



The Survey of Adult Skills (PIAAC)

Implications for education
and training policies in Europe

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Executive summary

The European Commission's Directorate-general for Education and Culture and the OECD's Department for Education and Skills have agreed on **a new cooperation framework**, to join forces in three important aspects of education and skills development: *Skills Strategies*, *Country Analyses* and *International Surveys*.

The OECD's Survey of Adult Skills (PIAAC¹) ('the Survey'), supported by the Commission's DG Education and Culture highlights how this cooperation can provide clear added value for member countries; the next step in this new cooperation framework will be the launch, by the end of 2013, of "**Education and Skills Online**": a web tool which will allow adults to self-assess their skills.

The Survey offers broad empirical evidence about key information processing skills of the working-age population, and about the role of education and training in shaping these skills. In this way, the Survey helps to close a knowledge gap for the 17 participating EU Member States. Skills are a key driver for smart growth and innovation: they are a pre-condition for sustained growth and employability, as well as for social cohesion and inclusion. Education and training systems are the tools for developing and maintaining these skills.

The Survey results offer new, substantial evidence for Member States to learn from each other, and will contribute to the **monitoring of the Europe 2020 strategy** and to the **implementation of the EU Education and Training strategy (ET2020)**. The European Commission will in particular:

- Discuss the Survey findings with Member States, in the context of the **EU cooperation on education and training**, with a view to identifying areas for further actions;
- Support actions to develop and upgrade the qualifications and skills of citizens through the programme **Erasmus+** for 2014-2020. The findings of the Survey will also contribute to the preparation of the Operational Programmes of the 2014-2020 European Cohesion Policy (Structural Funds), in particular for the **European Social Fund**;
- Carry out further analyses of the Survey, and support thematic research with the OECD.

There are **seven key findings** of the Survey, which are all specifically relevant for EU education and training policies:

1. 20% of the EU working age population has low literacy and low numeracy skills;
2. Education and skills increase employability: this represents a challenge for the one in four unemployed who has low literacy and numeracy skills;
3. The high-skilled are progressing well through adult learning, but people with low proficiency are easily caught in a 'low skills trap' as they are less likely to participate in learning activities;
4. There are significant differences between individuals with similar qualifications across the EU17 member countries: upper secondary graduates in some Member States score similar or better than higher education graduates in others;
5. 25% of adults lack the skills to effectively make use of ICTs;

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¹ Programme for the International Assessment of Adult Competencies

6. The skills of a person tend to deteriorate over time if they are not used frequently. The gap in literacy proficiency skills between generations is more than two thirds of a proficiency level (equivalent to five years of education);
7. Sustaining skills brings significant positive economic and social outcomes.

These findings are in line with the country analysis carried out to date in the framework of the Europe 2020 strategy, and in particular with the conclusions of the last European Semester. The results point also to new and emerging policy challenges, while confirming the overall relevance of the differentiated approach of the Commission's Annual Growth Survey and of the Country-Specific Recommendations.

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Overview

Skills are a key driver for a thriving economy: the continued supply of high-level skills is a pre-condition for sustained growth; the employability of individuals depends to a large extent on skills, and the competitiveness and productivity of Europe as a whole rest on its skills base.

*The Survey directly assesses the skills of about 5000 16-65 year olds per participating country, representing the countries' working age population. The skills tested are **literacy, numeracy** and **problem solving in technology-rich environments** (solving problems in a computer environment). The survey also asks about the use of ICT at work and in everyday life, generic skills required at work, whether the skills and qualification match the work requirements and questions about e.g. education, work and the socio-economic background.*

The proficiency that respondents showed in the test is reported on a scale from 0 to 500 points, which is divided into "Skills levels" ("below 1" to "5" for literacy and numeracy; "below 1" to "3" for problem solving; see Annex 1). On the literacy and numeracy scales, each additional year of education can be associated, on average, with an increase of approximately 7 score points, one proficiency level equates approximately to seven years of education (50 score points).

*The first round of the Survey was carried out in 2011/2012 in 23 countries, among them **17 EU Member States**³, representing about 83% of the EU28 population.*

To date, there has been no broadly-based empirical evidence about key information processing skills of the working age population, such as working with texts and numbers and using ICTs for solving problems that are essential for personal growth, active participation and coping with the increasing requirements of the world of work. The OECD's Survey of Adult Skills (PIAAC) ('the Survey'), which was carried out with support from the European Commission, helps to close this knowledge gap.

Thus, we are now able to base policies for adult skills on large-scale facts and figures. Just as PISA² had deep repercussions for schools, we can expect the ground-breaking evidence provided by the Survey to have far-reaching implications, for the way skills are acquired, maintained, stepped-up and managed throughout the entire lifecycle - and ultimately how good Europe is at putting skills to work to create economic growth and jobs.

This new evidence arrives at a challenging point in time for Europe: economic growth is subdued; unemployment - in particular among young people - is soaring. Europe also faces, due to demographic trends characterised by an aging population, a shrinking workforce.

The Survey exposes serious skills gaps in Europe's labour force. This skills gap not only contributes to high unemployment now, putting the least-skilled in a kind of "low-skills trap", it also poses a threat, if not tackled in time, to future growth and competitiveness. However, differences between countries are often considerable, in particular with regard to skills and educational attainment.

Skills are part of the solution to these challenges, as a well-skilled workforce is a pre-condition for high productivity and employability and a stepping stone for innovation and competitiveness. This is the reason why education and investment in skills have been made a corner stone of Europe's strategy to overcome the crisis and to boost growth and jobs, "Europe 2020".

The new evidence has direct consequences for the Europe 2020 strategy, both at the overall level and for individual countries. When the Commission presents its next policy document on Europe 2020 at the end of 2013 (the "Annual Growth Survey"), and when it reassesses the situation of each Member State to formulate fresh guidance in May 2014 ("Country-specific

² For pupils, the PISA study has for over a decade given policy-makers a precise idea about skills acquired at school.

³ Reported as "EU17": Austria, Belgium (Flanders), Cyprus, Czech Republic, Denmark, Estonia, United Kingdom (England/Northern Ireland - 87% of the UK working age population), Finland, France, Germany, Ireland, Italy, Netherlands, Poland, Slovak Republic, Spain, Sweden. For France, only limited results are available. Other OECD countries: Australia, Canada, Japan, Korea, Norway, United States. "OECD" in the paper refers to all participating OECD countries, if not stated differently. The Russian Federation participated but is not reported.

Recommendations"), the Survey will be a valuable source of new information to strengthen the skills dimension of Europe 2020.

This task will require more investment in education and training and in times of tight public finances, more efficiency and a fair, inclusive and sustainable sharing of the financial burden.

A new source of evidence for the EU policy agenda in education and training

The European Commission and the OECD have recently signed new cooperation settings for joining forces in three important areas: Skills Strategies, Country Analyses and International Surveys. These new arrangements feature a stronger partnership providing clear added value for member countries of both entities. The Survey is a good example of this collaboration. The next step in this field will be the launch of "**Education and Skills Online**" by the end of the year. This is a web tool that will allow adults to self-assess their skills.

The present document uses the new evidence to put forward a set of key conclusions that are directly relevant for EU policy-making and outlines implications for EU-level policies such as the Strategic Framework for European Cooperation in Education and Training (ET2020), the renewed Agenda for Adult Learning, the follow-up to the Commission's Communications on Rethinking Education of November 2012 and on Opening-up Education of September 2013, and the EU's policies and programmes to boost growth and jobs and to combat youth unemployment, including the next generation of financial programmes (Erasmus+) and structural funds.

The Survey also helps to gauge the performance of European countries in comparison to other highly-developed economies that are among Europe's main competitors. This comparison sheds new light on the role of skills in the global context and can be used to strengthen the external dimension of the Europe 2020 Strategy.

Concretely, the new data enable the European Commission to check, review and re-calibrate its assessment of educational outcomes at national level and to support countries in their reform efforts and the implementation of Country Specific Recommendations. The Survey helps to differentiate between countries in a more specific way and to give them better tailor-made advice. The data confirm that varying situations in the Member States require a differentiated approach, and they offer new material for Member States to learn from each other.

Hence, this first analysis supports Member States and experts in the field of education and training in processing the ample new evidence. It is an initial step in a longer process of analysing and assessing the results with the aim to improve policies at national and European level. The Commission will make use of it to stimulate in-depth discussions at the relevant institutions, bodies, committees and working groups.

The following pages look at the findings in more detail; first, the main EU-relevant results are compared with other participating countries; second, the analysis situates the results in the context of existing EU policies, and outlines plans for further concrete action; and, finally, the findings are cross-checked with existing country-specific recommendations to Member States, in order to identify the future course of action.

