



European
Commission



Education and Training Monitor 2014

The **Education and Training Monitor 2014** consists of two separate Volumes, of which this is Volume I.

Volume I, featuring the cross-national analysis, is divided into three parts. Part 1: *The case for education* discusses the most prominent reasons why Member States should invest in their education and training systems. Part 2: *Qualifications and competences* covers the key outcomes of education and training systems. Part 3: *Education policy levers for building growth* presents the evidence on policy drivers that can transform education investments into stronger impact by focussing on specific areas to improve the efficiency and effectiveness of European education and training systems.

Volume II can be found on the website of the Education and Training Monitor. It consists of twenty-eight individual country reports that provide a more in-depth analysis of each Member State's specific situation, taking into account contextual information that characterises each country.

The website also provides additional indicators that were used throughout the monitoring exercise in order to better understand of the contextual factors influencing progress over time and differences among countries. These additional indicators are part of the Joint Assessment Framework (JAF); a tool that enables a consistent and transparent monitoring for all the Member States.

Finally, the online Education and Training Monitor contains a visualisation tool for the twofold Europe 2020 headline target on education and training and the additional ET 2020 benchmarks. The tool allows users to intuitively compare Member States in terms of current performance and recent change, but also to have a closer look at the standard sub-groups used throughout the 2014 Monitor.

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Targets for 2020 in education and training

		Current	Target
Headline target	1 Early leavers from education and training		
	The share of the population aged 18-24 having attained ISCED level 0, 1, 2 or 3c short and not receiving any formal or non-formal education or training in the four weeks preceding the survey.	12.0%	Below 10%
Other targets	2 Tertiary education attainment		
	The share of the population aged 30-34 years having successfully completed ISCED level 5 or 6.	36.9%	At least 40%
	3 Early childhood education and care		
	The share of the population aged 4 to the age when primary education starts who are participating in early education.	93.9%	95%
	4 Low achievement in reading, maths and science		
	The share of 15-year-olds failing to reach Level 2 in reading, mathematics and science.	Reading: 19.6% Maths: 22.2% Science: 17.7%	15%
	5 Employment rate of recent graduates		
	The share of employed people aged 20-34 having successfully completed upper secondary or tertiary education 1 to 3 years before the reference year of the survey and who are no longer in education or training.	75.5%	82%
	6 Adult participation in lifelong learning		
	The share of the population aged 25-64 who stated that they received formal or non-formal education or training in the four weeks preceding the survey.	10.5%	15%

Source: Eurostat (LFS 2013 for 1, 2, 5 and 6; UOE 2012 for 3) & OECD (PISA 2012 for 4).

ⁱ The quantitative component of this monitoring tool is explained in JRC-CRELL (2014), *Monitoring the evolution of education and training systems: A guide to the Joint Assessment Framework* (<https://crell.jrc.ec.europa.eu/>). The qualitative component is exemplified by various tables throughout the Monitor that capture country efforts to tackle a particular policy issue, based on evidence from Eurydice and Cedefop.

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Additional contextual data can be found online (ec.europa.eu/education/monitor)

Data underlying tables and figures in this document can be requested through eac-monitor@ec.europa.eu

Foreword

The purpose of education is to prepare individuals for life and to instil a sense of democratic citizenship; and to do so for all learners, regardless of socio-economic and cultural differences. Quality education and training fuel inclusive, sustainable growth as learning outcomes translate into the productivity and innovation of the working-age population.

The crisis has brought to light that sometimes education systems prepare children for a world that no longer exists; many schools are not attuned to the benefits of digital learning and the new pedagogies they enable; and too many learners do not have their qualifications recognised.

The case for education is not built on aspiration but on fact. This third edition of the Education and Training Monitor charts the evidence we have collected over the past year in a concise, digestible way, and offers policy messages for Member States. It demonstrates that we need to strengthen our investments in education while we must look beyond the number of people with qualifications, and that we have to boost the inclusiveness, quality and flexibility of our education and training systems. It highlights the importance of focusing on the quality and attractiveness of the teaching profession; including by enabling teachers and learners to benefit from effective use of innovative pedagogies and tools.

The Monitor represents an important analytical contribution to the implementation of the strategic framework for European cooperation in education and training (ET 2020); moreover, this year it gives strong inputs to its 2015 Joint Report and the development of future working priorities. How? By strengthening the evidence-base and by linking it more closely to the broader Europe 2020 strategy and the country-specific recommendations adopted by the Council as part of the 2014 European Semester.

Complete with its online visualisation tool and additional data, the Monitor is part and parcel of our ongoing effort to strengthen our analysis and knowledge management. It is part of a bigger picture, illustrating how we better align new studies to our operational agenda and streamline quantitative and qualitative information from external providers with our own evidence-based policy coordination. At the same time, it is the fruit of our ever-growing country analysis.

The Monitor is also a good example of cooperation between services, with contributions from the Eurydice unit of our Education and Culture Executive Agency (EACEA), Cedefop, the JRC's Centre for Research on Education and Lifelong Learning (CRELL) and Eurostat. It moreover profits from close cooperation with the OECD through the Teaching and Learning International Survey (TALIS), the Programme for International Student Assessment (PISA) and the Survey of Adult Skills (PIAAC).

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Key findings and policy relevance

The third annual Education and Training Monitor assesses the evolution of education and training systems across Europe. It does so on the basis of targets set at the European level, as well as other indicators, studies and reports. The Monitor looks at (1) investment in education and the wider reasons for this investment; (2) the learning outcomes of education as measured by qualifications and competences; and (3) the policy levers that can help to improve learning outcomes for all and to strengthen returns to education investment.

The Education and Training Monitor 2014 is released on the eve of the Juncker Commission taking office, which has pledged an ambitious *Jobs, Growth and Investment Package* focused, in part, on education, research and innovation. The new Commission will pursue the modernisation of education systems through the European Semester of economic policy coordination, with a view to progressing towards the education targets set in the Europe 2020 strategy.

1. The case for education

The economic and financial crisis has had a profound impact on society. Unemployment has reached unacceptably high levels in many parts of the EU, particularly among Europe's youth. This is the number one concern set out in the *Political Guidelines* of President elect Juncker. Education cannot afford to contribute anything less than its full potential. There is a strong economic and social case for investing in education. Education contributes to productivity, competitiveness and innovation, while levelling the playing field and breaking cycles of disadvantage.

But education is facing its own structural challenges. Population ageing means that Member States will have to exploit fully the pool of talent amongst the school-age population. Productivity, competitiveness and innovation will have to grow, with relatively fewer people to rely on. Education in many Member States is, at the same time, out of touch, as systems are still struggling to meet 21st century expectations. These challenges pre-date the crisis, but are now aggravated by a consolidation of public finance.

The country-specific recommendations (CSRs) adopted by the Council as part of the 2014 European Semester reflect the importance of education and training for Europe. The Monitor confirms the messages delivered in the CSRs and brings forward the following evidence and lessons for policy:

1.1. Strong education performance cannot be expected without sufficient resources and reforms to ensure their effectiveness. Yet nineteen Member States cut their education expenditure in 2012. Six Member States decreased investments by more than 5% (EL, ES, CY, HU, PT, RO). Some of the countries that devote relatively few resources to education have decreased their investment further (BG, RO, SK). Since 2008, six countries saw a decrease in expenditure across all levels of education (BG, EL, IT, LV, PT, RO). Underinvestment in human capital risks undermining Europe's prospect for sustainable and inclusive growth. Reforms will be required to make sure that education and training systems work effectively and efficiently.

1.2. The focus on employability has to be strengthened within education institutions. Youth unemployment remains rampant across Europe and the employment rate of recent graduates stagnated at 75.5% in 2013. VET graduates have better employment prospects in countries where work-based learning is a strong component of VET programmes and higher education graduates are still about 11 percentage points more likely to be employed than those with upper secondary education attainment. But occupation mismatches by qualifications and competences demand that education and training systems become more sensitive to the needs of the modern labour market.

- 1.3. Education has to live up to its potential to level the playing field, to avoid proactively any form of discrimination and social exclusion, and to provide chances for all learners.** Socio-economic and socio-cultural inequalities continue to impact negatively upon educational outcomes. Parental education attainment still determines to a large extent one's own education attainment and new evidence suggests that intergenerational education mobility is actually slowing down in the industrialised world. Ten countries received CSRs to focus on disadvantaged learners in particular (AT, BG, CZ, DE, DK, HU, LU, RO, SE and SK). Although tackling educational disadvantage is complex and requires wide-ranging, integrated strategies, Member States cannot afford to ignore these challenges.

2. Qualifications and competences: a key outcome of education

- 2.1. Reducing the number of early school leavers will save Europe large public and social costs and protect the individual from a high risk of poverty and social exclusion.** There are still more than five million early school leavers across Europe, facing an unemployment rate of 41%. As Europe gets closer to the Europe 2020 headline target, 12.0% in 2013, it becomes increasingly visible what a complex, multi-faceted problem early school leaving is. A slow but steady progress is hiding significant disparities between but also within countries. The risk of early school leaving is 33.3% higher amongst men; more than twice as high for the foreign-born; no less than 156.1% higher for those suffering physical difficulties; and more than three times as high in bottom-performing regions than in top-performing regions in BG, CZ, PL, ES, UK and BE.
- 2.2. In higher education, broadening access and reducing dropout rates amongst disadvantaged groups remains challenging.** The rate of tertiary education attainment in Europe has steadily grown to 36.9%, yet high-qualified employment is forecasted to have increased a further 13% by 2020. Moreover, the persisting disparities between and within countries leave no room for complacency. The rate of tertiary education attainment is 26% higher amongst women; about 10% higher for native-born; 62.4% lower for individuals suffering physical difficulties; and in CZ, RO and SK, bottom-performing regions have attainment rates that are at least 60% lower than those found in top-performing regions. Only a handful of countries strive to widen participation and boost completion rates amongst disadvantaged groups.
- 2.3. Targeted policy action is needed to reduce low achievement in key basic competences across Europe.** Amongst 15 year-olds, the EU is not making enough progress in order to reach the 2020 target of at most 15% low achievement in maths, even if negligible gender differences in maths and science hold potential for later STEM fields of study that can be exploited more fully. At the same time, the large and persisting reading disadvantage for boys across all Member States calls for specific policy initiatives. Across the EU's working-age population, the overall rate of low achievement in literacy and numeracy is 19.9% and 23.6% respectively, with significant discrepancies between countries in the skills-value of qualifications. Socio-economic status is still by far the most important determinant of an individual's key basic competences.
- 2.4. For individuals to thrive in a modern and evolving labour market, education needs to equip people with key transversal competences.** Policy efforts regarding digital competences are to be strengthened, as even amongst the younger generation only half can solve more than very basic problems with the use of ICT. Efforts across Member States to support and promote entrepreneurship in education are fragmented and lack coherence, while 15-year-olds are performing worse in solving non-routine problems than one would expect from their reading, maths and science skills. Despite language competences becoming key for employability of young people, national curricula show significant differences in the number of foreign languages being taught. The percentage of students in lower secondary school learning two or more foreign languages is less than 10% in BE fr, HU, IE and AT.

3. Education policy levers for building growth

The Education and Training Monitor 2014 identifies three main strands of policy levers that can help strengthen the impact of education and training systems across Europe.

Improving the quality and inclusiveness of pre-primary and compulsory education by reaching out to the most disadvantaged, giving more attention to the teaching profession and better exploiting the potential of innovative pedagogies and digital learning.

3.1. Policy action should better acknowledge the essential role of early childhood education and care (ECEC) in tackling inequalities and raising proficiency in basic competences. ECEC is an effective and an efficient investment in education, as reflected in CSRs to ten Member States (AT, BG, CZ, DE, IE, IT, PL, RO, SK and UK). Although older children in the age bracket are commonly in early education all across Europe, the need to focus on the younger ones remains – and cannot be met by informal, non-professional care only. Moreover, new evidence shows that while ECEC quality is a priority for many Member States, targeted support for disadvantaged families is still not prevalent.

