and to private and public services. It affects the way people interact, communicate, learn, build trust in others, participate in the democratic process, and spend their time. E-commerce affects consumers' behaviours and time use, and is changing the retail industry. The time that people spend on their smartphones and the implications that this may have on their social life and well-being have now become crucial questions.

12. Students, parents, consumers, citizens, people need to have the skills to access, filter and process information, to perform the tasks that can be done through the Internet and to benefit from the new opportunities offered by the digital era. At the same time, a heightened awareness is needed to protect individual's privacy by securing data. If people have the necessary skills, digitalisation offers large potential for knowledge diffusion, and for enhanced engagement in the public good, including political engagement and public services.

13. Young people, more than others, lead the use of digital tools. On average across OECD countries, in 2015, students were spending more than two hours online during a typical weekday after school, and more than three hours online during a typical weekend day (OECD, 2017[6]). Participating in social networks was the most popular online leisure activity across OECD countries, followed by chatting on line. More than half of girls and boys aged 15, on average in OECD countries, said they feel bad when no Internet connection is available.

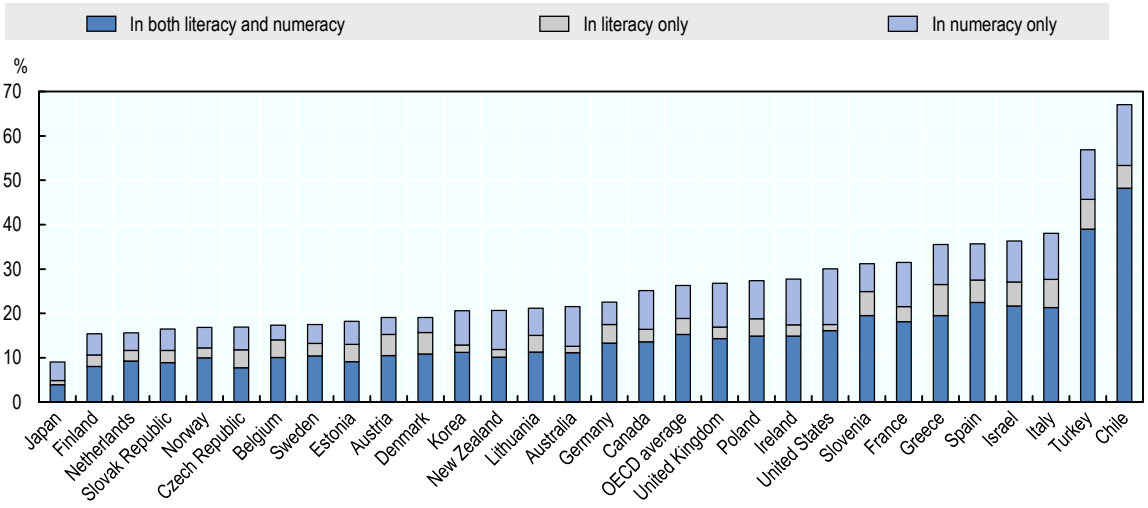
14. Skills are becoming a major determinant of the digital divide. As Internet access has expanded to a large share of the population, the digital divide is increasingly characterised by the type of activities that citizens are able to perform on the Internet and the outcomes of Internet use, for instance in terms of security, privacy and well-being. These outcomes are mainly driven by the skills people have (Scheerder, van Deursen and van Dijk, 2017[7]). Skills policies can help all individuals benefit from digitalisation in their everyday life at a time when misuse of digital tools can jeopardise human relationships and even hurt democracy:

- Skilled individuals can make an informed and balanced use of the Internet to benefit from the opportunities of digitalisation on various aspects of their lives.
- Skilled parents can inform their children about the risks of online activities while helping them to make the most of technology as a learning tool.