1. EU education and training systems: a comparison with other participating countries

The ability to understand and process written texts and numerical information as well as the ability to use information and communication technologies (ICT) to solve problems are the basis for effective and successful participation in social and economic life. At society level, the provision and appropriate usage of these skills are crucial to achieve economic growth. The Survey⁴ reveals the

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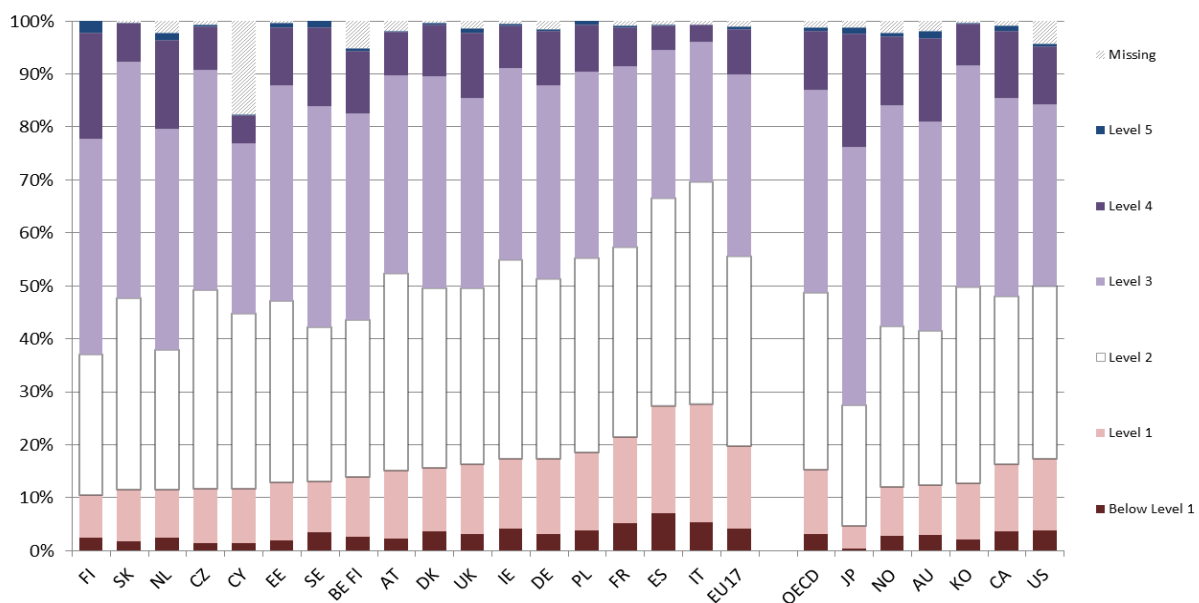
⁴ Technical information about the Survey is available in Volume II of the OECD's survey report

levels of proficiency in these skills for the working age population in Europe (see Annex 1) and how this compares internationally.

In **literacy**, participating EU countries on average perform slightly worse than OECD countries as a whole but comparable to the US (see figure 1). While in EU17, 9% of the population showed high levels of literacy skills (levels 4 and 5) the share for the OECD is almost one third higher (12%); in numeracy, the difference between the two is slightly lower. However, considerable differences in the distribution of skills across participating countries exist.

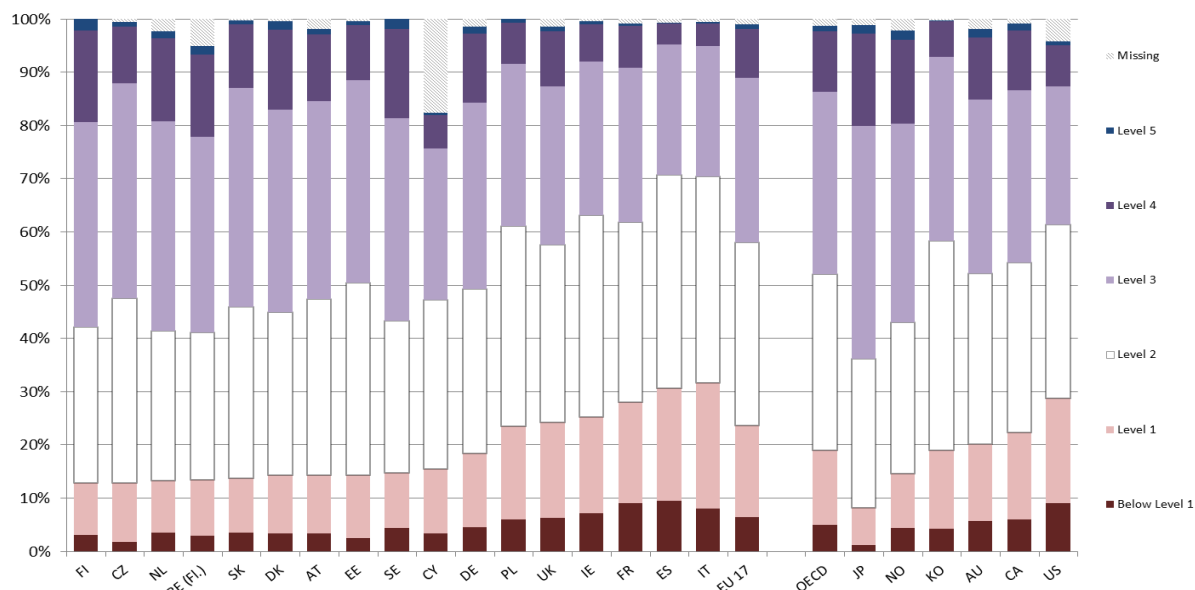
At global level, Japan outperforms all other countries with its high share of performers at levels 3-5 and very few low performers. Big non-European economies like Canada and the US do not score very differently from many EU countries.

Figure 1: How proficient are adults in literacy?
Share of the population 16-65 years old at each skills level per country



Source: Survey of Adult Skills (PIAAC), ordered by the share of level 1 and below. Missing: did not take the test.

Figure 2: How proficient are adults in numeracy?
Share of the population 16-65 years old at each skills level per country

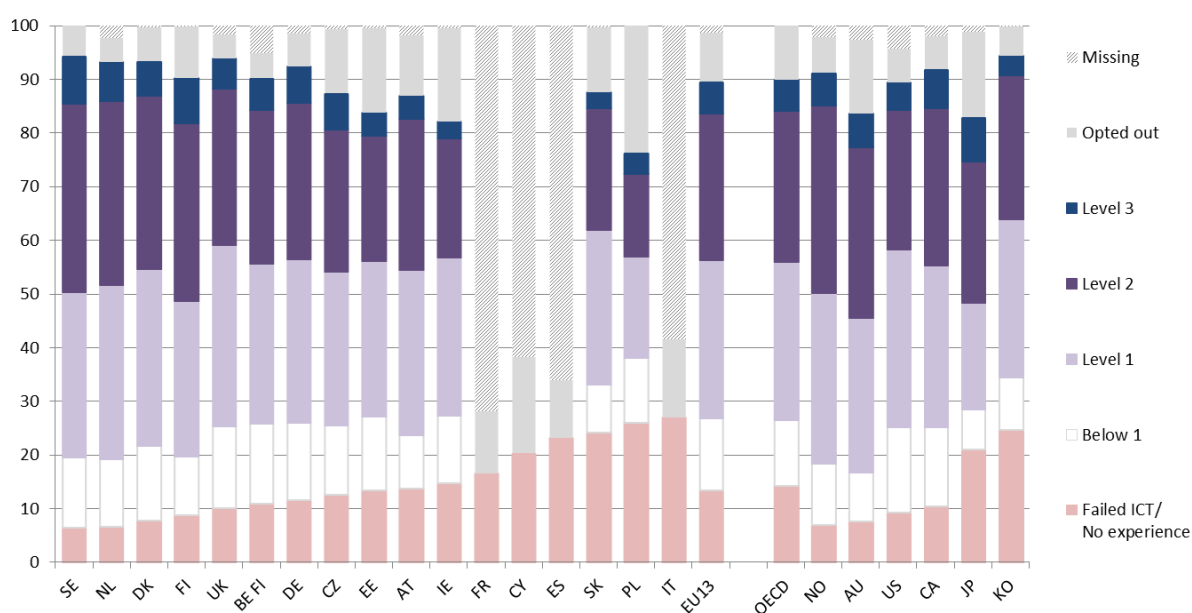


Source: Survey of Adult Skills (PIAAC), ordered by the share of level 1 and below. Missing: did not take the test.

Among EU countries, roughly three groups can be identified: countries with high shares of top performing adults and low levels of low performers like NL, FI and SE, among which FI comes closest to Japan; countries with varying patterns but whose results are by and large not significantly different, and finally countries with few top performers and very high shares of low performers such as ES and IT.

For **numeracy**, the pattern of proficiency across countries is broadly the same, with few differences (figure 2). In EU17, the share of high performers (those scoring on levels 4 and 5) is at 10%, slightly lower than the overall OECD average. Japan stills outperforms all EU Member States with 63% of the working age population scoring on levels 3-5 (next comes FI with 58%), and other large economies are a little below (US) or above (Canada) EU average.

Figure 3: How proficient are adults in problem solving in technology rich environments?
Share of the population 16-65 years old at each skills level per country



Source: Survey of Adult Skills (PIAAC), ordered by share of 'Failed/no experience'. Missing: test not taken. In ES, FR, CY and IT this module was not applied. Computer experience was also measured by the other Survey tests.

While there is no doubt that some of these results are a cause for concern, the abilities of the workforce to adequately **use ICT for solving problems** (figure 3) require even closer attention. Across EU17 countries, 13% of the working age population either lacked any computer experience or showed such low levels of abilities that they failed to take the problem solving test. This share ranges from less than 10% in DK, NL, FI, and SE as well as in Australia, Canada, Norway and the US to countries where more than 20% lacked these abilities (ES, CY, IT, PL, SK as well as Korea and Japan).