3.2. Focussing on the teaching profession should be a priority for the next years. Eleven Member States suffer a shortage of qualified teachers (AT, BE, fr, DK, DE, IT, LU, NL, RO, SI, SK, SE), while the lack of qualified teachers for disadvantaged schools is of particular concern. The TALIS results also highlight the need for beginning teachers to have access to formal induction programmes, continuing professional development opportunities, and systematic appraisal mechanisms. A coherent policy framework on teaching should address the attractiveness of the teaching profession and the recruitment, allocation and retention of qualified teachers. Due attention is to be put into devising teacher education programmes that develop the skills needed for teaching to a diverse group of learners.

3.3. Combining innovative pedagogies with an effective use of digital tools and content will boost education in terms of quality, equity and efficiency. The most effective teaching methods place students at the centre of the learning process. Digital tools are often involved in such active teaching practices, yet only one out of three teachers in the EU reports frequent use of practices involving ICT. Close to 20% of lower secondary school teachers indicate that they have a high need for continuing professional development in the area of ICT skills for teaching and new technologies in the workplace. Meanwhile, MOOCs are becoming more prevalent, but Europe is still lagging behind. This is a policy priority, as MOOCs and Open Educational Resources have the potential of reaching a far larger and more diversified audience than traditional forms of learning, and at a lower cost.

Strengthening the quality and relevance of higher education and of VET, work-based learning and apprenticeships through e.g. better quality assurance, use of labour market projections, career guidance and graduate tracking surveys.

3.4. In higher education, increasing the quality and relevance of qualifications and competences is a critical priority. Ten Member States received a CSR on higher education (AT, BG, CZ, EE, ES, HU, IT, LV, RO and SK). Higher education institutions should pay particular attention to the pedagogical competences and continued professional development of their teaching staff. International learning mobility and the involvement of employers in the development and quality assurance of programmes can be helpful in boosting graduate employability. Regular labour market forecasting and graduate tracking surveys, fed back into career guidance for higher education students, can help prevent skill mismatches and bottlenecks in the labour market.

- 3.5. VET, work-based learning and apprenticeships play a key role in tackling youth unemployment and facilitating the transition to the labour market, by linking more closely the worlds of education and work.** This was the subject of no fewer than twenty-two CSRs in 2014, eight of which explicitly referring to the Youth Guarantee (BG, ES, HR, IE, IT, PL, PT and SK). About half of upper secondary students across Europe follow vocational education and training (VET) programmes and around 27% of them are in combined school- and work-based learning programmes, including apprenticeships. Key challenges lie in raising the attractiveness of VET through improving its quality and relevance, particularly by feeding employability data back into VET programmes.

Promoting, facilitating and incentivising continued learning after initial education and making sure that learning outcomes are transparent and easily recognised across different contexts.

- 3.6. Continued learning after initial education is crucial for raising productivity levels of the working-age population and tackling skill mismatches and bottlenecks on the labour market.** It was the topic of eleven CSRs in 2014 (BG, EE, ES, FR, IE, LT, LU, PL, RO, SE, SK). However, those most in need of up-skilling are barely participating in continued learning at all. Non-formal learning for early school leavers is almost non-existent and adult participation in lifelong learning is negligible amongst the low-skilled or unemployed. The lack of lifelong learning creates a *low skills trap* for the seventy million adults without upper secondary education attainment that are most in need of up-skilling.
- 3.7. Education throughout an individual's life and one's learning mobility should be facilitated by better transparency and recognition of learning outcomes.** Only by making learning outcomes of students and adults easily understood and quickly recognised can they be effectively used for employability or continued learning. However, the existing European tools and initiatives are not fully living up to their potential and awareness-raising remains a priority. At the same time, as PIAAC shows that education attainment levels do not correspond to the same level of learning outcomes across countries, there is a need to gain further understanding of the desired learning outcomes of individual qualifications and to achieve a common understanding of quality, transparent across countries.

Summary of the main indicators used in the Education and Training Monitor 2014

		2010	Current *		
		EU average	EU average	Top performance	Bottom performance
The case for education					
Education investment	As a percentage of GDP	5.5 ₀₉	5.3	7.9	3.0
	Year on year change at constant prices	1.7 ₀₉	-1.1	6.2	-26.8
Employment rate of recent graduates	ISCED 3-4	72.1	69.5	90.8	29.7
	ISCED 5-6	82.7	80.9	94.1	45.4
	ISCED 3-6	77.4	75.5	92.2	40.0
Qualifications and competences: a key outcome of education					
Share of adults with lower secondary education at most		27.3	24.8	6.6	60.2
Early leavers from education and training		13.9	12.0	3.9	23.6
Tertiary education attainment		33.6	36.9	52.6	22.4
Students' low achievement in basic competences	Reading	19.7 ₀₉	17.8	9.1	39.4
	Maths	22.3 ₀₉	22.1	10.5	43.8
	Science	17.8 ₀₉	16.6	5.0	38.0
Adults' low achievement in basic competences	Literacy	:	19.9	10.6	27.7
	Numeracy	:	23.6	12.8	31.7
Digital competences	Share of adults with low ability to solve problems in a technology-rich environment	:	26.9	19.1	38.0
Entrepreneurship competences	Share of adults feeling capable to start a business	45.8	42.3	52.0	29.0
	Share of 15-year-olds with low achievement in problem solving	:	20.6	14.3	56.7
Foreign language competences	Share of ISCED 2 students learning 2 or more foreign languages	60.6	64.8	100.0	6.0
Education policy levers for building growth					
Early childhood education and care (ECEC)		92.1 ₀₉	93.9	100.0	71.7
Teaching profession	Perception of the profession being valued	:	18.5	58.6	4.0
	Share of teachers in continued professional development	:	84.6	96.8	73.3
	Share of teachers aged 50 and over	:	:	14.8	61.9
New technologies	Use of ICT for projects or class work	:	33.6	73.9	18.2
	Teachers' participation in ICT training	:	25.0	74.0	1.0
Share of ISCED 3 students in vocational education and training (VET)		50.1 ₀₉	50.4	75.3	11.8
Lifelong learning	Early leavers from formal education currently in non-formal learning	0.9	0.9	3.4	0.0
	Adult participation in lifelong learning	9.1	10.5	31.4	1.7

Sources: Eurostat (LFS, UOE); OECD (PISA, PIAAC, TALIS). Notes: * *Current* refers to the latest available data, which dates from 2013, 2012 or 2011 depending on the source. Further information is found in the respective section of the Monitor. This table can also be found in the Annex, with available data for EEA and candidate countries.

1. The case for education

Education and training equip citizens with skills that fuel productivity and drive innovation, and play a crucial role in counteracting the negative effects of social disadvantage. However, as Part 1 of the Monitor will show, education is not used to its fullest potential. Public expenditure on education has been reduced in many countries through consolidation measures, the graduate employment rate is still too low and education and training systems could be used more effectively to counter inequalities. Now that the EU is slowly moving out of its worst economic and financial crisis¹, there is a compelling case to be made for improving education to generate smart, sustainable and inclusive growth.

The case for education can be made from many different perspectives. Personal fulfilment, civic participation and social cohesion are but a few of the wider impacts of education and training. A more socio-economic case for education is no less compelling – and illustrates how education and training have a vital role to play in stimulating economic development and in tackling unemployment, poverty and social exclusion. A recent report from the European Expert Network on Economics of Education (EENEE) summarises the theoretical and empirical evidence on how education affects economic prosperity both from an individual and a societal perspective².

Across the EU, people with at most lower secondary education have a risk of poverty or social exclusion that is more than three times higher than the risk for those with higher education attainment³. Both current wages⁴ and lifetime earnings⁵ increase with higher qualifications and competences. This, in turn, echoes into macroeconomic development and societal prosperity, as the quality of human capital translates into stronger employment, productivity, innovation and competitiveness⁶.

Education
contributes to
productivity,
innovation and
competitiveness

It is clear that Europe cannot build growth without education. But it is not only the economic downturn since 2008 that puts pressure on Member States to prioritise education and training. Drastic demographic change is hitting European societies just when the first signs of economic recovery are emerging.

Europe
cannot afford
to have an
untapped
pool of talent

The share of young people in society will keep decreasing rapidly in the next couple of decades while the share of those aged 65 and over will increase significantly. The old-age dependency ratio⁷ has increased by 17% since 2001 and will have increased a further 80% by 2050, at which point the 2001 dependency-ratio will have doubled (Figure 1.1). This means that the productivity levels of the working-age population need to be strengthened considerably if social security systems are to be sustained. Europe cannot afford to have an untapped pool of talent -resulting from poorly performing systems of initial education and training and of lifelong learning.

¹ See the overarching Communication *Building Growth* that accompanied the Commission's proposals for country-specific recommendations as part of the 2014 European Semester (COM (2014) 400).

² EENEE (2014), *The economic case for education* (<http://www.eenee.de>).

³ Looking at the Europe 2020 headline target on poverty and social inclusion for 18 to 64 year-olds only, the 2012 risk is 25.1% overall; 41.6% for those without upper secondary education attainment and 12.8% for those with tertiary education attainment (Eurostat online data code: *ilc_peps04*).

⁴ See Section 2.3 featuring findings from the Survey of Adult Skills (PIAAC).

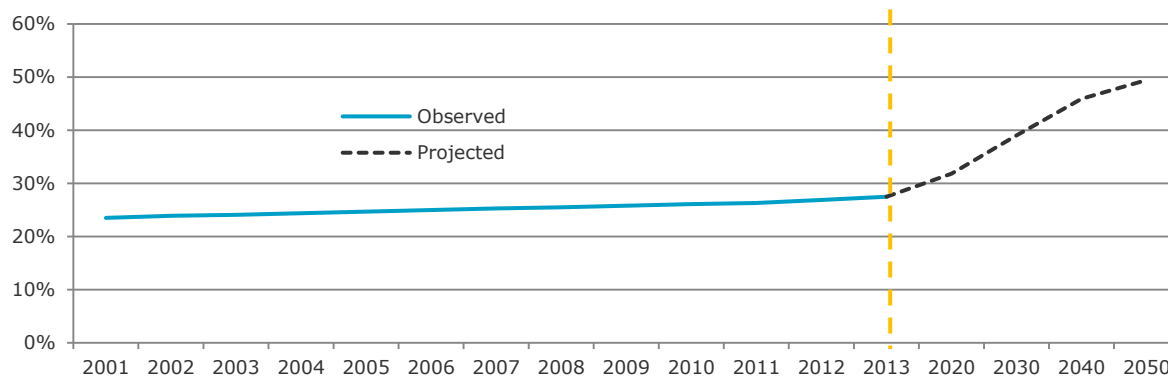
⁵ See OECD (2014), *Education at a Glance* (<http://www.oecd.org/edu/eag.htm>).

⁶ From the vast literature on the public returns to education investment, the EENEE report singles out a regression of real GDP growth over 1960-2009 on average educational achievement scores, revealing a strong association between the two. Similarly, tackling low student achievement could boost Member States' future GDP in unprecedented ways. See also EENEE (2010), *The Cost of Low Educational Achievement in the European Union* (<http://www.eenee.de>).

⁷ This indicator is defined as the number of persons aged 65 and over expressed as a percentage of the number of persons aged between 15 and 64.

Building growth through education and training therefore means that equity and inclusiveness will have to be improved, and this implies offering targeted support to the students showing weaker performance. No potential learner should be left behind. In the years to come, it will be all the more important for learners in initial education and training to maximise their full potential and for the working-age population to be facilitated in their up-skilling and re-skilling.

Figure 1.1. Old-age dependency ratio: 2001-2013 figures and projection to 2050



Eurostat (online data code: *demo_pjanind* and *tsdde511*). This indicator is defined as the number of persons aged 65 and over expressed as a percentage of the number of persons aged between 15 and 64.