Countries and regions' preparedness for these changes

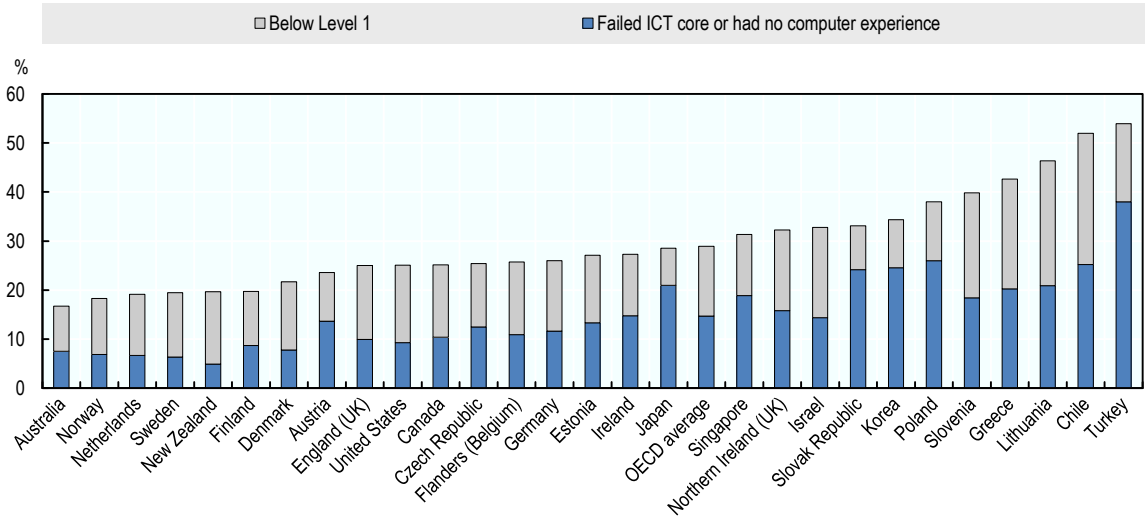
15. In most countries, part of the population lacks the skills to face the challenges that digitalisation poses to economies and societies. The Survey of Adult Skills (PIAAC) shows that on average in the OECD, more than 20% of adults are low performers in literacy and/or numeracy (Figure 1). At the time of the Survey (2012 or 2015 depending on countries), around 15% of adults had no prior computer experience or did not have basic ICT skills, and around 14% scored at a low level of problem solving skills using a computer (Figure 2).

Figure 1. The proportion of low performer adults in literacy and/or numeracy



Note: Low performers are defined as those who score at or below Level 1 in either literacy or numeracy according to the Survey of Adult Skills. Chile, Greece, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey: Year of reference 2015. All other countries: Year of reference 2012. Data for Belgium refer only to Flanders and data for the United Kingdom refer to England and Northern Ireland jointly.
Source: Survey of Adult Skills (PIAAC) (2012 and 2015), *www.oecd.org/skills/piaac/publicdataandanalysis*.

Figure 2. The proportion of low performer adults in problem-solving skills using a computer



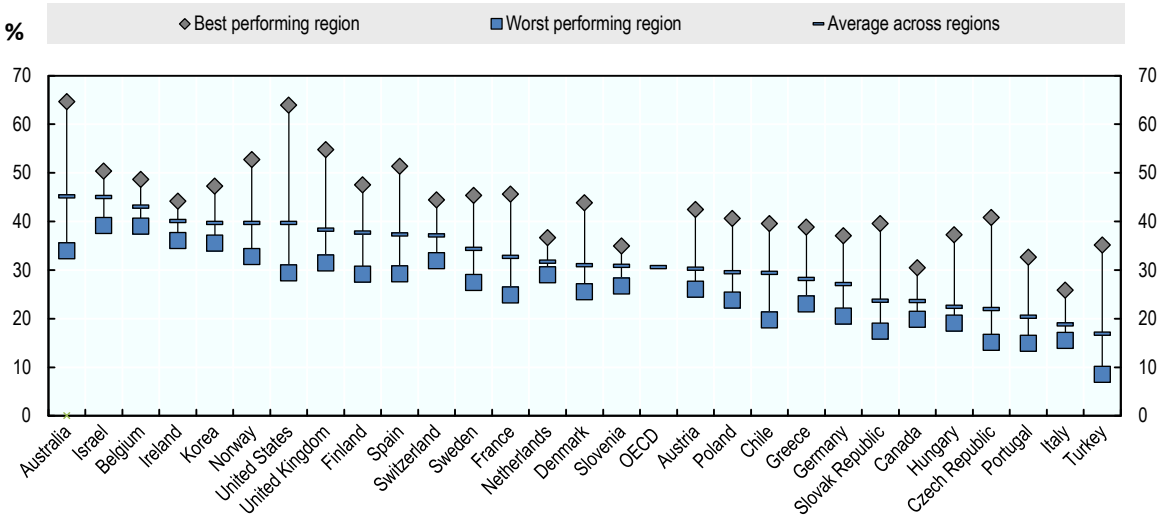
Note: Low performers in problem solving skills using a computer are adults with no computer experience, or who failed the ICT core test, or who score r below Level 1. Chile, Greece, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey: Year of reference 2015. All other countries: Year of reference 2012.
Source: Survey of Adult Skills (PIAAC) (2012 and 2015), www.oecd.org/skills/piaac/publicdataandanalysis.