For those who took the problem solving test (in ES, FR, CY and IT the module was not applied), on average 43% across EU13 countries only showed basic levels of proficiency (scoring at level 1 or below). At the top end, in NL, FI and SE, more than 40% showed good proficiency (40% and more at levels 2 and 3), thus outperforming all non-EU countries except Norway.

Notwithstanding some very high performing countries and to a varying degree across countries, a considerable share of the workforce of EU17 countries is not sufficiently equipped with key information processing skills to successfully match the needs of today's changing labour markets.

In some cases, overall low levels of skills coincide with high shares of unemployment and low levels of economic competitiveness. Even though the Survey might not provide sufficiently deep insight into how these aspects are connected, the findings deserve further discussion. This also raises questions about the interplay of the level of skills of a country's workforce and the competitiveness of its economy. It might well be that a low skilled workforce hampers the recovery of an economy from a crisis and slows down its return to economic growth.

Furthermore, the findings are of particular relevance because skills are the very outcome of initial and continuing education and training and hence are at the heart of European education policies. Initiatives on early school leaving, low literacy, work-based learning, improvement of higher education or open educational resources are all in one way or another linked to skills provision and development.

2. Key findings relevant for the EU policy agenda in education and training

The Survey provides compelling evidence of the wide effects and benefits of acquiring and developing skills throughout life, but reveals also that large differences between countries exist. It confirms the Europe 2020 goals of increasing the number of Europe's higher education graduates, innovation, skills and industrial competitiveness as well as reducing early school leaving, unemployment and poverty and the inequalities they entail.

Besides reviewing skills levels in different countries and socioeconomic groups, the Survey analyses the skills-related outcomes of initial education and training, links between skills levels and participation in the labour market, skills utilisation in the workplace as well as the issue of skills sustenance through adult learning.

The Survey therefore allows us to identify the key challenges for EU education and training policies. They are elaborated below and further enriched with an overview of on-going and planned actions, and areas that will require in-depth discussion between Member States.

(1) One in five adults in EU17 has low literacy and numeracy skills: a concern for education and training systems

Europe's working-age population has started shrinking, thus causing a possible constraint to growth potential. To counter this trend, overall employment and average productivity need to increase. However, a significant part of the European workforce lacks basic levels of skills and, as a consequence, is not capable of sufficiently taking part in a modern, sophisticated production process. This finding does not come as a surprise. For a long time the EU has been fighting against the high rate of young people displaying a lack of basic skills and, in a bid to push for improvement, set a benchmark that not more than 15% of 15 year-olds should display a low level of achievements in reading, mathematics and science. Under-performance of education systems lays the foundation for lasting skill deficits among the adult population, which shows that prevention and early intervention forms a key part of the solution.

Highlights:

One in five European adults has only basic skills in literacy, one in four for numeracy.

Recent graduates (younger population) show significantly higher proficiency than the overall workforce, but with worrying exceptions in some countries.

Young men do not show a skills disadvantage in literacy compared to young women as this is the case for the school age population under PISA.

Literacy is the most important information processing skill but one fifth of adults reaches at most level 1 out of 5 (16% at level 1 and 4% below 1). In numeracy, in total 24% scored at level 1 (17%) or below (close to 7%) (see figure 1).

In other words, one in five European adults in literacy and almost one in four adults in numeracy showed at most the ability to complete tasks that involve very few steps, limited amounts of information presented in familiar contexts with little distracting information present and that involve only basic

cognitive operations.

ES and IT have the largest proportion of people scoring at lower skill levels (level 1 and below) both for literacy and numeracy (around 30%). In DE, IE, FR, PL and UK, the share of the population scoring at most level 1 in literacy proficiency is rather high (around 18%, 22% in FR). All other EU17 countries have values between 10% and 15%. For proficiency in numeracy, the share of the population scoring at low levels is largest in ES, IT, FR, IE, PL and UK, all above 23%. All other EU17 countries perform better and are below the EU average with values between 12% and 15%, except DE (18%).

The picture for the **younger population** is slightly different and on average better. Across all participating countries 16-24 year olds score 7 points better on the proficiency scale in literacy (5 points in numeracy) than the overall population, which roughly equates to one year of education. This better achievement of young people is consistent with the overall finding of a deterioration of skills over the lifespan. However, there are considerable differences across countries. In BE (FL), EE, ES, FR, IT, NL and PL, the younger generation scores 10 or more points better than the overall population (14 points in PL), while in a few countries young people hardly show any skills advantage (SK, 2 points) or even score worse than the overall population (UK, CY).

As regards gender differences in proficiency levels, the Survey shows that on average, men and women have comparable performance. This is also true for the young and means that the skills disadvantage in literacy of young men of school age found in large scale skills surveys such as PISA, cannot be found among the younger age groups of the Survey. Here, young men perform on par with young women.

Finally, the Survey shows that, in the EU17, **foreign-born adults** score half a proficiency level lower than native-born adults in both literacy and numeracy (equivalent to 4 years of education). The differences are above average in some countries with large foreign-born populations such as BE (FL), DK, DE, FR, NL and SE.

Implications for education and training policies

The Survey reveals differentiated results for adult proficiency in literacy and numeracy across Member States in particular with regard to low skilled people.

This confirms the priority set out in the Commission Communication of 'Rethinking education' and the Renewed European Agenda for Adult learning on basic skills. For those still in education, keeping open opportunities for enrolling in higher levels of education is to be ensured; this is particularly important for those who, at the end of compulsory education, would otherwise end up with low-level degrees and as a consequence likely in low-paid jobs. Permeability of educational pathways is therefore to be enhanced to avoid "dead end roads" in education. Similarly, people who drop out of education should be allowed and encouraged to return and continue. Moreover, validation of skills and competences is to be strengthened further, in particular for those who left formal education with a low educational qualification but who have since then gained skills through non formal or informal learning.

In order to better address skill gaps in the European Union, the following actions are considered by the European Commission:

- Within the Open Method of Coordination, have **Member States look further into the issue of low skills** with a view to discuss, from early 2014, the effectiveness of current adult learning policies at EU and national levels.
- Support **staff competences and capacity of adult learning institutions** through the Programme **Erasmus+** to provide those with low-skills the opportunities to develop and upgrade their basic skills. A possible field of cooperation is **guidance and counselling** to better reach the low-skilled population and promote dedicated education and training programmes – including through the use of ICT.
- Present in 2014 a **report on basic skills covering the whole lifecycle**. The evidence on the share of low-skilled people makes it also possible to quantify the short and long term impact on European economies in that context. Thus it is envisaged to launch a study on the **financial savings and growth impetus** that could be generated by increasing efforts (including funding) to up-skill those who lack basic skills.

(2) Education and skills increase employability: a challenge for the one- in-four unemployed with low literacy and numeracy skills

The EU has set a target to increase the overall employment rate up to 75% by 2020. A lack of basic skills makes it very difficult for the people concerned to find a job and increases the risks of long-term unemployment. A part of Europe's workforce therefore does not contribute to the production of goods and services, while at the same time there are labour shortages and bottlenecks in some sectors. Not only due to the demographic challenges, but also in the face of the need to re-launch growth, Europe has to make much better use of its human resources – it cannot afford to relinquish the contribution of a large share of its workforce and it also cannot afford a large part of its population to remain at very low skills levels.

Highlights:

Only half of EU adults with literacy skills at level 1 or below are employed (55%). 9% are unemployed, 36% are inactive.

Prevalence of low skills among unemployed: around one in four unemployed adult has low skills (vs. one in five for the whole population).

Only a bit more than half of EU adults with literacy skills at level 1 or below work (55%) while 9% are unemployed and 36% are inactive (i.e. not looking for a job). The employment rate is much higher for those with higher skills: 65% for level 2, 72% for level 3 and 78% for levels 4-5. These patterns are even more pronounced in relation to numeracy skills: only 52% of low-skilled people work (65% for level 2, 74% for level 3 and 81% for levels 4-5).

Thus, the Survey confirms a prevalence of low skills among people who are not employed, in particular among the unemployed: 27% of them have low literacy skills and 34% have low numeracy skills. This is above the values for the whole population (20% and 24% respectively).

In IE, ES, FR, IT and UK, youth unemployment rates are higher by 16 percentage points compared to people in the age bracket 25-74 (close to 30 percentage points higher in ES and IT). In these countries, a large share of young people (close to 20% or above) has low-skilled in literacy or numeracy (i.e. at most at level 1).

More generally, those in employment have on average higher skills than the unemployed at EU level, by about half of a level of proficiency (17 points for literacy and 24 points for numeracy, equalling up to roughly 4 years of education). The gap is more pronounced in DE, SE and the UK for literacy (19, 30 and 26 points respectively) and for numeracy in the same countries (30, 32 and 33 points respectively) as well as in SK (27 points).

Those in employment also have higher skills than inactive people at EU level. The gap is similar to that between employed and unemployed at EU level (17 points for literacy and 24 points for numeracy) but more pronounced in DK, NL, FI and SE (25 points or more for literacy and numeracy) as well as in DE and ES (25 points for numeracy).

Finally, the Survey results suggest that there is a substantial pool of highly skilled individuals who are out of the labour market (inactive) in some Member States. CZ, IT, PL and SK have large proportions of inactive people among the high-skilled population (about 24%). This is below 15% in most of the other EU17 countries.