Part 1 of the Education and Training Monitor sets the scene for subsequent discussions on learning outcomes and policy levers. Section 1.2 and 1.3 deal with some of the most prominent reasons why Member States should invest in their education and training systems from a socio-economic perspective. These are graduate employment (1.2) and equity and inclusiveness (1.3). But first it is necessary to have a closer look at the education investment itself.

1.1. Investing in education and training

Increasing education budgets does not automatically lead to improved education outcomes. The way the resources are used⁸ and the mechanisms for doing so⁹ matter. However, it is also clear that strong performance cannot be expected if a minimum of resources is devoted to education and training.

To reap the benefits of education, Member States have both to secure the necessary resources to invest and make sure that education and training systems work effectively and efficiently. The latter often requires reforms, in line with the country-specific recommendations (CSRs)¹⁰, focused on the policy levers that can help build growth or, in other words, transform investments into stronger outcomes and impact. This is the focus of Part 3 of the Monitor. The former requires an assessment of *current expenditure on education*, which is the focus of this section.

Investing in education and training plays a key role in the present economic and demographic context, as underinvestment in human capital risks undermining Europe's prospect for sustainable and inclusive growth. The need for consolidating public budgets must be combined with the stimulation of growth-enhancing policies, such as education and training, as the

⁸ For the contribution of various expenses to the level of education investment, see indicator B7 in OECD (2014), *Education at a Glance 2014* (<http://www.oecd.org/edu/eag.htm>).

⁹ For an overview of the different funding arrangements across Member States, see EACEA/Eurydice (2014), *Financing schools in Europe: Mechanisms, methods and criteria in public funding* (<http://eacea.ec.europa.eu/education/eurydice>).

¹⁰ The CSRs, referred to throughout the Education and Training Monitor, were adopted by the Council on 8 July 2014 and can be found at: http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm.

Commission has highlighted in the Annual Growth Survey 2014¹¹ and the overarching Communication accompanying the proposals for CSRs within the 2014 European Semester¹².

The Commission has called on Member States repeatedly to pursue structural reforms and protect investments in growth-friendly policies, such as education. In spite of these recommendations, many Member States have cut public spending for education in recent years. Within the 2014 European Semester, seven countries received CSRs to prioritise growth-enhancing expenditure in general (CZ, DK, FI, HR, PL, PT and SE) and three were asked specifically to pay attention to their education investment (DE, NL, IT).

Table 1.1.1. General government expenditure on education

	As a % of GDP				Year on year change at constant prices			
	2009	2010	2011	2012	2009	2010	2011	2012
EU	5.5	5.5	5.3	5.3	1.7%	1.6%	-1.3%	-1.1%
Belgium	6.2	6.1	6.3	6.3	0.7%	1.0%	1.7%	0.3%
Bulgaria	4.3	3.8	3.6	3.5	-0.3%	-10.1%	0.4%	-2.7%
Czech Republic	4.8	4.8	4.9	4.8	2.6%	1.5%	1.9%	-2.5%
Denmark	8.0	8.1	7.8	7.9	4.7%	4.3%	-3.0%	1.6%
Germany	4.4	4.4	4.4	4.3	4.1%	4.7%	1.2%	-0.3%
Estonia	7.1	6.7	6.3	6.4	-8.6%	-2.7%	3.5%	5.0%
Ireland	5.4	5.4	5.2	5.2	-7.6%	1.3%	-2.4%	-0.4%
Greece	4.3	4.0	4.1	4.1	-4.3%	-3.6%	2.5%	-7.6%
Spain	5.1	4.9	4.8	4.5	3.8%	-1.3%	-2.1%	-6.8%
France	6.2	6.2	6.1	6.1	4.8%	1.3%	0.2%	1.9%
Croatia	:	:	:	5.0	:	:	:	:
Italy	4.6	4.5	4.2	4.2	-0.2%	-3.0%	-4.0%	-1.8%
Cyprus	7.2	7.5	7.2	6.7	1.7%	4.6%	-4.0%	-6.7%
Latvia	6.8	6.1	5.7	5.5	-4.4%	-12.0%	-1.5%	2.2%
Lithuania	6.8	6.1	5.8	5.6	2.3%	-7.5%	4.1%	3.2%
Luxembourg	5.3	5.2	5.1	5.4	5.4%	5.7%	0.3%	6.2%
Hungary	5.3	5.7	5.2	4.8	-1.3%	8.1%	-3.8%	-6.1%
Malta	5.4	5.6	5.7	5.9	-0.4%	9.2%	4.6%	4.2%
Netherlands	5.9	5.8	5.8	5.8	2.0%	0.1%	1.0%	-2.0%
Austria	5.7	5.7	5.6	5.6	1.5%	1.4%	0.5%	-0.5%
Poland	5.6	5.6	5.5	5.5	-0.6%	3.0%	1.6%	-0.4%
Portugal	6.8	7.1	6.6	5.7	3.8%	6.4%	-4.3%	-10.3%
Romania	4.1	3.3	4.1	3.0	-14.0%	-11.4%	33.4%	-26.8%
Slovenia	6.5	6.6	6.6	6.4	-1.5%	-0.3%	-1.7%	-4.0%
Slovakia	4.3	4.5	4.1	3.8	16.5%	6.9%	-6.2%	-4.7%
Finland	6.6	6.6	6.4	6.3	0.8%	1.1%	-0.9%	-2.9%
Sweden	7.2	6.9	6.8	6.8	1.6%	1.2%	-0.2%	-0.9%
United Kingdom	6.9	6.8	6.2	6.1	1.6%	2.5%	-6.2%	-0.6%

Source: DG EAC calculations based on Eurostat's general government finance statistics (online data codes: *gov_a_exp* and *nama_gdp_p*). Notes: EU refers to EU 27.

Current state of play

The level of spending on education and training varies significantly from country to country (Table 1.1.1). In twelve Member States it broadly fluctuates around the EU average of 5.3% of GDP¹³. But in BG, DE, EL, ES, IT, RO and SK it is 4.5% or less, whereas in nine Member States (BE, DK, EE, FR, CY, SI, FI, SE, UK) it is 6% or more.

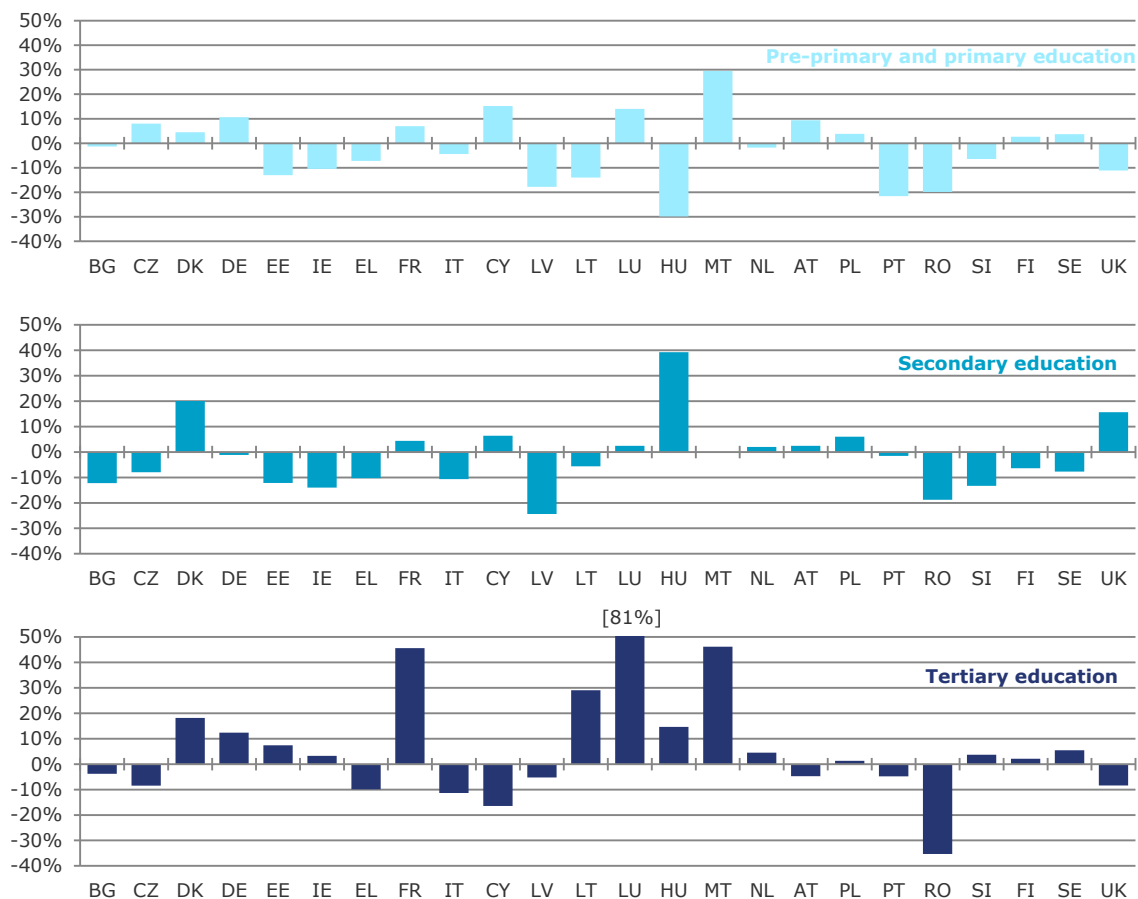
¹¹ COM (2013) 800.

¹² COM (2014) 400.

¹³ An alternative measure of investment is the education expenditure as a percentage of general government expenditure. This indicates the spending choice of public authorities at all levels on education in comparison to health, social protection, defence, general administration etc. See, for instance, JRC-CRELL (2013), *Public financing of education in EU countries: A cross-country systematic analysis* (<https://crell.jrc.ec.europa.eu/>).

When measured as the share of GDP devoted to education, 2012 government expenditure remained at the same level of the previous year; 5.3% of GDP, in a year when GDP itself shrunk by 0.4%. When measuring education expenditure at constant prices¹⁴, recent data reveal a decrease in 2011 and in 2012 in real terms, both at the EU average and in the majority of Member States. In 2012, government expenditure on education dropped by 1.1%. This was the second consecutive year of contraction, as expenditure fell already in 2011 by 1.3%¹⁵.

Figure 1.1.1. Change in expenditure by level of education (2008-2012)



Source: DG EAC calculations based on Eurostat's general government finance statistics (online data codes: *gov_a_exp* and *nama_gdp_p*). Data not available for BE, ES, HR, SK. Secondary education also covers post-secondary non-tertiary.

In 2012, nineteen Member States cut their investment; by more than 5% in Greece, Spain, Cyprus, Hungary, Portugal and Romania

Nineteen Member States recorded a cut in real terms in 2012; in six of them (EL, ES, CY, HU, PT, RO) by more than 5%. It was the third consecutive year of decline in ES, IT and SI, and the second consecutive one in IE, CY, HU, PT, SK, FI, SE and UK. Some Member States combine an already relatively low level of public expenditure for education (of less than 4% of GDP) with a further decrease (RO, BG, SK).

¹⁴ The change over time of the expenditure as a share of GDP could be misleading, as it incorporates the dynamics of GDP itself and of the costs of education (such as teacher wages, paper, computers, books and all the other goods and services needed as input by the education system). Current price data are deflated using the price index for final consumption of the general government. This index is also used in national accounts to evaluate at constant prices the general government aggregates (such as consumption, value added, general government share in GDP, etc.).

¹⁵ For preliminary evidence of 2013 budgets, see EACEA/Eurydice (2013), *National Sheets on Education Budgets in Europe* (<http://eacea.ec.europa.eu/education/eurydice>).