16. Youth are better prepared than older adults to face the challenges of the digital transformation, as they have higher cognitive and ICT skills in most OECD countries. However, PISA 2015 shows that, on average across OECD countries, only 28% of students are able to solve only straightforward collaborative problems, if any at all (OECD, 2017[8]).

17. Disparities do not exist only across but also within countries. Regions are not equally prepared to face the impact of the digital transformation. In countries with important regional differences in skill endowments, high-growing and high-tech firms, and thereby job creation, are more likely to be concentrated in high-skilled regions. In these countries, low-skilled workers face bigger difficulties finding work in these regions, as they have to compete with more skilled-workers. These geographic inequalities may contribute to exacerbate overall inequalities. Some countries with a relatively high overall share of the labour force with a tertiary education, like Australia, the United Kingdom and the United States, have large regional differences in the skills of their labour force (Figure 3).

Figure 3. Cross-regional differences in average educational attainment

Share of labour force with tertiary education by region (at TL2 level), as a percentage of total labour force, 2014



Note: Territorial level 2 (TL2) refers to large regions within a country. Data refer to 2013 for Canada, Greece, Israel, the Netherlands and the United States. Countries are ranked in descending order of the average share of labour force with tertiary education across regions.
Source: OECD (2017), "Regional Innovation", OECD Regional Statistics (database).

Box 1. Session 1 – Questions for discussion

- What has been the most important impact of digitalisation in your country? Are there major differences across sectors or regions? To what extent are the current skills of the population meeting the new demands?
- What skills will people need to be resilient in a changing economy, actively engage in democratic processes, and behave as critical consumers and active producers of information and media content?
- What role should education, training systems and skills policies play to take advantage of the opportunities of digitalisation and help address its challenges, especially for the most vulnerable? What role should the public and the private sector play in meeting these challenges?

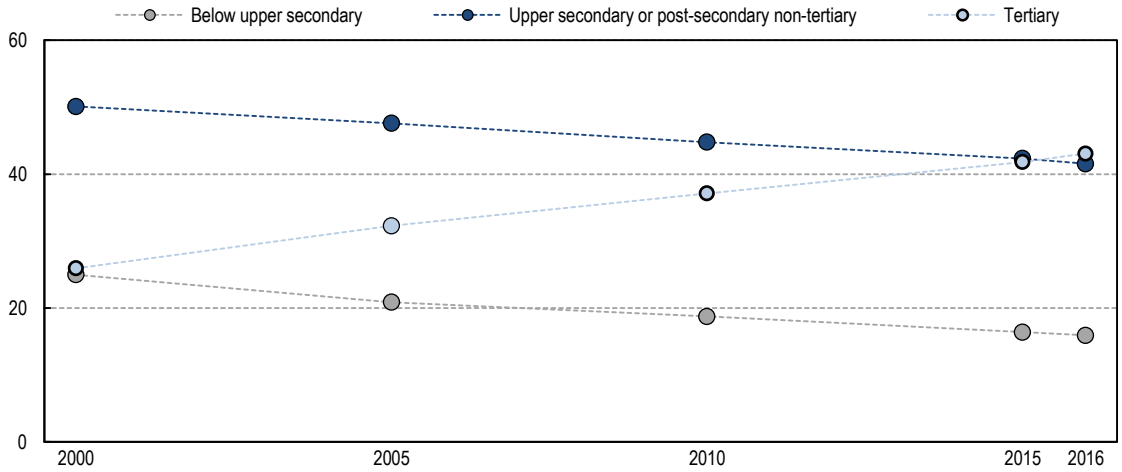
Rethinking education and lifelong learning policies