Implications for education and training policies

Low-skilled people evidently have more difficulties to find employment, particularly during harsh economic conditions. The results reveal particular clusters of countries with differing short to medium-term employment challenges. Some Member States have a large share of young low-skilled people; others have groups of unemployed people who have a more significant skills disadvantage compared to employed people. This tells us that these population groups are at particularly high risk of long-term unemployment as well as an untapped human capital.

The European Commission, acknowledging the very diverse situations across Member States, considers the follow-up actions below:

- Use the data disclosed by the Survey as additional evidence for short-term policy actions such as the implementation of the **Youth Guarantee** in Member States.
- Take the findings of the Survey into consideration when preparing the **Operational Programmes of the European Cohesion Policy, in particular for the European Social Fund**; this is still possible as the process of planning structural funding priorities for the period 2014-2020 is in its initial phase.
- **Support further thematic research on the labour market outcomes of literacy and numeracy skills** given the importance of fighting unemployment and the task of raising the employability of European graduates by improving the relevance and quality of education.

(3) The high-skilled are progressing well through adult learning, but low achievers are caught in a 'low skills trap'

The large group of low-skilled workers hampers Europe's productivity and competitiveness, but the situation is set to worsen. The knowledge-based economy is more and more demanding in terms of skills and qualifications. As a consequence, low-skilled workers have less and less prospects. To tackle this structural weakness, Europe will have to invest in up-skilling and target in particular the low-skilled. Increasing participation of adults in learning⁵ is already one of the targets of the Education and Training strategy 2020, and the Survey confirms that this area needs further attention.

Highlights:

An individual with high skills is, on average, five times more likely to attend adult learning activities than someone with skills at the lowest level.

Participation in training activities among low-skilled adults tends to be particularly low, which means that there is not much reason to believe that they will manage to leave the group of low-skilled workers. The Survey confirms⁶ that those with higher skills have higher uptake of education and training (figure 4). An individual with high skills is, on average, five times more likely to participate in

adult learning activities⁷ than someone with skills at the lowest level (below level 1), and three times more likely compared to people with skills at level 1. In other words, 20% of the population aged 16-65 (those with skills at level 1 and below) is caught in a 'low skills trap'. The key policy challenge is to help those adults to escape that situation.

Participation and levels of skills are linked in a mutually reinforcing way. People with higher skills tend to have jobs that require more continuous training, which in turn contributes to their skills; positive attitudes towards learning play a similar role, which in addition contributes to the development or maintenance of skills. Low skilled people in DE, ES, IT, AT and PL are 5 to 7 times less likely to participate in job-related learning compared to high skilled people, with the difference being largest in SK.

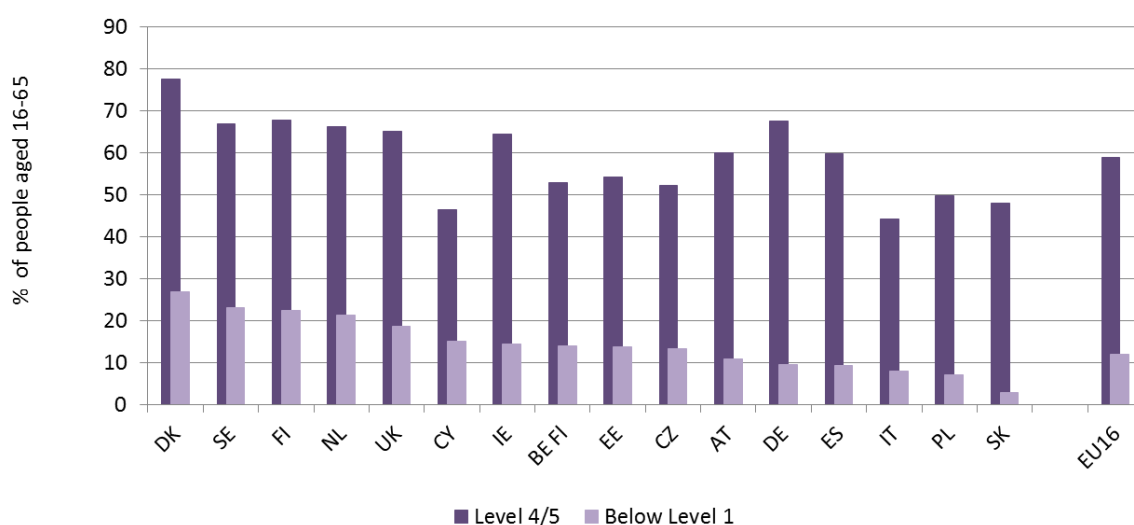
At the same time, high participation rates of the highest skilled people in learning are very likely to improve their innovativeness and productivity.

Figure 4: Participation in job-related learning by proficiency level in literacy
Participation in job-related learning in past 12 months by level of skills of respondents

⁵ In the four weeks preceding the interview.

⁶ Based on one year preceding the interview.

⁷ All adults whatever their employment status. This refers to job-related learning, i.e. excluding leisure activities.



Source: Survey of Adult Skills (PIAAC), ordered by participation rate of people below level 1

Implications for education and training policies

The Survey clearly confirms that programmes for improving basic skills have to be comprehensive and connected to individuals' needs and opportunities to learn and practice their skills in real life situations, such as in the workplace. Putting this into practice requires efforts from adult learning providers and social partners, and also calls for raising awareness and implementing outreach measures.

The instruments of European policy cooperation provide good practice examples and allow policy learning and further adaptations. One such adaptation might apply to the existing benchmark on adult participation in lifelong learning.

Taking these implications into account, the Commission will take the following measures:

- **Explore the potential of digital learning environments within adult learning;** the results of the study will help design effective policies for the use of ICT to support the low-skilled to catch up.
- **Support the policy learning by Member States** and other actors in adult learning, in line with the work done by the EU national coordinators for adult learning.
- Draw on the Survey to **support the Commission's on-going work on quality and financing of adult learning** and thus help defining policy guidance on these issues.
- **Consider a revision of the benchmark on adult learning participation** during the mid-term stocktaking of the European education and training 2020 benchmarks in 2015, which has to take into account the intensity of learning.

(4) Countries differ significantly in the levels of skills provided through formal education

Europe's competitiveness rests to a large extent on the qualifications and skills of its workforce.

Highlights:

Across European countries, recent graduates with comparable qualifications show considerable differences in literacy and numeracy skills.

Outcomes of tertiary education are limited in some countries: literacy and numeracy skills are not far from those acquired in upper secondary education.

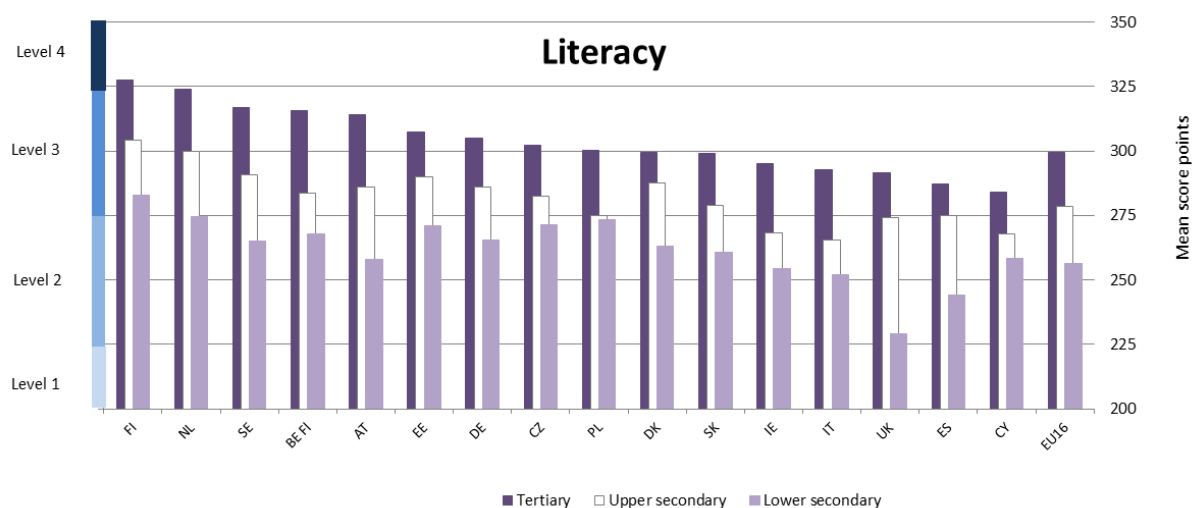
However, educational attainment does not necessarily directly translate into high skills, as the Survey shows. The new evidence paves the way to further examine how skills and qualifications relate to each other; it will likely

lead to discussions on what steps need to be taken at both national and EU levels to ensure better transparency and comparability on the way towards a European Area of Skills and Qualifications.

The Survey for the first time allows linking educational attainment of individuals, i.e. the formal outcome of education, with their proficiency in key information processing skills like literacy and numeracy⁸. This makes it possible to compare how the average skills of those holding degrees at different levels of education compare **within countries**. It also allows for a comparison **across countries** of the average proficiency of those holding degrees of comparable levels of education.