Figure 1.1.1 shows the change at constant prices¹⁶ in general government expenditure on education *by level of education*, over the same time span analysed year by year in Table 1.1.1 (i.e. between 2008 and 2012). This reveals investment decreases in real terms for primary and pre-primary education in thirteen Member States (BG, EE, IE, EL, IT, LV, LT, HU, NL, PT, RO, SI, UK); for secondary education in fifteen Member States (BG, CZ, DE, EE, IE, EL, IT, LV, LT, MT, PT, RO, SI, FI, SE); and for higher education in ten Member States (BG, CZ, EL, IT, CY, LV, AT, PT, RO, UK).

This means that, with exception of DK, FR, LU and PL, all the Member States with available data saw a decrease in education expenditure for at least one level of education, while six Member States cut expenditure at all three levels (BG, EL, IT, LV, PT, RO)¹⁷.

Between 2008 and 2012, six Members states saw a decrease in expenditure across all levels of education

Table 1.1.2. Share of private expenditure on education institutions (2011)

	Pre-primary education	Primary and lower secondary education	Upper and post-secondary education	Tertiary education
EU	16.2	6.1	14.3	25.4
Belgium	3.6	2.9	4.2	9.9
Bulgaria	8.8	1.3	5.8	49.4
Czech Republic	8.0	7.7	11.3	18.9
Denmark	7.9	3.8	0.5	5.5
Germany	19.6	3.1	27.4	15.3
Estonia	1.6	1.1	1.1	19.6
Ireland	0.1	3.8	5.3	19.5
Greece	:	:	:	:
Spain	28.6	9.1	8.1	22.5
France	6.3	7.1	10.3	19.2
Croatia	8.3	0.6	4.4	24.9
Italy	9.7	4.2	3.2	33.5
Cyprus	22.4	8.1	13.0	50.5
Latvia	1.8	1.6	4.7	37.4
Lithuania	12.0	2.4	4.5	26.1
Luxembourg	1.2	2.0	2.4	:
Hungary	:	:	:	:
Malta	26.6	24.3	8.7	:
Netherlands	12.4	3.6	33.8	29.2
Austria	28.3	3.3	5.4	13.1
Poland	23.9	5.5	7.6	24.5
Portugal	:	:	:	31.4
Romania	3.3	0.6	1.5	11.1
Slovenia	18.8	8.1	10.8	14.8
Slovakia	16.0	11.9	10.7	23.1
Finland	9.9	0.4	1.3	4.1
Sweden	0.0	0.0	0.0	10.5
United Kingdom	30.7	10.9	26.6	77.1

Source: Eurostat (UOE) based on a July 2014 extraction. Note: the Table depicts the private expenditure as a percentage of the total expenditure on education institutions. EU estimate based on available data.

Private spending on education and student support

Some of the funding of education lies with the private domain. On average, for all Member States with data available and all levels of education combined, 13.3% of spending on education institutions is from private sources. As can be seen in Table 1.1.2, private spending seems

¹⁶ Data are deflated using the same price index as in Table 1.1.1 (the price index for final consumption of the general government).

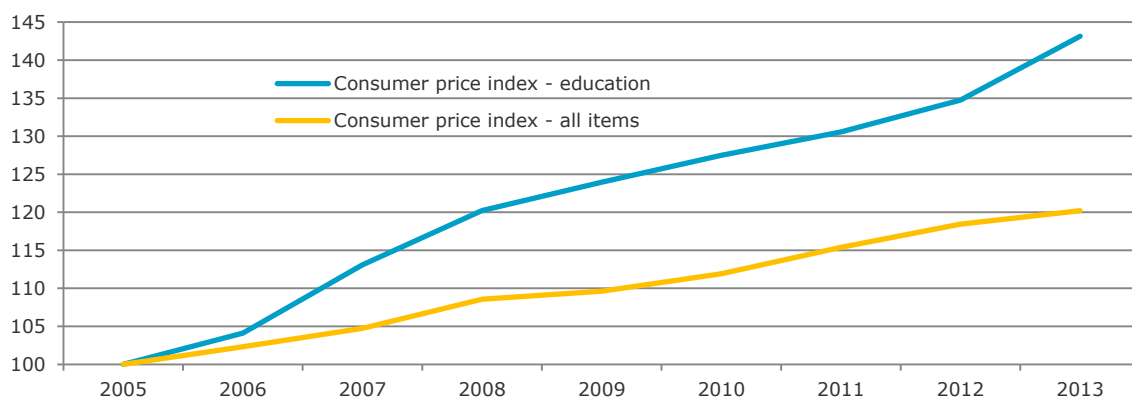
¹⁷ For a more comprehensive analysis of expenditure by level of education, taking into account demographic changes and the lagged effects of education investment, see: JRC-CRELL (2013), *Public financing of education in EU countries: A cross-country systematic analysis* (<https://crell.jrc.ec.europa.eu/>).

particularly rare in primary and lower secondary education¹⁸ and particularly prevalent in tertiary education¹⁹. The UK is an outlier, with over 77% of spending on higher education coming from private sources, but CY, BG and LV also show private expenditure on tertiary education that is more than ten percentage points higher than the EU average of 25.4%.

Private spending is particularly prevalent in higher education, with the UK relying by far the most on private sources

Figure 1.1.2 illustrates the Harmonised Indices of Consumer Prices (HICPs), which are designed for international comparisons of consumer price inflation. Using 2005 as an index reference period, it is clear that prices charged to households for education have increased significantly more than the overall price development observed across Europe. Moreover, whereas overall HICP inflation has been on a downward trend for several quarters and is expected to remain low for some time²⁰, consumer prices of education keep increasing at a higher pace²¹.

Figure 1.1.2. Development of consumer price of education (EU28)



Source: Eurostat (online data code: *prc_hicp_aind*).

This development raises equity concerns, particularly when private fees are not met with student support in the form of grants and loans for those less able to pay²². The latest data²³ show a wide variation in levels of fees and points to very different higher education funding policies being applied across Europe. A significant number of countries – including the Nordic countries, DE and AT – apply a *no fee* regime for all students from the EU or EEA. At the other end of the scale, the highest maximum fees are recorded in IE, LT, HU, SI and UK.

A large proportion of student support takes the form of grants. Two main forms of grants can be identified – those awarded on the basis of financial need, and those awarded for academic merit. The countries that provide students with the highest amounts of need-based grants are

¹⁸ As Section 1.3 will show, however, the data does not capture the widespread private tutoring in compulsory education.

¹⁹ For the effects of this shift in higher education, see a 2014 study undertaken at the request of the Commission titled *Do changes in cost-sharing have an impact on the behaviour of students and higher education institutions?* (http://ec.europa.eu/education/library/study/2014/cost-sharing/comparative-report_en.pdf).

²⁰ European Commission (2014), *European Economic Forecast: Spring 2014* (http://ec.europa.eu/economy_finance/eu/forecasts/index_en.htm).

²¹ The EU development is driven in particular by high increases in prices on education in the UK, LV, BG and RO. Other countries, such as HR, NL and AT have had relatively stable prices over the period.

²² Evidence shows, however, that unless the magnitude of change is exceptionally large, rises in fees seemingly have no detectable negative effect on aggregate demand and enrolment. See European Commission (2014), *Do changes in cost-sharing have an impact on the behaviour of students and higher education institutions?* (http://ec.europa.eu/education/library/study/2014/cost-sharing/comparative-report_en.pdf).

²³ EACEA/Eurydice (2014), *National student fee and support systems* (<http://eacea.ec.europa.eu/education/eurydice/>).

BE nl, DK, IE, ES, IT, AT, PT, FI and UK-WLS. Merit-based grants appear less often in the higher education systems, and a combination of both need and merit-based criteria for grants is present in some systems such as BE nl, EL and IT.

Key findings and policy relevance

Strong education performance cannot be expected without sufficient resources and reforms to ensure their effectiveness. Yet nineteen Member States cut their education expenditure in 2012. Six Member States decreased investments by more than 5% (EL, ES, CY, HU, PT, RO). Some of the countries that devote relatively few resources to education have decreased their investment further (BG, RO, SK). Since 2008, six countries saw a decrease in expenditure across all levels of education (BG, EL, IT, LV, PT, RO). Underinvestment in human capital risks undermining Europe's prospect for sustainable and inclusive growth. Reforms will be required to make sure that education and training systems work effectively and efficiently.

1.2. Raising employment rates of young graduates

A prime reason for investing in education and training is to ensure that all learners are equipped with the skills to participate in society and – crucially – on the labour market. Youth unemployment, however, has become one of the biggest challenges facing Europe today. About 5.5 million young people in the EU are unemployed²⁴. The youth unemployment rate is more than twice as high as the rate for adults²⁵ and has dramatically increased, topping 50% in countries such as EL, HR and ES. In total, more than 7.5 million people in the 15-24 age group are neither in employment, nor in education and training (NEETs) and their share in the total population is rising: in 2013, 13.0% of youth were NEETs, 2.2 percentage points more than five years earlier²⁶.

The Council adopted a Recommendation on establishing a *Youth Guarantee* in April 2013²⁷, which calls on Member States to ensure that all young people under 25 receive a good quality offer of employment, continued education, an apprenticeship or a traineeship²⁸ within four months of leaving formal education or becoming unemployed. The Youth Guarantee is a new approach to tackling the problem of young unemployment and of the smooth transition from education to work, which gives young people a real opportunity to increase their employability with a view to sustainable labour market integration, thus boosting overall youth employment rates.

Although education and training cannot compensate for the economic downturn, it can play a key role in the *prevention* of youth unemployment²⁹. But for that purpose, the focus on employability has to be strengthened within education institutions. The Council has set an ET

²⁴ Eurostat 2014 Q1 data for 15 to 24 year-olds (online data code: *une_nb_q*).

²⁵ 22% against 9%. Eurostat 2014 Q2 data (online data code: *une_rt_q*).

²⁶ The highest NEET rates – close to or above 20% of the population in the age group between 15 and 24 – are recorded in BG, IT, ES, CY, HR and EL. Eurostat online data code: *edat_ifse_20*.

²⁷ The Youth Employment Initiative (YEI) will support NEETs in regions hit particularly hard by youth unemployment. A budget of €6 billion for the period 2014-2020 will be made available for EU countries for measures to support youth employment and the integration of young people in the labour market, including through the implementation of Youth Guarantee schemes in eligible regions. The YEI complements other projects undertaken at national level, including those with European Social Fund (ESF) support, to combat youth unemployment.

²⁸ See also the March 2014 Council Recommendation on a *Quality Framework for Traineeships*.

²⁹ In addition, continued learning plays a key role in *tackling existing unemployment*, in particular among low-skilled or low-qualified persons (see Section 3.6).

2020 benchmark on the employment rate of young recent graduates³⁰ stating that, by 2020, at least 82% of 20 to 34 year-olds, graduated within the preceding three years and now no longer in education or training, should be in employment. The target level is equal to the rate recorded in 2008, the year the financial crisis erupted.

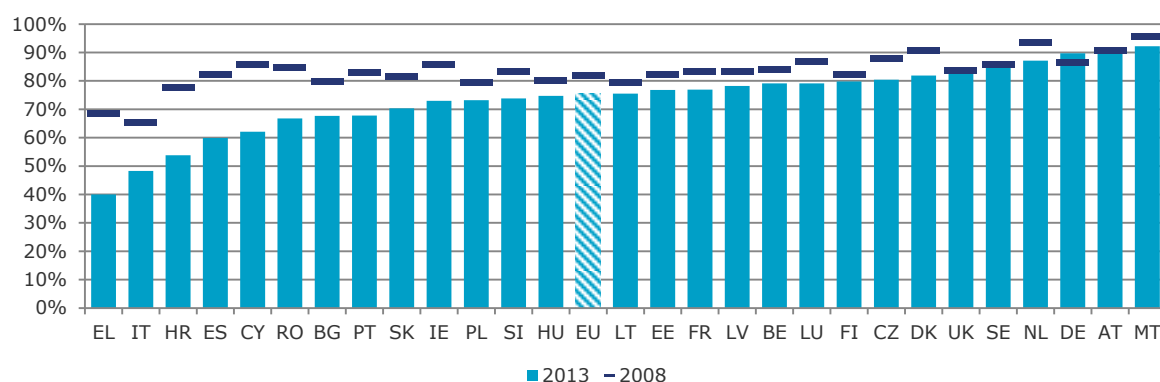
Current state of play

In 2013, the employment rate of recent graduates (using the broad definition of the term graduates as used by the ET 2020 benchmark) did not improve in the EU. It stagnated at 75.5%, which is 0.5 percentage points less than in 2012, but 6.5 percentage points less than in 2008. This development reflects the sluggish economic situation, with EU GDP having grown by only 0.1% in 2013, and is the combined effect of significant swings in the worst performing countries, and a relatively stable situation for the best performers.