18. Greater participation in high quality education and lifelong learning programmes are central to ensuring that technology does not represent a threat and that prosperity is widely shared (Goldin and Katz, 2008[9]). Technological change creates winners and losers and can have adverse distributional consequences when new technologies increase the relative demand for more skilled workers and citizens. This can reinforce socio-economic inequalities as the more skilled are often –although not to the same extent across countries, industries and regions – also the most advantaged individuals.

19. Over the last decades, populations have become more highly educated across the OECD. The share of youth aged 25-34 holding a tertiary degree has steadily increased to reach over 40% in 2016 (Figure 4). Yet, this means that 60% of the 25-34 years-old cohort, that is expected to stay from 30 to 40 years in the labour market, does not have a tertiary degree. In addition, holding a tertiary degree does not always guarantee a high level of skills, as the quality of education systems and educational outcomes vary between and across countries. These facts underline the need for high-quality secondary and post-secondary non-tertiary programmes as well as lifelong learning opportunities.

Figure 4. Trends in educational attainment of 25-34 year-olds

Share of 25-34 years olds in the OECD by educational attainment, 2000-2016



Note: Each line represents the evolution of the share of 25-34 year olds, on average across the OECD, that reach a certain level of education. Education levels follow the 2011 International Standard Classification of Education (ISCED): Below upper secondary (ISCED 0, 1, 2), Upper secondary or post-secondary non-tertiary (ISCED 3, 4), Tertiary (ISCED 5, 6, 7, 8).
Source: Education at a Glance 2017, Table A1.2 (OECD, 2017[10]).

20. All levels of education – from pre-primary to tertiary – and all modes of education and training – from learning in schools, to massive open online courses, and to learning on the job–can be designed to empower people with productive and employable skills throughout their lifetime.

Preparing all students for the 21st century, from early childhood to post-secondary education

21. There is a growing consensus about the importance of transversal skills such as thinking critically and creatively, solving problems, making informed decisions while using technology, and behaving collaboratively. At the same time, acquiring and further developing knowledge and general cognitive skills remains just as important. In this context, education and training systems have to move from instilling knowledge to a multidisciplinary approach associated with the development of a range of skills and values allowing people to master complex thinking and problem solving tasks (OECD, 2017[10]).

22. In all countries, there are teachers and schools that have successfully transitioned to a 21st century approach to education, but this movement is far from being widespread in most countries. Ensuring high quality pedagogy at all levels of education matters in the development of skills, from early childhood education to tertiary education and vocational education and training.

23. Developing new pedagogical approaches can yield a double dividend. Social and emotional skills – or soft skills – are increasingly valued by employers but also more generally by societies. These skills can be developed through strategies that work with students' feelings and relationships, like role-playing, collaborative-based pedagogies, gaming, case-studies and social problem solving pedagogies and through extracurricular

activities, such as sports and arts (Le Donné, Fraser and Bousquet, 2016[11]). These strategies can also help reengage low-performing students who lack motivation at school.

24. Socio-economic background continues to have a strong influence on student performance in many countries. Evidence combining data from PISA and PIAAC shows that the difference in literacy proficiency for individuals whose parents did not obtain a tertiary degree and individuals with at least one parent who obtained a tertiary degree is generally large at the age of 15 and tends to widen in young adulthood (Borgonovi et al., 2017[12]). Policies aiming to reduce inequalities of opportunity among children and schools are important to ensure that all young adults are equipped with the skills they need for successful careers in a changing world of work but also to better deal with the impact technology may have on their careers.