The Survey reveals big differences in the levels of skills at certain levels of educational attainment across countries and within countries (figure 5). However, when analysing the results, it is important to consider the complex interplay of factors: Success in formal education opens up opportunities for individuals to access high skill jobs, which in turn help maintain and develop high skills levels. And there are other factors that might override the impact of education, like work experience, long unemployment spells or non-formal learning. Nevertheless, the analysis of the younger age group provides the most interesting and surprising results, particularly concerning the performance of tertiary education graduates compared to secondary education graduates.

Figure 5: How proficient are recent graduates with different educational attainment?
Mean proficiency scores of 16-29 years olds by highest educational attainment



Source: Survey of Adult Skills (PIAAC), ordered average score of tertiary graduates

When comparing results in **literacy across countries**, young tertiary graduates in FI, NL, SE, BE (FI), AT, EE and DE score among the highest of any participants in the Survey in the area of literacy, with tertiary degree holders in FI reaching the highest level (the lower end of level 4). Upper secondary graduates on average perform at the lower end of level 3, scoring 20 points lower (this equalling roughly three years of education) than tertiary graduates. Here, again FI, NL, SE, AT and DE, but also DK perform better.

While considerable differences in proficiency according to educational attainment can be expected, it is striking that graduates with lower levels of educational attainment in some countries outperform graduates with higher formal qualifications in other countries. E.g. upper secondary graduates in FI and NL score similar or better than higher education graduates in IE, UK, IT, ES, CY, PL, SK and DK in literacy. Among secondary level graduates, lower secondary graduates in FI and NL score close to or better than upper secondary graduates in IE, UK, IT and CY.

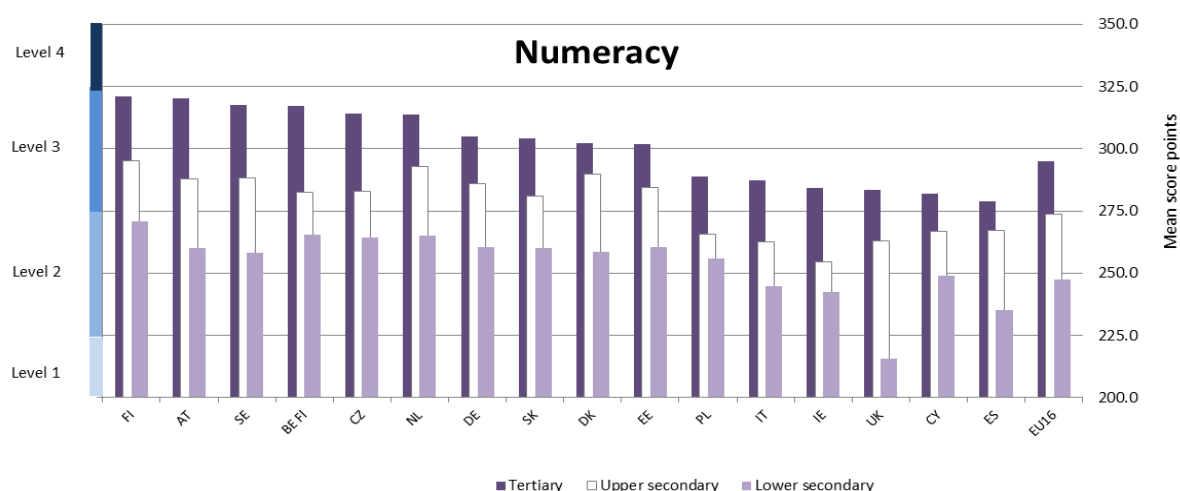
⁸

These skills are not imparted in all educational programmes across countries nor are they the sole skills developed through formal education. However, it could be expected that comparable levels of degrees would rather strongly be reflected in similar skills levels, because as foundation skills they are used and practised extensively.

Comparing the skills levels of graduates from different levels of education **within countries** also reveals some surprising results. In BE (FL), SE, IT, AT and PL, in literacy, tertiary graduates show at least half a proficiency level (25 score points, equivalent to 4 years of education) better results than upper secondary graduates. At the same time, tertiary graduates outperform upper secondary graduates in ES and DK, with a difference of no more than 12 score points (equivalent to less than 2 years of education).

Differences in performance between upper and lower secondary graduates within countries are significantly larger. However, in PL almost no difference exists (upper secondary graduates performing only 2 points better). Also in CY, IT, IE and CZ the difference is no larger than 14 points (thus roughly equalling two years of education). Large differences occur in ES, AT, SE and NL, where upper secondary graduates outperform lower secondary graduates by half a proficiency level (25 score points) or more. By far the largest gap is evident in the UK, where lower secondary graduates show a skills gap of almost one proficiency level (45 points).

Figure 6: How proficient are recent graduates with different educational attainment?
Mean proficiency scores of 16-29 years olds by highest educational attainment



Source: Survey of Adult Skills (PIAAC), ordered average score of tertiary graduates

As concerns the results in **numeracy** (figure 6), the mean scores are in general lower than those in literacy (around 6 points for a given educational level). While, with some variations, these patterns occur in most countries, some show better performance in numeracy. In DE, SE, DK, SK, BE (FL) and AT, tertiary graduates reach the same or better scores in numeracy (0 to 6 points), with CZ showing the highest difference (12 points). Upper secondary graduates score on a par with, or few points, above in numeracy only in DE, SK, DK, CZ and AT (0 to 2 points difference), while for lower secondary graduates this is only the case in AT (2 points difference).

Implications for education and training policies

The evidence gathered puts country performance into a new perspective and provides no simple answers to these new questions. Though the impact of initial education is expected to be rather strong in the young age group analysed here, skills acquired at early ages depend on the level, type, content, duration and quality of initial education programmes as well as on individual opportunities to use and develop skills after leaving formal education. Moreover, education and in particular higher education seems to strengthen skills both directly, through the learning experience and indirectly, via access to more intellectually demanding jobs.

Some of the findings might be due to differences in the education systems across Europe, including their quality and efficiency, as well as features of the labour markets. A thorough understanding of

the underlying causes of the observed differences in skills and of the patterns across and within countries needs further and deeper analysis.

In consideration of this, the Commission will take the following steps:

- **Initiate further substantial analysis in cooperation with international organisations and researchers** in order to shed more light on the patterns revealed by the Survey.
- **Enter into discussion with Member States** with a view to get a better understanding of the results and their implications.
- **Support or launch activities with regard to evaluating the broader spectrum of skills provided by vocational education and training**, e.g. similar to the scope of the PISA survey, to lead to a better understanding of the whole skills spectrum provided through education, but also to reinforce the provision of key competences through VET at secondary level, tertiary level and in adult learning.
- **Discuss the Survey findings and their implications for education policy making with Member States and other stakeholders** - and to possibly **followed-up via dedicated peer reviews** with a view to identifying areas for further action at EU and national level.

(5) One in four adults lacks the skills to effectively use ICTs for problem solving: one more reason for opening up education through new technologies

Our economies and societies have been seized by the emergence of the digital age, and this process is far from coming to a halt. In the same vein, the way we communicate, pass on or store information, is being fundamentally altered by ICT and new media. At the workplace and outside work, tasks of any kind increasingly require a proper command of ICT tools. Hence, not being able to use ICT at least in a basic form leads to exclusion. This gap needs to be closed as it hampers the functioning of labour markets. It also puts at risk social cohesion and active citizenship, and ultimately, threatens Europe's model of a "highly competitive social market economy", enshrined in the Treaty on the European Union.

Highlights:

More than one in four adults can only solve very simple tasks in ICT environments (14%) or only have very basic to no computer experience (13%).

People with highest use of ICT at the workplace score on average considerably higher on the literacy scale than those who do not use ICTs (14 score points).

The results from the assessment of problem solving skills in technology-rich environments show that close to 14% of the EU population aged 16-65 can only perform very simple tasks ('below proficiency level 1') and 13% could not even take the test due to having either no or insufficient computer experience ('failed the test or no ICT experience' in figure 3). However, there are large disparities between countries. While in ES, IT, CY, PL and

SK, about one in five of the working age population has insufficient computer experience, this phenomenon can hardly be observed in DK, NL and SE (8% or less).

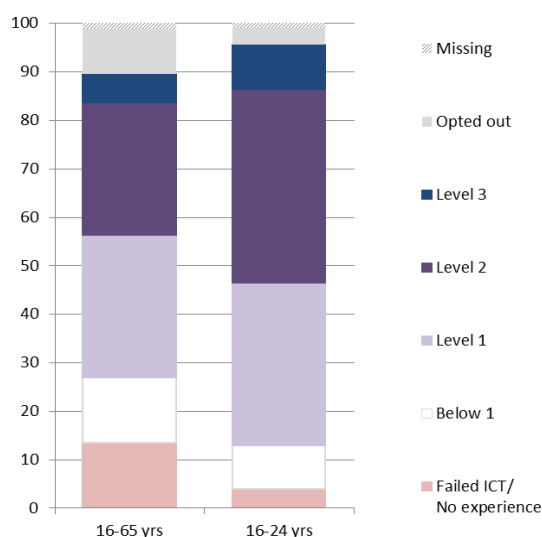
At the upper end of the proficiency scale, a rather small number of countries (FI, SE and NL) have a large share of their population demonstrating high skills (more than 40% on proficiency levels 2 and 3). However, in all countries less than 9% perform at the highest level (level 3).