Graduate employment is stuck at 75.5%, mostly due to huge drops in the Member States hit hardest by the crisis

In fact, the ten Member States with the lowest graduate employment rate in 2013 (EL, IT, HR, ES, CY, RO, BG, PT, SK, IE) are also those that experienced a drop in the graduate employment rate since 2008 greater than 10 percentage points (Figure 1.2.1). It is worthwhile noting that these countries are amongst those more seriously hit by the crisis, and seven of them recorded a negative growth of GDP in 2013.

Figure 1.2.1. Employment rate of young recent graduates



Source: Eurostat (LFS), online data code: *edat_lfse_24*. Employment rate of graduates (ISCED 3-6) aged 20-34 who graduated 1 to 3 years before the reference year and who are not currently enrolled in any further formal or non-formal education or training.

At the same time, the top ten performers (LU, FI, CZ, DK, UK, SE, NL, DE, AT, MT) behaved in more stable way. Their decline, compared to 2008, is much less pronounced – in FI, AT, SE and MT it is less than 4 percentage points; in DE and UK graduate employment even *increased* and in the other countries the drop has been between 4 and 9 percentage points. Moreover, six of these countries (MT, AT, DE, NL, SE, UK) are already above the European benchmark set for 2020 – though this does not guarantee that it will be the case in 2020, given the strong dependence of the indicator on the economic situation.

In 2013, men continued to record a higher employment rate than women amongst recent graduates, and the gap between the two groups, at the EU level, is greater than 4 percentage points. The gender gap varies considerably from country to country: in four Member States (BE, BG, IE, LT) women record a higher employment rate than men. In four Member States (HR, CY, FI, SE), the gap is very small, i.e. less than one percentage point. In all the other countries

³⁰

Although the term *graduate* is usually associated only with tertiary education, the benchmark also covers upper secondary and post-secondary non-tertiary education. This means that throughout the Monitor, a broader definition of the term *graduate* is used.

there is a noticeable advantage for men, and in three Member States (CZ, EE, SI) the gap is greater than 10 percentage points (Table 1.2.1).

Table 1.2.1. Employment rates of recent graduates by sex and country of birth (%)

	2008	2013						
	Total	Total	Men	Women	Native-born	EU	Foreign-born Non-EU	Sub-total
EU	82.0	75.5	77.7	73.4	75.6	79.3	65.5	70.2
Belgium	83.9	79.1	79.0	79.1	79.8	80.6	67.5	74.1
Bulgaria	79.6	67.7	66.2	69.1	67.7	:	:	:
Czech Republic	87.9	80.4	87.5	73.1	80.4	(75.8)	(84.9)	(79.9)
Denmark	90.6	81.9	85.3	78.2	82.7	(82.1)	71.7	74.8
Germany	86.5	89.7	91.2	88.1	90.5	:	:	:
Estonia	82.3	76.8	82.5	69.7	76.4	(78.5)	(100.0)	87.7
Ireland	85.7	73.0	72.9	73.1	73.2	72.8	70.3	72.0
Greece	68.3	40.0	42.7	37.9	40.8	:	(22.3)	(23.1)
Spain	82.1	59.9	60.4	59.4	60.4	(55.8)	53.9	54.2
France	83.3	76.9	78.7	75.0	76.9	95.1	69.5	76.6
Croatia	77.8	53.8	53.9	53.7	54.2	:	(49.3)	(49.0)
Italy	65.2	48.3	49.4	47.4	49.1	44.8	39.2	40.9
Cyprus	85.8	62.1	62.6	61.7	61.5	73.1	54.1	65.5
Latvia	83.1	78.2	82.6	74.6	78.1	:	(75.3)	81.7
Lithuania	79.3	75.5	74.2	76.9	75.4	:	:	:
Luxembourg	86.9	79.1	79.7	78.4	79.8	77.3	80.9	78.3
Hungary	80.1	74.7	77.7	72.1	74.7	:	:	:
Malta	95.7	92.2	93.2	91.1	92.5	(81.5)	91.0	88.2
Netherlands	93.6	87.1	87.8	86.4	88.6	(83.3)	66.0	70.2
Austria	90.6	90.2	91.8	88.4	91.3	84.6	82.2	83.5
Poland	79.3	73.2	77.9	68.8	73.1	:	:	:
Portugal	82.8	67.8	69.2	66.6	68.0	:	63.2	65.3
Romania	84.8	66.8	69.0	64.9	66.8	:	:	:
Slovenia	83.4	73.8	79.3	68.1	74.6	:	(56.3)	(52.5)
Slovakia	81.4	70.3	73.1	68.0	70.1	:	:	:
Finland	82.3	79.8	80.0	79.5	79.6	(78.0)	(93.4)	85.0
Sweden	85.7	84.9	85.2	84.5	85.4	80.0	81.3	81.0
United Kingdom	83.6	83.8	84.5	83.2	84.2	91.8	75.6	81.5

Source: Eurostat (LFS), online data code: *edat_lfse_32*. Employment rate of graduates (ISCED 3-6) aged 20-34 who graduated 1 to 3 years before the reference year and who are not currently enrolled in any further formal or non-formal education or training. Notes: "()" = Data lack reliability due to small sample size; ":" = data either not available or not reliable due to very small sample size.

Graduate employment rates versus overall employment rates

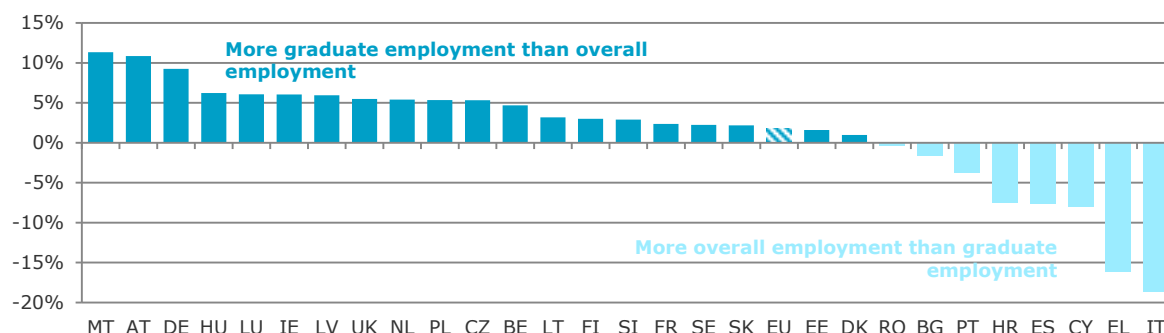
Figure 1.2.2 compares the employment rate of graduates aged 20-34 with the overall employment rate of individuals aged 20-64 with comparable levels of education attainment. The latter here illustrates the rigidity of the labour market, which means that a negative difference between the two indicators points at a labour market rigidity that is disproportionately affecting new entrants³¹.

In MT, AT and DE the difference is close to 10 percentage points. These countries are also among those in which recent graduates can find a job more easily. On the other hand, IT, EL, CY, ES, HR, PT, BG and RO record a negative difference – in these countries, recent graduates have more difficulties in getting a job than 20 to 64 year-olds with comparable qualifications. This is in part the effect of the economic development, which has hit hard on young recent graduates³².

³¹ It also points at the need to raise the *employability* of graduates, through strengthening the quality and relevance of their education and training (see Sections 3.4 and 3.5).

³² Comparable findings can be made when looking at labour turnover, measured by the overall share of newly employed. See the additional contextual indicators at: ec.europa.eu/education/monitor.

Figure 1.2.2. Graduate employment rate and overall employment rate (2013)

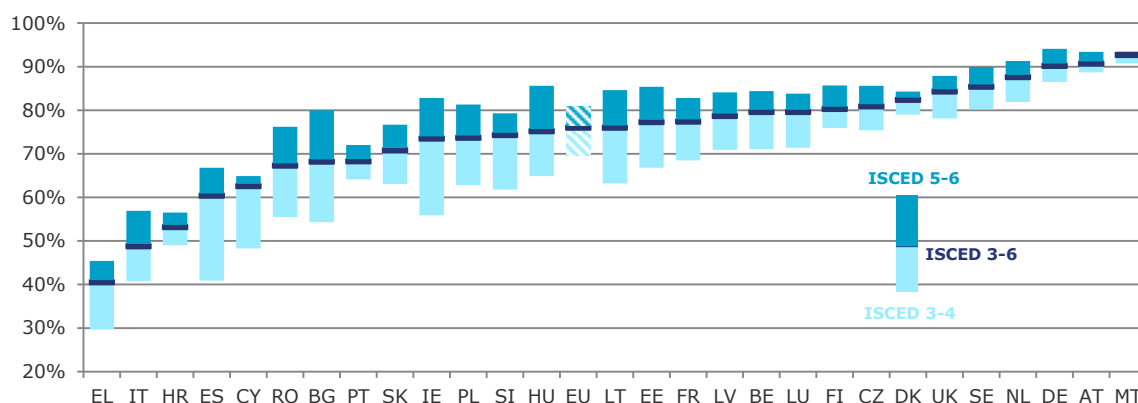


Source: Eurostat (LFS) based on an October 2014 extraction. The Figure shows the difference between the employment rate of graduates (ISCED 3-6) aged 20-34 who graduated 1 to 3 years before the reference year and who are not currently enrolled in any further formal or non-formal education or training and the employment rate of individuals aged 20-64 with at least upper secondary education attainment (ISCED 3-6).

Graduate employment rates by level and field of education

As can be seen in Figure 1.2.3, the level of education attained still plays a key role for graduate employment. Young recent graduates with tertiary education record a higher level of employment in all the Member States, compared to their peers with upper secondary and post-secondary non tertiary education. This gap is in general bigger where the employment of young recent graduates is lower overall. On average across the EU, the employment rate of recent graduates from higher education is 80.9% whereas the employment rate of those with upper secondary education attainment is 69.5%.

Figure 1.2.3. Graduate employment rates by level of education (2013)



Source: Eurostat (LFS). Online data code: *edat_lfse_24*. Countries are ranked in ascending order by the total employment rate of recent graduates (ISCED 3-6), i.e. the ET 2020 benchmark performance.

Broad skill demand and supply trends based on Cedefop data confirm that there are more low-educated workers in the EU than there are jobs requiring that level of qualifications³³. However, evidence also shows that within the group of graduates from upper secondary education, graduates from vocational education and training (VET) programmes have better employment prospects, particularly in countries where work-based learning is a strong component of VET programmes (see Section 3.5)³⁴.

³³ Cedefop (2014), *Skills mismatch: more than meets the eye* (<http://www.cedefop.europa.eu/EN/publications/22524.aspx>).

³⁴ Cedefop (2012), *From education to working life: the labour market outcomes of vocational education and training* (<http://www.cedefop.europa.eu/EN/publications/21556.aspx>).

The labour market relevance of certain fields of study varies widely from country to country

The employment prospects of young recent graduates differ not only by level of education but also by the field of study. Studies in science, engineering or health lead, in general, to better job opportunities than studies in humanities, social sciences, business or law³⁵, but there are striking exceptions throughout Member States.