25. An increasing share of the skills needed for the future labour market is likely to be developed beyond upper secondary school, but university is not the only route to pursue further education. Youth who go through VET programmes need to develop a broad range of skills in addition to occupation-specific skills and have pathways to further education. Quality on-the-job training and the ability to use skills at work are also critical to update and upgrade the skills of adults throughout their working life.

Making the most of technology as a learning device

26. New technologies can enhance learning and help develop skills for the 21st century. Many new pedagogical approaches make use of new technologies. Digital tools favour personalised instruction, allowing students to progress at their own pace and teachers to spend more time with learners who lag behind. Technology changes the content and sources of knowledge: traditional textbooks and curriculum may be supplemented by educational software, online courses or digital textbooks. These expand the opportunities young learners have to both find information and to practice the digital competencies required for a sustainable use of new technologies (OECD, 2016[13]). At different levels of education in school, new digital devices allow for the exchange of teaching practices, easier and broader collection of students' data to facilitate more rapid and better-targeted student feedback, and the real-time dissemination of instruction and teaching, even to isolated areas.

27. More generally, digital tools extend the learning universe outside of the physical premises of educational and training institutions. Workers in particular can easily learn on the job through the Internet and employers can propose online training programmes that can be adjusted to work around time constraints. Massive Open Online Courses (MOOC) offer new learning opportunities and can be used as a way for students or workers to signal or develop specific interest or knowledge in some areas.

28. However, evidence regarding the impact of technology use in schools on student performance has been mixed. Investment in ICT in the form of computers, tablets or Internet connection has failed to translate into higher academic achievement for students, even though such investments did not crowd out resources allocated to other educational inputs (Bulman and Fairlie, 2016[14]). This suggests that the way technology is used matters: both students and teachers need to be motivated and prepared to use technology so that it has a positive impact on learning.

29. Available data suggest that open education and MOOCs more specifically can facilitate lifelong learning of workers (OECD, 2019[15]). Open education is mostly used by those who combine work and formal education (Goodman, Melkers and Pallais,

2016[16]). Many MOOC platform providers have started exploring MOOCs for professional development and there are already some successful examples of MOOCs in this area (Music, 2016[17]). Yet, the potential that MOOCs can offer to firms to train their workers is not reached at the moment. In addition, while open education and MOOCs can generally be accessed for free, patterns of participation seem to reproduce those of participation in standard adult education and training. Highly educated and highly skilled adults are more likely to participate.

30. Finally, people need a range of skills to benefit from the learning opportunities brought by technology. For example, using MOOCs may require good ICT skills but also time management skills and an ability to be a self-motivated learner. Online job search may be more effective, particularly for adults who have been away from the labour market for a long time, if it is complemented by effective career guidance skills.

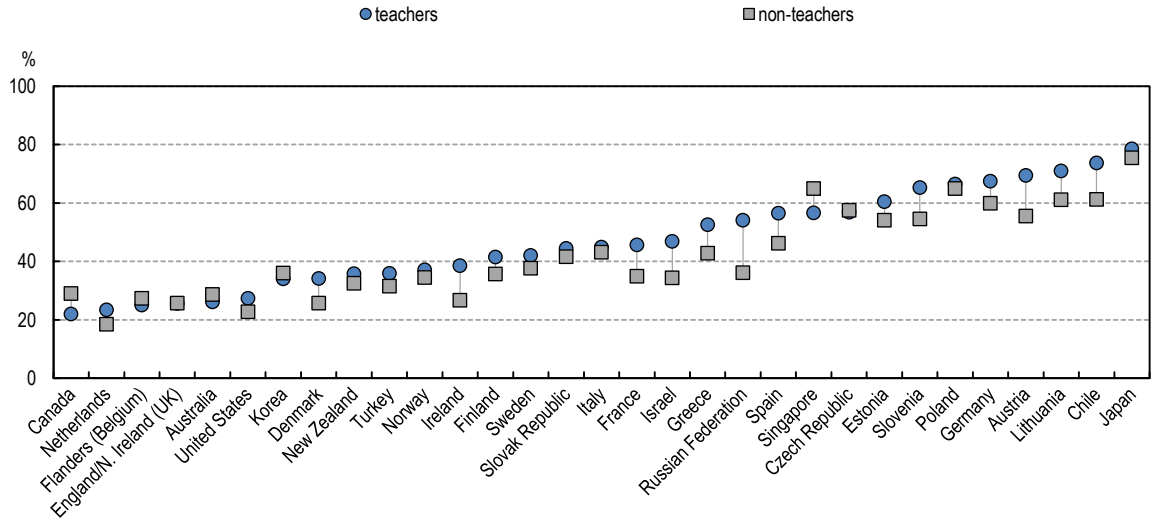
Training and engaging the teaching profession