Those who participated in the Survey could choose to do so in paper based format rather than using the computer based test instruments. On average, this option (reported as 'opted out') was chosen by 11% of the participants. While in BE (FL), DE, UK, DK, SE and NL, no more than 5% did so, in IE and CY it was about 17% and in PL nearly one in four (23%). Though nothing is known

about the motivation of people to do so, there is a certain probability that some felt uncomfortable with the use of an ICT tool.

Figure 7: How proficient are adults in problem solving in technology rich environments?

Share of the population 16-65 and 16-24 years old at each skills level per country, EU13



In comparison, among the younger generation of 16-24 year olds, the share with very low problem solving skills ('below level 1', 9%) or very little to no computer experience ('failed the test or no ICT experience', 4%) is much smaller than in the overall population (see figure 7). However and somewhat unexpected, roughly the same share of young adults (around 30%) have only low levels of proficiency in problem solving (level 1) similar to the overall working age population. ICT is used by younger adults more frequently outside work than at work but it appears that intense ICT use outside work does not necessarily lead to the development of high problem solving skills involving ICT.

A striking finding is the strong relationship between ICT use at work and literacy proficiency. On average in the surveyed EU countries and rather consistently across them, those who report the highest use of ICT at the workplace score about 14 points higher on the literacy scale than those who use ICT least at the workplace, independently of other factors such as age, education or gender⁹, a proficiency difference that corresponds to roughly two years of education.

Source: Survey of Adult Skills (PIAAC)

In fact, next to educational attainment, ICT use is found to have the strongest relationship to proficiency in literacy. This result is true for people regardless of their level of education. The Survey also found a similar positive link between ICT use and reading practice.

Implications for education and training policies

Survey results suggest that too large a share of Europe's working age population, regardless of age, is not sufficiently prepared to face the challenges and reap the advantages of the digital world.

Given the increasing penetration of ICTs in particular at work, it is a concern that on average about two thirds of the workforce (including those performing at level 1) appear not to have the sufficient digital skills for using ICTs as a means of solving tasks at the workplace and outside it¹⁰. Digital skills should be understood as the ability to use digital tools in all aspects of life, which goes well beyond mere computer science.

On the other hand, the very low share of high performers is likely to hamper the growth of knowledge-intensive and innovative business sectors: This should equally be of concern to policy makers.

The younger generation shows on average much higher problem solving skills than the overall population and more experience in using ICT. However, the finding that almost one in three young Europeans in participating countries show only low levels of proficiency confirms the messages

⁹ Differences are adjusted for background characteristics such as age, educational attainment, gender, immigration and language background etc.

¹⁰ Footnote: EU13 results (EU17 without ES, FR, CY and IT) are used for the results by proficiency level

from the Commission Communication on Opening up Education. This might lead to the conclusion that intensive use of ICTs outside work does not necessarily translate into abilities to properly use ICTs as a means of solving problems which is increasingly required at the workplace. The active development of digital skills implies more than mere usage of computers for a long period of time.

The strong relationship between the frequent use of ICTs at and outside work and proficiency in literacy or reading practice shows that a sufficient basic literacy level and continuous reading practice are likely to be enablers of more effective usage of ICTs both in professional as well as personal life and vice versa. On the other hand, reading practice is also changing, with more and more reading happening online, showing how these skills are becoming even more interlinked.

Taking into account these implications, the following policy actions by the Commission aims at achieving further progress:

- In order to address the lack of digital skills among all age groups, the **Grand Coalition for Digital Skills and Jobs** was launched by the Commission, in close cooperation with several stakeholders, including from the industry. In this framework, different stakeholders have launched pledges to enhance digital skills in the remits of their own work.
- Furthermore, the Commission adopted in September 2013 the **Opening up Education initiative**. This is a push for innovative teaching and learning through technologies and Open Educational Resources. Allowing knowledge to be more accessible through digital technologies will also contribute to enhancing digital technologies.
- **Launch of a study on the use of technology enhanced learning and the potential of open educational resources for adults.** Its objective will be to improve the knowledge about the availability of ICT training programmes dedicated to low-skilled adults as well as the use of innovative learning approaches (including open educational resources) for increasing ICT skills.
- **Support to further thematic research of OECD about skills use in the workplace,** including skills requirements across countries and changes in the use of skills over time, in view of the strong correlation between skills use and proficiency levels.

(6) Sustaining the skills of all adults throughout life: the case for lifelong learning

Constant technological progress and prolonging careers require continued efforts to maintain and adapt skills once they have been acquired. While newly created jobs require more information processing skills such as literacy, numeracy and ICT knowledge, the number of jobs that require low levels of skills is declining. Monitoring skills development over a lifetime is important to support both EU and national policies for a better matching of skills supply and demand. Europe will not be able to realise the vision of smart growth, set out in the Europe 2020 Strategy, if its workers lose employability as they grow older. EU Member States have set up co-operation on education and training based on the approach that people should continue to learn throughout their entire life. Against the background of the skills deficit among adults exposed by the Survey and the urgent need for re-skilling and up-skilling to keep the Europeans ready for the 21st century requirements, the EU needs to address the skills decline of its workforce through ageing.

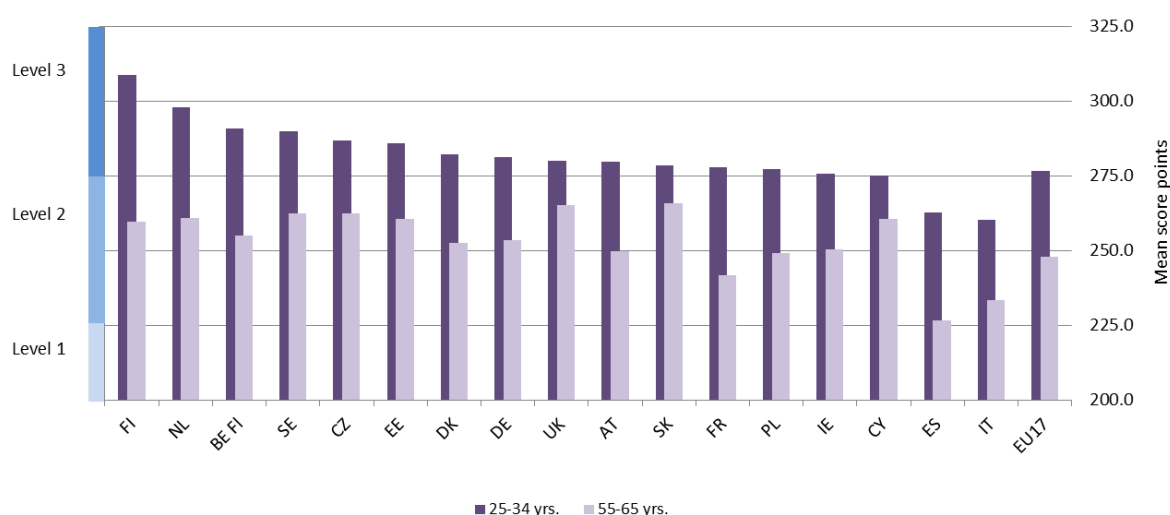
Highlights:

Skills are generally highest for the age group 25-34 and decrease steadily for older generations at EU and OECD levels.

Older generations in SK, SE and UK have skills above EU average, quite close to skills acquired by younger generations.

The Survey reveals that in most countries proficiency levels generally rise from the youngest age group (16-24 years) to the next (25-34 years) and that from there on, all other groups show decreasing levels of skills, with the oldest age group (55-65 years) scoring considerably lower than the youngest group. At the age of 25-34 years, scores in literacy and numeracy are at the border between proficiency levels 2 and 3, while those aged 55-65 years score on average half a proficiency level below (which roughly equates to 3 to 4 years of education).

Figure 8: How proficient are different generations of people in literacy?
Mean proficiency scores of 25-34 and 55-65 years olds



Source: Survey of Adult Skills (PIAAC), ordered average score of people aged 25-34 years

The gap in proficiency skills for **literacy** between the generations aged 25-34 and 55-65 is above two thirds of a proficiency level (35 points, equivalent to about five years of education – see figure 8) in BE (FI), NL and FI, as well as in ES and FR. The gap is low in CY, SK and UK (between 12 and 15 points). In all other EU countries, the difference across age ranges is about half a proficiency level (between 24 and 30 points).

As regards **numeracy**, the difference in proficiency skills between people aged 25-34 and 55-65 years is above half a proficiency level (30 points) in BE (FL), ES, FR, IT, NL and FI. The difference is rather low in SK, SE and UK (between 10 and 20 points) where older generations have skills above EU17 average. In all other EU countries, the difference across these ages is about 25 points (half a proficiency level, about four years of education).

The results reflect the performance of different age groups at a given point of time rather than the development of skills levels over time. Indeed, on the one hand, literacy and numeracy skills might actually decline due to ageing of individuals and occupational specialisation over time; on the other hand, younger cohorts might show higher skills due to improved provision or quality of education, as well as other factors such as developments in society (see the relationship of ICT between literacy and numeracy scores in sub-section 5 above). A lack of opportunities to practise skills in particular at the workplace might also result in a skills decline.

In any case, the Survey results show a strong positive correlation, consistent across countries, between participation in adult education and literacy skills which illustrates that investing in adult learning pays off and that levels of participation in adult learning, as well as quality and intensity, need to be sustained.