In FI and SK, for instance, regardless of the education level, studies in the humanities and social sciences register better employment rates than those in science, engineering or health. This is also the case, as far as tertiary education is concerned, for BG, LU, LT, NL and MT; and in EL, PT and CZ for upper secondary and post-secondary non-tertiary education. This variation in graduate employment by field of study is partly due to differences in the structure of the labour market and the nature of a Member State's competitive industries³⁶. It also hints at country efforts to strengthen graduate employability (see Sections 3.4 and 3.5).

Occupational mismatch

The first job that young graduates take up may not match their expectations and qualifications. On average, 25% of employed young people with a tertiary degree have jobs that would not traditionally require this level of qualification (Figure 1.2.4)³⁷. Comparing this measure of occupational mismatch with overall graduate employment rates singles out EL, IT, ES or CY – which combine low levels of graduate employment with a high share of over-qualified employees. In contrast, MT, DE, DK and NL combine a good performance as far as graduate employment is concerned with low levels of over-qualification³⁸.

One in four employed tertiary education graduates has a job below his or her level of qualification

The OECD's Survey on Adult Skills (see Section 2.3) can be used for a measure of occupational mismatch that looks at the competences behind the qualifications³⁹. A recent report from JRC-CRELL shows that occupational mismatch by competences and occupational mismatch by qualifications are substantially different⁴⁰. The report also shows that the share of people with a job matching their qualifications *and* competences is higher amongst those with a tertiary education, and that well-developed vocational education and training (VET) systems alleviate the mismatch.

The Commission is promoting an EU-level approach in the field of skills intelligence with a number of tools. To support better matching of skills supply and demand, in December 2012 the Commission launched the *EU Skills Panorama*⁴¹. The portal aims to offer a single access point for data, information and intelligence on trends for skills and jobs across Europe. The *EU Skills Panorama* also aims to consistently contribute to skills intelligence by anticipating skills needs and improving the responsiveness of education and training systems.

³⁵ The gap is more acute for graduates with upper secondary and post-secondary non-tertiary education, and less evident for those with tertiary education.

³⁶ European Commission (2014), *Employment and social developments in Europe 2013* (ec.europa.eu/social/publications).

³⁷ For a more comprehensive measure of occupational mismatch by qualifications using the same LFS data, see page 72-77 of ECB (2012), *Euro area labour markets and the crisis: Occasional paper series No 138* (<http://www.ecb.europa.eu/pub/pdf/scpops/ecbocp138.pdf>). Moreover, since the correlation between ISCED and ISCO levels is not very strong, the Commission is involved in setting up a multilingual classification of European Skills, Competences, Qualifications and Occupations (ESCO), as part of the Europe 2020 strategy. The ESCO classification identifies and categorises skills, competences, qualifications and occupations relevant for the EU labour market and education and training. For more information, see: <https://ec.europa.eu/esco/home>.

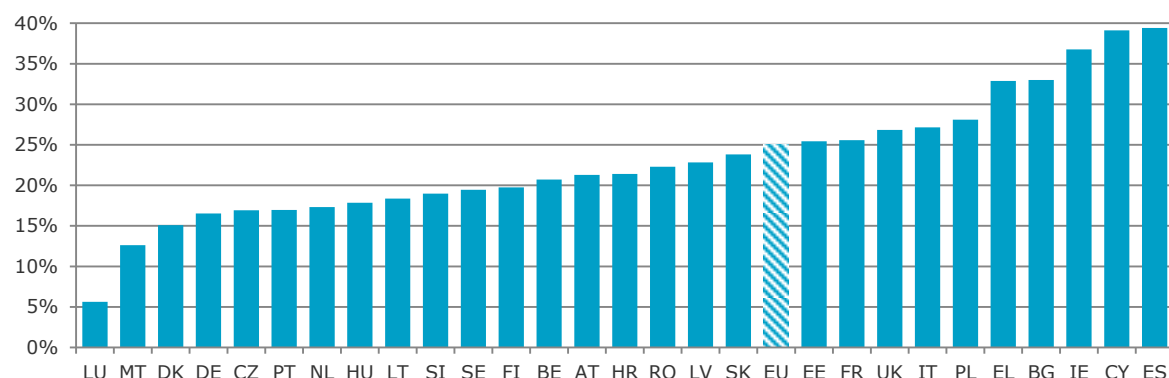
³⁸ See the additional contextual indicators at: ec.europa.eu/education/monitor.

³⁹ See, for instance, page 228-234 of OECD (2014), *Employment Outlook 2014* (<http://www.oecd.org/els/emp/oecdemploymentoutlook.htm>).

⁴⁰ JRC-CRELL (2014), *Occupational mismatch in Europe: understanding overeducation and overskilling for policy making* (<https://crell.jrc.ec.europa.eu/>).

⁴¹ See <http://euskillspanorama.cedefop.europa.eu/>.

Figure 1.2.4. Employed tertiary education graduates overqualified for their job (2013)



Source: Eurostat (LFS) based on an April 2014 extraction. Note: the Figure denotes 20 to 34 year-olds with tertiary education attainment that have a job in ISCO 4-9 (sales, services, agriculture, production), i.e. not as legislator, senior official, manager, professional (ISCO1-2), nor as technician or associated professional (ISCO3).

Furthermore, the Commission has monitored during the last four years labour demand through the regular publication of the *European Vacancy Monitor*, providing a comprehensive overview of trends in demand on the European job market⁴². In this context, the Commission also supports the setting up of *European Sector Skills Councils* and *Sector Skills Alliances*, designed to improve joint responses to changes in the need for skills in specific sectors.

Key findings and policy relevance

The focus on employability has to be strengthened within education institutions. Youth unemployment remains rampant across Europe and the employment rate of recent graduates stagnated at 75.5% in 2013. VET graduates have better employment prospects in countries where work-based learning is a strong component of VET programmes and higher education graduates are still about 11 percentage points more likely to be employed than those with upper secondary education attainment. But occupation mismatches by qualifications and competences demand that education and training systems become more sensitive to the needs of the modern labour market.

1.3. Tackling inequalities⁴³

Investment in education is an important element in building growth. However, issues of equity and inclusiveness also need to be addressed with the purpose of distributing the benefits of education more equitably across society. Unless inequalities and discriminations are tackled, returns to investment in education will be sub-optimal and any resulting potential for added economic growth may be compromised.

More people are participating in education than ever before and overall levels of education attainment are rising throughout Europe. But the vast education expansion has not managed to alleviate strong social divides between the educational *haves* and *have-nots*⁴⁴. As part of the 2014 European Semester, ten countries were prompted to focus on disadvantaged learners in particular (AT, BG, CZ, DE, DK, HU, LU, RO, SE and SK).

⁴² See <http://ec.europa.eu/social/main.jsp?catId=955>.

⁴³ This section is based on a contribution from the Network of Experts on Social Aspects of Education and Training (NESET). It builds on previous work of the expert network, at the request of the European Commission (<http://www.nesetweb.eu/>).

⁴⁴ OECD (2014), *Education at a Glance 2014* (<http://www.oecd.org/edu/eag.htm>).

Equity and inclusiveness are important goals not only on grounds of rights and fairness, but also because of the economic and social impact and costs of rising *inequalities* and social exclusion. The untapped talent of young learners who are not enabled to fulfil their potential represents an unacceptable waste – not only for the individual young people, but also for society as a whole. And there is now strong evidence that the most unequal societies are the least *healthy* – irrespective of overall levels of economic growth⁴⁵. Not only are highly unequal societies associated with generally lower levels of social wellbeing, inequality may also impede economic growth⁴⁶.

The inequalities discussed in this section account for some of the variation found in qualifications and competences addressed in Part 2 of the Monitor. Barriers to achieving a level playing field in education can usefully be thought of as having two origins – those which arise from *socio-economic inequalities* and those which arise from *socio-cultural inequalities*, including discriminations.

Often, socio-economic and socio-cultural inequalities overlap and intensify each other at the system level, while at the level of the individual student these multiple disadvantages may accumulate, resulting in early school leaving and lower school achievement. Perhaps more importantly, these socio-economic and socio-cultural inequalities go well beyond the scope of education and training. They need to be addressed as an integral part of a society's global efforts to tackle poverty, fight discriminations and promote active citizenship. Education and training have, nonetheless, a specific and important role to play in this context. Separating these two dimensions is important when identifying specific solutions and assessing the different kinds of strategies that are needed to reduce barriers to equity and inclusion in education and improve its performance and that of the learners.

Socio-economic inequalities in education

The disadvantage of low education attainment is handed down from one generation to the next

Throughout Europe, there are disparities in the distribution of economic resources at the national, regional and household level. These disparities have a direct bearing on disparities in educational outcomes. Children from poorer countries, areas and homes usually begin schooling at an educational disadvantage and continue to make slower progress than children from more economically advantaged backgrounds⁴⁷. Poverty is associated with a range of poor cognitive, health and emotional outcomes, with effects at birth continuing through childhood into adulthood⁴⁸.

Moreover, the disadvantages associated with low educational attainment are handed down from one generation to the next. Table 1.3.1 illustrates the strong intergenerational transmission of education attainment. Across the EU, the level of education attained by the parents is highly deterministic when it comes to an individual's own education attainment. Having illiterate parents makes it likely that one reaches at best a level of low education attainment (equivalent to the education level of early school leavers). Having highly educated parents makes it almost equally likely that one reaches a level of high education attainment as well.

⁴⁵ R. Wilkinson & K. Pickett's (2009) *The Spirit Level: Why More Equal Societies Almost Always Do Better* draws on a range of statistical data to show that very unequal countries suffer more social ills (health, crime etc.) than more equal countries.

⁴⁶ For two recent examples, see EENEE (2014), *Reducing Inequality in Education and Skills: Implications for Economic Growth* (<http://www.eenee.de/>); and International Monetary Fund (2014), *Redistribution, inequality, and growth: IMF staff discussion note* (<http://www.imf.org/external/pubs/ft/sdn/2014/sdn1402.pdf>).

⁴⁷ For an overview of the European geography of educational inequalities, see NESSE (2012), *Mind the Gap: Education Inequality across EU Regions* (<http://www.nesse.fr/>).

⁴⁸ See for example: E. Votruba-Drzal (2006), *Economic disparities in middle childhood development: Does income matter?*, *Developmental Psychology* 46 (6) 1154-1167; R.H. Bradley & R.F. Corwyn (2002) *Socio-economic status and child development*, *Annual Review of Psychology* 53 371-399.

New evidence suggests that intergenerational education mobility is actually slowing down in the industrialised world⁴⁹. The intergenerational pattern is reflected in the effects of an individual's socio-economic background on the level of key basic competences acquired (see Section 2.3). Breaking the vicious cycle of self-perpetuating poverty and lack of qualifications and competences requires higher initial investments in children from disadvantaged backgrounds. However, some Member States do not invest enough in education and training, as assessed in Section 1.1, and do not offer effective and targeted support to students with an initial disadvantage. For instance, RO and BG combine Europe's lowest spending by pupil (adjusted for purchasing power) with low average pupil performance in reading, maths and science⁵⁰.

Table 1.3.1. The intergenerational transmission of education attainment (EU 28)

		Highest level of education attained by the father or mother			
		Father/mother could neither read nor write in any language	Low education attainment	Medium education attainment	High education attainment
Highest level of education attained by the respondent	Low education attainment	71.6%	39.1%	11.2%	4.2%
	Medium education attainment	30.5%	54.3%	55.7%	32.5%
	High education attainment	9.6%	20.5%	40.1%	66.3%

Source: EU-SILC 2011 ad hoc module on the intergenerational transmission of disadvantages. Note: the reference period is when the respondent was around 14 years old. Low education attainment equals pre-primary, primary or lower-secondary education; medium education attainment equals upper secondary or post-secondary non-tertiary education; high education attainment equals tertiary education.