31. The teaching profession and its ability to use the most suitable and innovative pedagogical tools play an important role in the development of the skills needed for the future. In fact, many innovative pedagogical tools and methods rely on new technologies, making it crucial that teachers themselves are equipped with the skills needed to effectively use new technologies (OECD, 2017[18])). Examples of such pedagogical methods are numerous and include gamification, which integrates the pedagogical principles of play and games (including video games) in formal learning, or flipped classes where students are required to attain content, usually provided through ICT material, before the class. Teachers' own skills, motivations and attitudes are instrumental to the way ICTs are used and methods implemented in the classroom and to their subsequent effects on student outcomes.

32. In most countries, more than 30% of teachers declare needing further training to perform their duties. In countries where the need for training among high-skilled workers are the largest (Austria, Chile, Germany, Lithuania, Slovenia), teachers are more likely than non-teachers to be in need of training (Figure 5).

Figure 5. Share of teachers and non-teachers reporting needing training

Share of teachers and workers with a tertiary education reporting needing further training to do their job, by country



Note: Share of workers answering "Yes" to the question "Do you feel you need further training in order to cope well with your present duties?". Teachers and non-teachers are defined based on the population of adults aged 25-65 years old. Teachers are adults self-reporting working in the following 2-digit occupations as classified by the International Standard Classification of Occupations (ISCO-08): Teaching Professionals (ISCO 23). Non-teachers are all adults in employment with a tertiary education as defined by 1997 International Standard Classification of Education (ISCED): Tertiary (ISCED 5B, 5A, 5A/6).
Chile, Greece, Israel, Lithuania, New Zealand, Singapore, Slovenia and Turkey: Year of reference 2015. All other countries: Year of reference 2012.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012, 2015).

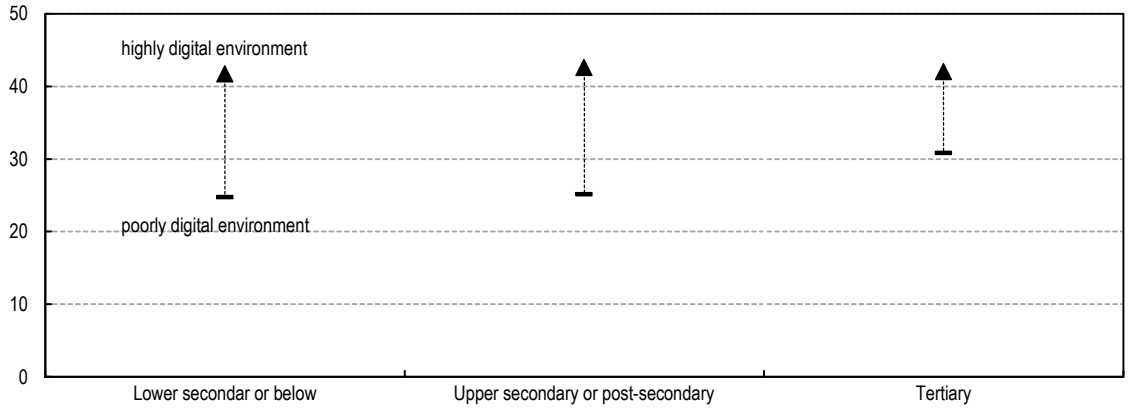
33. The teaching population is getting older, particularly at higher levels of education, while technology increasingly enters schools and universities. This may partly explain why training needs are high (OECD, 2017[10]). On average across OECD countries, 33% of primary to secondary teachers were at least 50 years old in 2015, 3 percentage points up from 2005. Yet the teaching profession is increasingly unattractive to young students. Teachers' salaries are low compared to other similarly educated full-time workers. Making the teaching profession attractive to students and developing high quality training for teachers, both initial and continuous, are important steps to ensure that education systems adapt to new needs.