Implications for education and training policies

The Survey results suggest that some policies have been successful in sustaining, or even improving basic skills beyond initial education. Engaging in learning-conducive work is one way of developing and maintaining skills proficiency, participation in adult education and training is another. Lack of access to either of them will likely result in the decline of skills proficiency. Sub-section (3) above recalls that investing in adult learning pays off. Thus looking beyond initial education, it is necessary to further broaden and develop continuing education and training which is currently the least developed part of the education system. In order to fulfill this role, the system must provide flexible learning pathways and be more accessible.

A number of other factors make a difference as to whether skills are developed and maintained. The levers for literacy (and other basic skills) provision are: committed and high-quality teachers; linking literacy to daily life and other forms of learning; long and intensive courses; assessment and validation of skills.

To develop such sustained policies, the Commission envisages to:

- Present **substantial analysis** on the issues of **quality and funding of adult learning in 2014**, recognising the need for better provision of adult learning. Furthermore, a study is envisaged to support the implementation of **effective adult learning policies** through the Open Method of Coordination.
- Promote the exchange of good practices and strengthen overall the quality of the adult learning sector and launch in 2014 **a new web platform "EPALE"**¹¹. This will **enhance the cooperation of the European adult learning community** by providing a platform for staff, curriculum and learning material development as well as for policy improvement.
- **Promote the adoption of more innovative working practices** together with up-skilling and or re-skilling of employees, particularly in relation to regional skills strategies. A good example is the so called "high performance work systems" in enterprises which allows both increasing companies' productivity and developing employees' skills.
- Further enhance innovative working practices together with the development of processes for the validation of skills through the **Operational Programmes of the 2014-2020 European Cohesion Policy** closely linked to adult learning policies.

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¹¹ Electronic Platform for Adult Learning in Europe

(7) Investing in education and training pays off: The positive economic and social outcomes of skills

Europe strives to achieve growth that promotes social inclusion and cohesion. Good, stable employment and income are the best ways to prevent and fight poverty and social exclusion. In turn, solid education and relevant skills are the best conditions for finding a good job. And there are related, wider benefits: good education is also correlated with better health, a longer life expectancy and active participation in societal life. There are no simple, mono-causal relations between these issues but good education and training forms part of the bedrock on which the European Model rests. Promoting equity, social cohesion and active citizenship is one of the long-term objectives of the strategic framework for European cooperation in education and training ("ET 2020").

Highlights:

The outcomes of education and skills are significantly related to wages of individuals.

Skills have a significant effect on trust, social participation, political efficacy and health.

The Survey makes clear that social outcomes go hand-in-hand with better economic outcomes such as employment and higher wages. It provides evidence that skills proficiency and schooling have significant and distinct effects on hourly wages. An increase of skills by around 40 points (slightly less than one skills level) is linked with an increase in wages – from 5% in countries such as DK, FI and IT to above 10% in the UK. The effect of additional years of education is larger: from 7% in SE to more than 25% in PL and SK.

Notwithstanding the importance of a sufficient income, there is a broader impact of literacy and numeracy skills. Adults with low levels of skills (scoring at level 1 or below) in literacy are nearly twice as likely to report that they trust others very little compared to adults with high literacy skills (scoring at level 4 or 5). Adults with high levels of skills are twice as likely to participate in volunteering activities and show a higher level of political efficacy (sense of influence on the political process) as low-skilled people.

Finally, the results of the Survey show that low skills have a clear impact on health perception. On average, low-skilled adults are twice as likely to report fair or poor health as high-skilled individuals. However beyond proficiency level 1, the relationship between skills and health becomes insignificant, which suggests that level 2 is a threshold after which higher skills have little additional effect on health perception. These results remain valid even when controlling for educational attainment and other individual characteristics.

Implications for education and training policies

The Survey provides evidence of the relevant and separate roles of education and skills in generating positive social outcomes, and thus can contribute to the current discussion about the social dimension of the European Economic and Monetary Union.

The Survey results on the relationship between skills and trust provide additional evidence to the debate on the economic effect of social capital. Social capital indicators (primarily trust) are seen to be related to various social and economic factors, such as economic growth, innovation or even the level of criminal activity¹² and all these could be influenced both through education and skills development.

The Survey is a reminder that education should provide skills that are relevant not only for the labour market, but also to social and private life. Here the Commission envisages to:

- discuss further the matter in relation to **transversal skills**.

¹² Akcomak, I. S. (2008). The impact of social capital on economic and social outcomes. Universitaire Pers Maastricht.

- prepare **a dedicated thematic report on the social outcomes of Skills** (DG EAC and JRC/CRELL) based on the Survey in relation to the Europe 2020 objective of inclusive growth.
- **continue the development of a learning outcomes approach**, which better ensures that graduates from initial education and training are equipped not only with knowledge but also with relevant skills and competences. Both the learning outcomes approach and the quality of adult learning need to be promoted further in that context. This is closely related to the various Commission initiatives presented across sub-sections (1) to (6) above.

3. Implications for EU and Member States: growth and jobs strategies, education and training policies

The Survey conducted in 17 EU countries offers substantial new data on their current situation and policy challenges. It will therefore be of great help, both for the Commission and Member States, in designing strategies for growth and jobs and better education and training policies. It also provides background evidence for monitoring the countries' related policies. The findings are in line with the overall country analysis carried out to date and the conclusions drawn - in particular within the framework of the European Semester, including for country specific recommendations -, as well as within the EU Education and Training strategy ET2020.

The Survey results also point to new and emerging issues, and provide additional evidence that will be further analysed as an additional source of information for future work at the European level, including for the European Semester.

In general terms, the results of the Survey seem to confirm the analysis carried out during the 2013 European Semester and the corresponding country specific recommendations in particular for **a first group of countries** consisting of Denmark, Germany, Spain, France, Italy, Slovak Republic, Finland, Sweden and UK.

The Survey provides complementary new data and hints to new issues **for a second group of countries** that should be further assessed in depth: Belgium (Flanders), Czech Republic, Estonia, Austria and Poland.

Finally, the Survey also reveals that attention should be given to **a third small group of countries** where – for different reasons – adult skills have not been the focus of attention in 2013, notably Ireland and Cyprus, and the Netherlands on some specific issues.

A detailed analysis of country evidence

As to the first group of countries, in **Denmark**, the CSR issued by the Council in 2013 urges to raise attainment levels to improve employability of migrants; the Survey shows that the proficiency gap in literacy and numeracy between immigrant and native born adults is larger than in many other EU countries, close to 40 points.

For **Germany**, where the CSR recommends raising the educational achievement of disadvantaged people, the Survey confirms earlier findings that the country is one of those with the strongest association between socio-economic background (education level of parents) and literacy proficiency among young people. The gap in literacy proficiency between migrants and the native born is slightly above average compared to other countries, nevertheless about two thirds of a proficiency level (35 points).

The country challenges identified by the Survey also support policy messages and recommendations addressed to **Italy** and **Spain**. In both countries, close to 30% of adults have literacy and numeracy skills at level 1 or below, the highest shares among EU countries.

In **Spain**, the CSR stipulates to reinforce the effectiveness of re-skilling training programmes for older and low-skilled workers, to increase the labour market relevance of education and training.

Graduates from upper secondary VET perform in literacy skills below OECD average. Results show that there is a general problem with skills proficiency not only for the young but for the general population as Spain score far below the OECD and EU averages regarding numeracy and literacy. These results provide further evidence supporting the on-going discussions in this country about reforming general and vocational education and training.

In **Italy**, the CSR focuses on stepping up efforts to prevent early school leaving and improve school quality and outcomes. What is worrying is that the results show that in Italy, skills of people aged 25-34 are at the same level as younger generations and deteriorate further among all older generations. Young people score far below the OECD and EU averages in literacy and numeracy.

In the case of **France**, 22% of adults have literacy and numeracy skills at the level 1 or below. Older generations perform significantly below younger French cohorts and below EU average. The CSR calls for actions to improve the employment perspective of older unemployed people in particular through specific counselling and training and to increase adult participation in lifelong learning, especially of the least qualified and of the unemployed.

In the **Slovak Republic**, the CSR recommends to take steps to attract young people into the teaching profession to raise educational outcomes. The Survey provides further evidence in this regard as young people aged 16-19 with upper secondary education perform below average in the literacy proficiency tests, no better than older cohorts with similar qualifications. In addition, about 20% of the working age population has no computer experience even though young people perform better than the older generation and closer to the EU average.

In **Finland**, the Survey confirms on the one hand that young people perform well in literacy and numeracy compared to the rest of the population. Likewise, literacy and numeracy skills of unemployed people do not differ significantly from those of employed people and participation in education and training is high even among low-skilled people. The CSR recommends improving the labour-market position of young people and the long-term unemployed, with a particular focus on the development of job-relevant skills. The Survey provides information on job-related skills per occupation which are relevant to use in that context.

In the case of **Sweden**, the CSR stipulates to reinforce efforts to improve the labour-market integration of low-skilled young people and people with a migrant background by stronger and better targeted measures to improve their employability and the labour demand for these groups and to complete the Youth Guarantee to better cover young people not in education or training. The findings of the Survey confirm the importance of these issues, as it shows that the proficiency gap in literacy and numeracy between immigrant and native born adults is larger than in other EU countries, close to 50 points, i.e. one proficiency level.