Country average levels of expenditure are only part of the story as they mask significant within-country inequalities. Although there are significant variations, nearly all Member States are characterised by an uneven distribution of wealth, with rural regions being the poorest and large urban centres the wealthiest⁵¹. Cities also have the greatest contrasts, with poor and rich neighbourhoods in close proximity⁵². Decentralisation of public funding responsibilities can mean that poorer regions continue to fall further behind as they have fewer resources for educational provision⁵³.

As addressed in Section 1.1, private spending on education risks raising inequalities if student support systems do not include a strong element of targeted support for the most disadvantaged. In addition, there are hidden inequalities that arise through the widespread and increasing use of private tutoring⁵⁴. Evidence shows that private tutoring is much less about pupils who are in real need of help that they cannot find at school, and much more about maintaining the competitive advantage of the already successful and privileged.

It is equally important to emphasise that increasing education budgets does not automatically lead to improved education outcomes for all. The way the resources are used matters. Higher

⁴⁹ OECD (2014), *Education at a Glance 2014* (<http://www.oecd.org/edu/eag.htm>).

⁵⁰ *Investment* is one of the additional contextual indicators for key basic competences (Section 2.3) that can be found online (ec.europa.eu/education/monitor).

⁵¹ European Commission (2014), *Investment for jobs and growth: Promoting development and good governance in EU regions and cities – Sixth report on economic, social and territorial cohesion* (http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion6/6cr_en.pdf).

⁵² OECD (2014), *The urban paradox* (<http://oecdeducationtoday.blogspot.be/2014/06/the-urban-paradox.html>).

⁵³ See: A. Rodriguez-Pose & N. Gill (2004), *Is there a global link between regional disparities and devolution?* (Environment and Planning 36 (12) 2097-2117); and V. Tselios, A. Rodriguez-Pose, A. Pike, J. Tomaney & T. Gianpiero (2011), *Income inequality, decentralisation, and regional development in Western Europe* (Working Papers Series in Economics and Social Sciences 2011/6).

⁵⁴ For further information, see NESSE (2011), *The challenge of shadow education: Private tutoring and its implications for policy makers in the European Union* (<http://www.nesse.fr/>).

investments may lead to improved outcomes but it cannot be taken for granted that these improvements are distributed evenly across society or regions. Most Member States have funding mechanisms to channel additional resources to poor communities (although these are often focused on poor urban neighbourhoods rather than rural areas). For particular pockets of disadvantage there are a range of area-based initiatives that concentrate resources on small geographical areas⁵⁵.

There are growing inequalities associated with the widespread use of private tutoring

There is also a range of measures, such as pupil deprivation grants, which target resources at schools rather than neighbourhoods. Other strategies to help children from poor families succeed at school involve providing for their basic needs, such as food. To mention but three of the many examples found across Europe, all primary school children in UK-WLS can have a free breakfast, RO has a *croissant and milk* programme, and in EE all students in general upper secondary education receive free school lunches starting from the 2014/15 school year. The provision of these kinds of universal benefits is one way of helping disadvantaged children without stigmatising them.

In addition to thinking about what kind of benefits are needed and how best to use them, there are issues about the point at which intervention is most effective. The consensus is that early intervention is most likely to achieve better education outcomes and to limit the damage of economic hardship. Several Member States offer universal early childhood education and care (ECEC) free of charge. While this is positive, the uptake varies. Even where there are sufficient places, a variety of factors contribute to lower levels of participation among the most disadvantaged children. Section 3.1 features a closer look at the availability of affordable, high-quality ECEC while linking back to issues of child poverty and inequalities.

Socio-cultural inequalities in education

Educational inequalities also stem from socio-cultural disparities, which arise when children, for a variety of reasons, do not have the non-economic resources (such as language or cultural capital) to achieve at school, or when their own culture or identity is undervalued by the culturally dominant group. The principal groups who are culturally marginalised in this way within the education system are the children of minority ethnic and migrant parents. Socio-cultural inequalities manifest themselves often in discriminations, segregation, linguistic barriers, injustices and even in-school bullying from fellow students.

Tagging particular groups of children as less *educable* reinforces socio-cultural inequalities

Socio-cultural inequalities can arise, more generally, when various processes of assessment perceive unjustly some children as less *educable* than others and lead to organisational segregation⁵⁶. This can create particular difficulties for children who have special educational needs or disabilities. While legislation can protect minorities and those with disabilities from overt forms of prejudice and discrimination, the complex relationship between cultural resources, learning needs and education attainment results in systematic biases in provision and opportunity.

Inclusive education benefits all learners⁵⁷ as it instils a culture of citizenship and tolerance to diversity. Moreover, there is evidence that the growing influx of migration can actually help to counterbalance the population ageing that was illustrated in Figure 1.1 by maintaining or

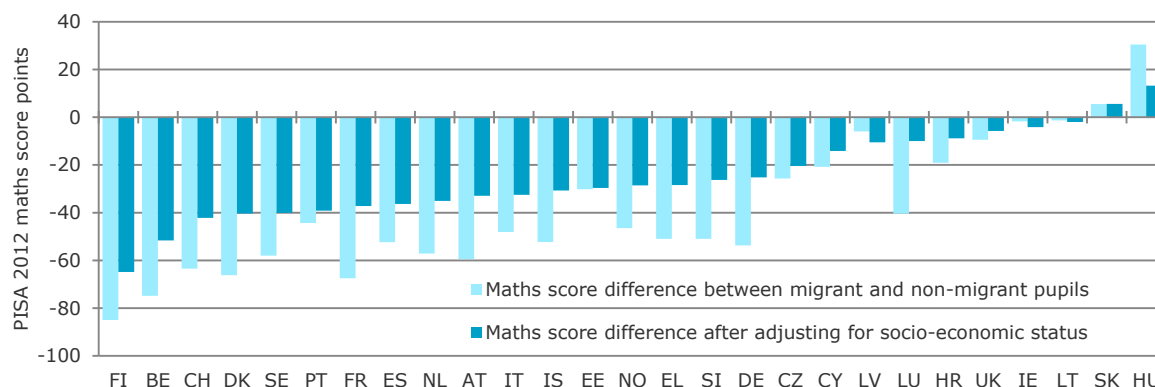
⁵⁵ For a review of the issues facing strategies such as these, see NESET (2014), *Lessons from the implementation of area-based initiatives in education and training* (<http://www.nesetweb.eu/>).

⁵⁶ For example, throughout Europe, Roma students are significantly overrepresented in *special schools*. See NESSE (2012), *Education and Disability/Special Needs: Policies and practices in education, training and employment for students with disabilities and special educational needs in the EU* (<http://www.nesse.fr>).

⁵⁷ European Agency for Special Needs and Inclusive Education (2014), *Five key messages for inclusive education: Putting theory into practice* (<http://www.european-agency.org/>).

increasing output levels and contributing to the financing of social security systems⁵⁸. In other words, equity and inclusiveness are needed to build growth by fully exploiting the pool of talent available across Europe.

Figure 1.3.1. Difference in maths achievement between migrant and non-migrant students with and without adjustment for socio-economic status



Source: OECD (PISA 2012). Note: this Figure is based on Table II.3.4a of Volume II of the PISA 2012 results (<http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-II.pdf>).

However, the relationship between migrant background and education attainment is clear. As will be illustrated in Part 2 below, the risk of early school leaving is more than twice as high for the foreign-born than for the native-born and the rate of tertiary education attainment is about 10% higher for native-born than foreign-born students. Moreover, key basic competences vary between migrant and non-migrant pupils even when adjusting for socio-economic status, which subtracts the socio-economic inequalities from the socio-cultural ones (Figure 1.3.1).

What remains of the migrant background effect when adjusting for socio-economic status is often explained by language barriers. However, historical migration patterns are different across Europe and many foreign-born learners speak languages that are not so different from the native language of the host country. Moreover, second generation learners who were born in the host country still show lower than average education attainment⁵⁹. In other words, language and acculturation do not fully explain education disadvantages in this context.

Education and training systems across Europe can do more to counter socio-cultural inequalities. Firstly, continued professional development for teachers in areas such as special needs education, multicultural and multilingual environments should be prioritised (Section 3.2). Secondly, employing teachers from the culturally marginalised communities proves to be a particularly effective strategy as well⁶⁰.

Recruiting teachers properly trained and sensitive to culturally marginalised groups can be effective

The efficient use of funding available from the ESF and ERDF in the 2014-20 period could make a major contribution in tackling inequalities in education, through measures aimed at promoting inclusive education (e.g. based on collaborative and participative approaches, active learning

⁵⁸ For two examples, see European University Institute/Migration Policy Centre (2014), *Is what we hear about migration really true? Questioning eight stereotypes*; and OECD (2014), *Matching economic migration with labour market needs*.

⁵⁹ A. F. Heath, C. Rethon & E. Kilpi (2008), *The Second Generation in Western Europe: Education, Unemployment, and Occupational Attainment* (Annual Review of Sociology).

⁶⁰ These teachers are not only more sensitive to the culture of students, but also provide positive role models of educational success. LV and SK, for example, have allocated funds to recruit and train Roma teacher assistants – which appears to be successful in fostering the achievement and motivation of Roma pupils.

and a stronger focus on the individual needs of learners) and enhancing teacher competences to address diversity in the classroom⁶¹.

Key findings and policy relevance

Education has to live up to its potential to level the playing field, to avoid proactively any form of discrimination and social exclusion, and to provide chances for all learners. Socio-economic and socio-cultural inequalities continue to impact negatively upon educational outcomes. Parental education attainment still determines to a large extent one's own education attainment and new evidence suggests that intergenerational education mobility is actually slowing down in the industrialised world. Ten countries received CSRs to focus on disadvantaged learners in particular (AT, BG, CZ, DE, DK, HU, LU, RO, SE and SK). Although tackling educational disadvantage is complex and requires wide-ranging, integrated strategies, Member States cannot afford to ignore these challenges.

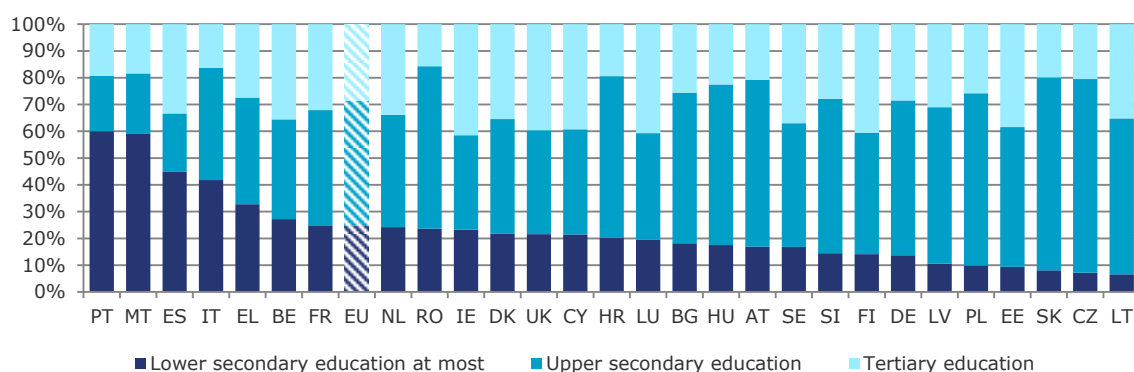
⁶¹ These measures could be supported under the investment priority: "Reducing and preventing early school-leaving and promoting equal access to good quality early-childhood, primary and secondary education including formal, non-formal and informal learning pathways for reintegrating into education and training". See Article 3(1)(c)(i) of Regulation (EU) No 1304/2013 on the European Social Fund.

2. Qualifications and competences: a key outcome of education

Education and training systems are expected to help learners develop creatively and emotionally and acquire the knowledge, skills and competences necessary for responsible, active and productive citizenship. The case for education developed in the first part of the Monitor focusses on the stock of individuals' experiences gained through education and training and how it makes people more employable, productive and innovative – and, in turn, how it contributes to both the inclusiveness and competitiveness of our economies. In a cross-national, comparative monitoring exercise, these learning outcomes are measured, first and foremost, by qualifications.