Placing greater emphasis on lifelong learning as well as engaging employers and other stakeholders

34. Workers need to keep on learning over their lives to be prepared to face the changes and seize the opportunities brought about by the digital transformation of labour markets. Working in a digital environment requires doing more and/or different tasks, and regularly updating and developing new skills. The share of workers who declare needing further training is greater for those who are more exposed to digitalisation (Figure 6).

Figure 6. Share of workers reporting needing training by educational attainment

Share of workers in highly and poorly digital work environments reporting needing further training to do their job, by education level



Note: Digitalisation exposure of workplaces is assessed through two indicators. The first one is the intensity of ICT use at work, building on information on the frequency with which workers perform a range of tasks using a computer and the Internet. The second one is the non-routine intensity of jobs that reflects workers' degree of freedom to change or choose the sequence of their tasks, the way they work, and plan and organise their work.
The figure shows the share of workers answering "Yes" to the question "Do you feel you need further training in order to cope well with your present duties?", for those in a highly digital environment (above average in both non-routine and ICT intensities) and individuals in a poorly digital work environment (below average in both indicators).
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012, 2015).

35. Countries have to find efficient and effective ways to develop their populations' skills across the life course, but also to break the vicious cycle between being low-skilled and not participating in adult learning. The obstacles to adult education need to be removed. This could include a tax system designed to support learning and targeted supports to alleviate the costs of learning for those who need help. It could also mean providing more flexible opportunities for adults to upgrade their skills, including easing access to formal education or vocational training, improving the recognition of skills acquired after initial education, and enhancing career guidance. Engaging employers and other stakeholders in the design of learning opportunities that are relevant to the labour market is also important.

Box 2. Session 2 – Questions for discussion

- What policies is your government implementing to strike the right balance between formal and "front-loaded" education and training systems and "lifelong" and "life-wide" learning systems, where people can learn at all ages and in different contexts?
- What policies can help to equip people with "21st century" skills, including digital skills?
- What are the key obstacles to implementing lifelong, life-wide, flexible learning for all, and what solutions has your government developed to address them?
- How does your government promote the use of digital technologies to make learning more flexible and relevant to new needs?

Implementing better skills policies for tomorrow's world

36. It is critical for governments to implement better skills policies. Several aspects need to be considered when moving from design to implementation. First, the digital transformation involves many uncertainties, including about the pace of technological change. These uncertainties need to be integrated in the way policy responses are designed. Shifting away from a model that places most effort on skills development in the early years towards one that recognises the need to develop skills across the life course may better prepare economies and societies for the world of tomorrow. Skills investments need to be allocated on a broader time horizon to be able to benefit from knowledge about changing skills requirements. However, concretely, this approach requires changes in the way skills development is funded and coordinated across stakeholders.

37. Second, many of the policy changes that are required involve important shifts in the design of policies and imply the need for increased coordination across various actors. This in turns requires redefining and redistributing responsibilities, and strengthening accountability, for all actors.

38. Third, ensuring that the digital transformation leads to better economic and social outcomes requires aligning skills policies with a range of other policies, including policies relating to social protection, taxation, economic development and immigration, to name a few.

Financing and encouraging skills development across the life course for all: towards a new model

39. There is consensus that policies need to facilitate and encourage the development of skills across the life course, but how to achieve this is less clear. As adult education and training becomes increasingly important, more spending from all sources, both public and private, may need to be devoted to it. At the same time, adult education and training fails to benefit workers equally, with low-skilled workers being less likely to participate in such schemes. Moreover, developing large-scale, efficient and effective education and training programmes for adults has proved to be difficult. Education at an early stage of life is in theory more effective in both developing skills and curtailing the effects of socio-economic background on skills development. However, countries have had uneven success in these respects. Hence, the efficiency of both initial education and adult education needs to be analysed more closely and, perhaps, improved before deciding to

invest more in a specific type or level of education and training, especially if this involves a reallocation of spending over the life course.