In the **United Kingdom**, the CSR focuses on reducing the number of young people aged 18-24 who have very poor basic skills, including through effectively implementing the Traineeships programme. Also in this case, the Survey results (for England and Northern Ireland) confirm the importance of this discussion. Young people lack basic skills in numeracy and literacy and they score far below the EU and OECD averages in literacy and numeracy. (7 points less in literacy, 5 points less in numeracy) The share of the young population aged 16-24 scoring at most at level 1 is rather high (around 18% for literacy, 25% for numeracy).

Belgium is the first in the **second group of countries**, i.e. the one for which the Survey provides complementary new data and hints to new questions needing further investigation also in the context of the European Semester. In Belgium, the CSR stipulates to simplify and reinforce coherence between employment incentives, activation policies, labour matching, education, lifelong learning and vocational training policies for older people and the young. It also encourages developing comprehensive social-inclusion strategies for people with a migrant background. Indeed, the Survey confirms that the proficiency gap in literacy between older people and the other age groups and between migrants and native born is large compared to other countries. At the same time, youth performance in literacy and numeracy is above the OECD and EU averages.

However, the CSR was directed at Belgium as a whole while the result of the Survey cover only Flanders which also scores significantly better than Belgium as a whole in numeracy and literacy in other surveys.

In the case of the **Czech Republic**, the CSR recommends to establish a comprehensive evaluation framework in compulsory education and take targeted measures to support schools that rank low in educational outcomes. On the one hand, the performance of young people with upper secondary education is surprisingly quite close to people with at most lower secondary education (10 points of difference for literacy, about 30 points on average at EU level). On the other hand, young people perform above the EU and OECD averages in numeracy.

In the case of **Estonia**, the CSR stipulates to continue efforts to improve the labour-market relevance of education and training systems to increase the participation of the low-skilled in life-long learning. The Survey shows that low-skilled people are 4 times less likely to participate in adult learning compared to high-skilled adults (5 times at EU level).

In the case of **Austria**, the CSR and the accompanying Staff Working Document, based on PISA, point to the need to improve education outcomes of people with a migrant background and disadvantaged young people. In the Survey, the proficiency gap in literacy between migrants and native born is about the average of all countries, nevertheless half a proficiency level or about 25 score points. Interestingly, the results show that performance of graduates from upper-secondary VET in literacy skills is slightly above EU and OECD averages.

In the case of **Poland**, the CSR recommends to strengthen cooperation between schools and employers and improve the quality of teaching. The issue that needs further discussion is that upper secondary education graduates aged 16-29 years perform below EU and OECD averages in literacy and numeracy. This is also true for upper secondary VET. The performance of young people with upper secondary education is very close to people with at most lower secondary education (less than 5 points for literacy). About 20% of the working age population has no computer experience, but young people perform better than the older generation and closer to EU average.

Finally, the Survey also reveals that attention should be given to a **the third group of countries** for which – for different reasons – adult skills have not been the focus of attention in the Europe 2020 context so far (in the case of Ireland and Cyprus this was mainly due to the fact that the focus was on the implementation of the financial assistance programmes).

In **Ireland**, the challenge is that, despite a fairly well established adult training system, the country scores below EU average in the numeracy tests. This challenge also holds true for young people: 22% of them have low numeracy skills.

In **Cyprus**, the Survey shows proficiency scores slightly below EU and OECD averages in literacy and numeracy. Further investigation is needed on the fact that the performance of young people with upper secondary education is quite close to people with at most lower secondary education (10 points for literacy) and that younger generations score close to other age groups.

Finally, in the **Netherlands** overall results in the Survey is significantly above the OECD and EU averages (almost 60% have high literacy skills, above 56% for numeracy skills). The share of low-skilled adults was comparably low – below 12% for literacy and around 13% for numeracy. The participation rate of low-skilled adults in job-related training is also one of the highest among the EU countries. However the main issue is that foreign-born adults are at a rather large disadvantage in terms of both numeracy and literacy skills compared to other EU countries close to 50 points, i.e. one proficiency level.

4. Next steps

The Survey is a valuable source of evidence and information for the policy dialogue between the European Commission and Member States, particularly in two contexts: Firstly, the Europe 2020 exercise and the 2014 European Semester, notably as regards outcomes of formal education on literacy and numeracy skills for young people and sustenance of skills over a lifetime. Secondly, the different instruments of the Open Method of Coordination in the fields of education and training and employment.

Member States may wish to consider using the Structural Funds to address their key challenges and shortages of skills. For future rounds of the Survey, the EU Member States' participation cost can be financed by the Structural Funds.

The European Commission has already taken steps to tackle the high youth unemployment rates linked to the skills mismatches and lack of work experience, with initiatives such as the 'European Alliance for Apprenticeships', as well as youth guarantees to help young people gain initial work experience or get retrained. In its 2012 Communication of *'Rethinking education: investing in skills for better socio-economic outcomes'*, the Commission also identified strategic priorities to build basic, transversal and vocational skills for the 21st century.

In order to exploit further the results of the Survey, the Commission will:

- Within the Open Method of Coordination on education and training, **support the policy discussion on the Survey results**, jointly with Member States in all relevant groups, to evaluate the impact of EU and national policies; they may explore new measures if appropriate, e.g. through peer reviews;
- Encourage the **use of EU funds**, particularly the Structural Funds and the Erasmus+ Programme, to tackle the key education, training and skills challenges or bottlenecks identified or confirmed by the Survey results;
- Launch **further analyses** of the Survey detailed results, to gain insight into how skills are supplied by education and training systems, and developed and maintained over a lifetime; it will support the implementation of effective adult learning policies.

* * *

Annex 1 Brief description of proficiency levels, score point ranges and "can do"-statements for literacy, numeracy and problem solving in technology rich environments¹³

Level	Score range	Literacy	Numeracy
5	500 to 376	Adults are able to e.g. perform tasks that involve searching for and integrating information across multiple, dense texts; constructing syntheses of similar and contrasting ideas or points of view, or evaluating evidence and arguments.	Adults can e.g. understand complex representations, and abstract and formal mathematical and statistical ideas, sometimes embedded in complex texts. They can integrate several types of mathematical information where considerable translation is required
4	375 to 326	Adults can perform multiple-step operations to integrate, interpret, or synthesise information from complex or lengthy continuous, non-continuous, mixed, or multiple-type texts that involve conditional and/or competing information.	Adults understand a broad range of mathematical information that may be complex, abstract or embedded in unfamiliar contexts. They can perform tasks involving multiple steps and select appropriate problem-solving strategies and processes.
3	325 to 276	Adults can understand and respond to dense or lengthy texts, including continuous, non-continuous or multiple pages. They understand text structures and rhetorical devices and can identify, interpret or evaluate one or more pieces of information and make appropriate inferences.	Adults can complete tasks that require an understanding of mathematical information that may be less explicit, embedded in contexts that are not always familiar, and represented in more complex ways. They can perform tasks requiring several steps and that may involve a choice of problem-solving strategies.
2	275 to 226	Adults can integrate two or more pieces of information based on criteria, compare and contrast or reason about information and make low-level inferences. They can navigate within digital texts to access and identify information from various parts of a document.	Adults can perform tasks that require identifying and acting upon mathematical information and ideas embedded in a range of common contexts where the mathematical content is fairly explicit or visual with relatively few distractors. The tasks may require applying two or more steps.
1	225 to 176	Adults can read relatively short digital or print continuous, non-continuous, or mixed texts to locate a single piece of information, which is identical to or synonymous with the information given in the question or directive.	Adults at Level 1 can complete tasks involving basic mathematical processes in common, concrete contexts where the mathematical content is explicit with little text and minimal distractors. They can perform one-step or simple processes involving e.g. counting, sorting and basic arithmetic operations.
below 1	below 176	Individuals can read brief texts on familiar topics and locate a single piece of specific information identical in form to information in the question or directive. They are not required to understand the structure of sentences and only basic vocabulary knowledge is required.	Adults can only cope with very simple tasks set in concrete, familiar contexts where the mathematical content is explicit and that require only simple processes such as counting; sorting; performing basic arithmetic operations with whole numbers or money.

Level	Score range	Problem solving in technology rich environments
3	500 to 340	Adults complete tasks involving multiple applications, a large number of steps, impasses, and the discovery and use of ad hoc commands in a novel environment.
2	340 to 291	Adults can complete problems that have explicit criteria for success, a small number of applications, and several steps and operators. They can handle unexpected outcomes or impasses.
1	290 to 241	Adults can complete tasks in which the goal is explicitly stated and for which the necessary operations are performed in a familiar environment. They can solve problems whose solutions involve a small number of steps.
below 1	below 241	Tasks are based on well-defined problems involving the use of only one function within a generic interface to meet one explicit criterion. Few steps are required and no sub-goal has to be generated.
Failed ICT core	-	Adults had prior computer experience but failed the ICT core test, which assesses basic ICT skills. Therefore, they did not take part in computer-based assessment, but took the paper-based version of the assessment.
No computer experience	-	Adults reported having no prior computer experience; therefore, they took the paper-based version of the assessment, which does not include the problem solving in technology-rich environment domain.
"Opted out"	-	Adults in this category opted to take the paper-based test without first taking the ICT core assessment, even if they reported some prior experience with computers.

¹³ Source: International report on the Survey of Adult Skills (PIAAC), Volume II