40. The rise of new business models coupled with non-standard forms of work further compounds the challenge, since workers in such types of employment may be less likely to participate in training. Governments need to address the multiple barriers to adult learning, especially those faced by low-skilled individuals. This requires working on various fronts such as increasing incentives for investments in training, fostering motivation or removing time constraints. A model that attaches training and lifelong learning rights to the person rather than to jobs (such as personal training accounts or lifelong training rights) seems promising, when coupled with adequate supports such as skills and jobs guidance.

Improving the governance of skills policies

41. A whole-of-government and whole-of-society approach to skills development and skills use is needed to improve policy coherence and generate policy complementarities that result in greater effectiveness and efficiency.

42. In many OECD countries, ministries in charge of policies such as education, employment, innovation or economic development work largely independently of each other. Improved coordination between them would be beneficial in many ways, for example by helping to align the policies that influence supply of skills and those which target the demand for skills in the economy.

43. Improving the governance of skills systems by improving collaboration between government and other stakeholders can have various benefits. It can help people develop more relevant skills, while at the same time promoting the more effective use of skills and reducing skills mismatches and shortages. Education and training institutions can more and better cooperate with a range of institutions and actors such as employers, social partners and labour market institutions to assess current and future skills needs, and make education and training programmes more responsive to these changes. In addition, cooperation between education and training, social and tax institutions can help better target those with low skills and remove the various barriers they face in participating in education and training.

44. Digitalisation also affects industries, regions and cities differently. At the same time, policies influencing the development and use of skills involve various levels of government, often in a complex way. The clear allocation of responsibilities between different levels of government and their financial resources and accountability can improve the overall efficiency of the system.

A comprehensive package of coordinated policies in the areas of education and skills, labour, social protection, and taxation

45. A policy agenda to make the most of the digital transformation will require coordinating, aligning and sequencing packages of reforms in a number of policy areas, including not only those impacting on skills formation but also those affecting the extent, speed and direction of the digital transformation, changes in the demand for jobs and skills, productivity, and inequalities.

46. Adapting to technological progress will require policies facilitating the redeployment of workers across businesses, industries and regions. These include industry, labour and product market policies that do not unduly constrain the entry and

exit of firms and the mobility of workers across businesses, and that help level the playing field. Suitable housing policies could further facilitate the geographic mobility of workers and help people move to the regions where (the best) jobs are available.

47. Adequate social protection is crucial to help workers transit smoothly across jobs, especially when they have been displaced. In a context in which many countries already struggle to provide adequate social protection to workers with non-standard work contracts (e.g. temporary contracts, the self-employed, on-call labour), the advent of the platform economy adds to these difficulties. An increasing number of people only work occasionally and/or have multiple jobs and income sources, with frequent transitions between dependent employment, self-employment and work-free periods. Existing social security systems are still largely predicated on the assumption of a full-time, regular, open-ended contract with a single employer. As a result, more workers risk falling through the cracks. Policies enabling the portability of social security entitlements could be developed to prevent the loss of benefits when workers move between jobs. They would complement policies for the portability of training and lifelong learning rights.

Box 3. Session 3 – Questions for discussion

- Should lifelong and life-wide learning require a new approach to financing education and skills, including re-thinking how much should be invested at each stage, which trade-offs exist and who should invest?
- What are governments and social partners doing to strengthen lifelong learning and to remove obstacles to further learning, especially to promote universal access to basic skills for disadvantaged populations and minority groups?
- How can governments develop a policy package including skills development, lifelong learning, support for worker deployment and improved social protection?
- What governance systems could better involve all key actors, inside and outside government, to tackle sticky skills issues, such as improving the recognition of skills developed informally over the life cycle?

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