The most prevalent level of qualifications amongst adults in the EU is upper secondary or post-secondary non-tertiary education (Figure 2.1). In 2013, 46.7% of 25 to 64 year-olds had attained a diploma at this level, compared to 46.5% nine years earlier. The biggest change is found at the lowest and highest ends of the education spectrum. Lower secondary education is the highest level of education attainment for 24.8% of adults across Europe, down from 31.7% in 2004. 28.5% of adults have attained tertiary education, up from 21.7% in 2004.

Figure 2.1. Distribution of education attainment age 25 to 64 (2013)



Source: Eurostat (LFS). Online data code: *edat_ifs_9903*.

By 2020, high-qualified employment will have grown a further 13% while low-qualified employment will have shrunk by 12%

This expansion of education will have to continue in the coming years if skills supply is to keep pace with the increasing demand for high-skilled labour, fuelled by on-going technological progress and the intensity of global competition. Current skills forecasts⁶² estimate that high-qualified employment will grow by about 13% between 2013 and 2020 whereas low-qualified employment will shrink by 12%. This means that by 2020, about 31% of employment in Europe will demand high qualifications and only 21% will require low qualifications.

However, qualifications are not always a valid proxy for knowledge, skills and competences across different contexts. With the OECD's Programme for International Student Assessment (PISA) and more recently the Survey of Adult Skills (PIAAC), key competence levels can be measured directly in a comparative, cross-national perspective. This adds a new perspective to the cross-country comparability of learning outcomes, and to assuring the quality of education programmes across Europe.

⁶² Based on the Cedefop skills forecast published in March 2014 (www.cedefop.europa.eu). Data show that the demand for medium level qualifications will remain high in Europe, though it is progressively decreasing.

Part 2 of the Education and Training Monitor is about qualifications and competences. It starts by looking at both extremes of the education spectrum in terms of qualifications; those who fail to attain a minimum level of education attainment and those who manage to reach the level of tertiary education or equivalent. It then looks at the competences behind the qualifications, from *key basic competences* such as reading, maths and science, to digital, entrepreneurship and foreign language competences, grouped as *key transversal competences*.

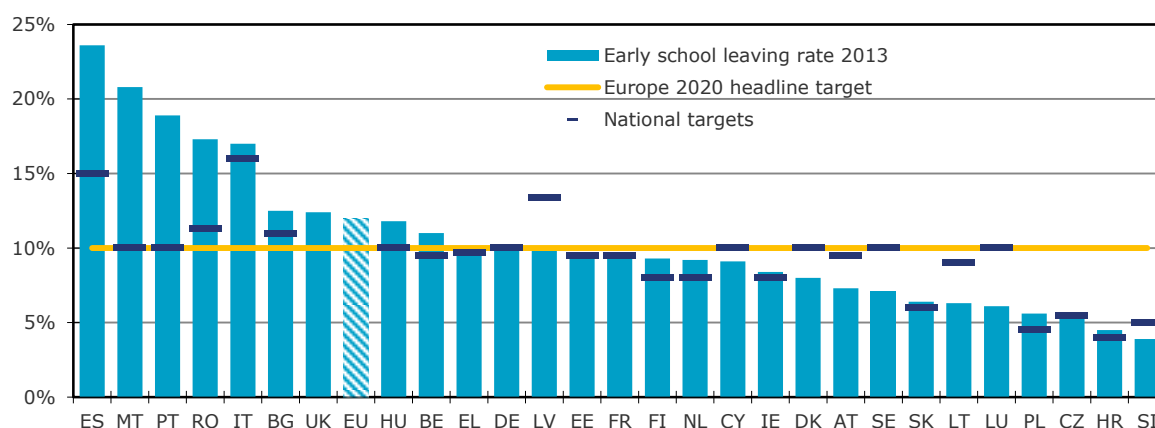
2.1. Early leavers from education and training

Those 18 to 24 year-olds with lower secondary education attainment at most and currently no longer in formal or non-formal education or training are called early school leavers⁶³. There are more than 5 million early school leavers across Europe, at great risk of deprivation and social exclusion. Early school leavers face an immediate disadvantage in terms of employment status; the unemployment rate amongst them is no less than 41.0%⁶⁴. In the longer run, not only does early school leaving reduce lifetime earnings and lead to longer and more frequent unemployment spells, it also brings large public and social costs⁶⁵.

The unemployment rate amongst the 5 million early school leavers across Europe is 41%

To bring down the share of early school leavers is one of the headline targets set under the Europe 2020 strategy⁶⁶. Eight Member States received a CSR on early school leaving as part of the 2014 European Semester (BE, ES, FR, HU, IT, MT, PT, RO). Some of these CSRs reflect an underperformance in tackling early school leaving, particularly amongst most disadvantaged groups; others pertain to a lack of comprehensive national strategies.

Figure 2.1.1. Early school leaving (2013) and target levels



Source: Eurostat (LFS). Online data code: *t2020_40*. The indicator covers the share of the population aged 18-24 having attained ISCED level 0, 1, 2 or 3c short and not receiving any formal or non-formal education or training in the four weeks preceding the survey. National targets follow different definitions of the indicator in some countries (see Table 2.1.1).

⁶³ The terms early school leavers and early leavers from education and training are used interchangeably in this document.

⁶⁴ Eurostat (LFS) data from 2013. The cross-national variation in the unemployment rate amongst early school leavers confounds different labour market structures: it is below 20% in RO, NL and MT but above 45% in BG, ES, FR, EL, HU, IE and SK. The breakdown by employment status is unreliable for EE, HR, LT, LU and SI due to small sample sizes.

⁶⁵ For a recent and comprehensive overview of the literature, see EENEE (2013), *The costs of early school leaving in Europe* (www.eenee.de).

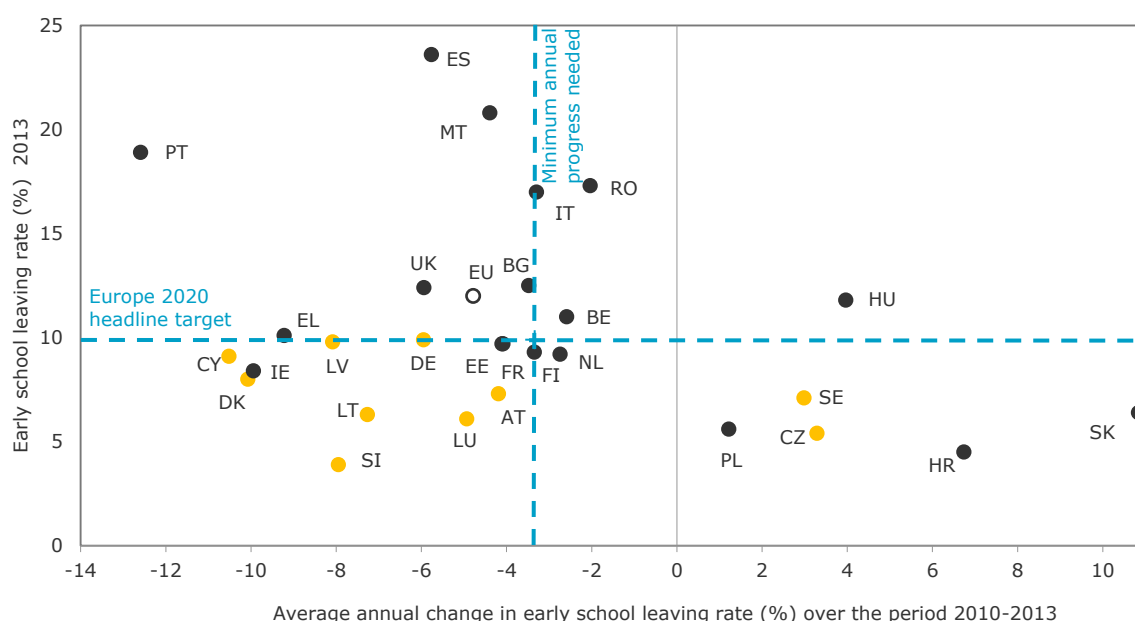
⁶⁶ The latest EU policy documents are the 2011 Council Recommendation on policies to reduce early school leaving (2011/C 191/01) and Commission Communication *Tackling early school leaving: A key contribution to the Europe 2020 Agenda* (COM(2011)18).

Current state of play

The EU average rate of early leavers from education and training was 12.0% in 2013 (Figure 2.1.1), down 0.7 percentage points from 2012. The improvement is in line with recent progress and, if continued, means that the Europe 2020 headline target of below 10% is within reach. However, as this section will show, striking discrepancies both between and within Member States remain.

Eighteen Member States have rates of early leavers from education and training below the Europe 2020 headline target (CZ, DK, DE, EE, IE, FR, HR, CY, LV, LT, LU, NL, AT, PL, SI, SK, FI, SE). This number was thirteen in 2012, meaning that in addition to FR⁶⁷ four countries dropped below the 10% for the first time in 2013 (DE, EE, CY, LV). Ten Member States have now reached their national targets for early leavers from education and training (CZ, DK, DE, CY, LV, LT, LU, AT, SI, SE)⁶⁸. Two of these countries had not yet reached their national targets in 2012 (DE, CY).

Figure 2.1.2. Early school leaving: current performance and recent change



Source: DG EAC calculations based on Eurostat (LFS) data (online data code: *t2020_40*). Note: Member States having already reached their national targets are depicted in yellow. National targets follow different definitions of the indicator in some countries (see Table 2.1.1). Annual change preceding a break in times series is not taken into account. This applies to LV (2010-2011) and FR (2012-2013).

A more comprehensive assessment follows when comparing current performance (2013) with recent change (2010-2013). From the scatterplot in Figure 2.1.2, four groups of countries can be distinguished. The first group is composed of countries that have early school leaving rates below 10% and are nonetheless still making progress (CY, DK, IE, LV, SI, LT, DE, EE, AT, LU, FR). The majority of these countries have also reached their national targets, with the exception of IE, EE and FR. EL and FI are slight outliers that can be mentioned here as well.

⁶⁷ FR is the only Member State with a break in time series between 2012 and 2013, due to methodological changes. This means 2012 and 2013 data for FR are not directly comparable.

⁶⁸ This number of countries is based on the EU level measurement of the indicator as used in this section: the share of the population aged 18-24 having attained ISCED level 0, 1, 2 or 3c short and not receiving any formal or non-formal education or training in the four weeks preceding the survey. However, national targets follow different definitions of the indicator in some countries (see Table 2.1.1), resulting in a different country performance vis-à-vis the national target.

In the second group, countries report early school leaving rates below 10% but have, on average, recorded *increasing* early school leaving rates between 2010 and 2013 (SK, CZ, SE, PL, HR). In the second group of countries, SE and CZ have reached their national targets. However, at the current pace, particularly CZ is at risk of falling behind its target again. SK owes its position as outlier to a strong performance in 2010 that has consistently worsened since.

Third are countries that have early school leaving rates above 10% but are nevertheless making significant progress (PT, MT, ES, UK, BG). This is a diverse group of countries; PT, MT and ES stand out as the three Member States with the highest early school leaving rates and have, consequently, received CSRs on the issue. PT, at the same time, also continues to be the country with the strongest annual improvement.

Romania, Belgium and Italy are making little progress in reducing early school leaving while Hungary is falling further behind

Fourth are countries that have early school leaving rates above 10% and an annual progress that is below the minimum requirement for the EU as a whole to reach its target by 2020 (RO, BE, IT), or *increasing* early school leaving rates between 2010 and 2013 (HU). All four countries in this group have received a CSR on early school leaving as part of the 2014 European Semester.

Table 2.1.1. Early school leaving by sex and migrant status (2013)

	2010	2013							2020
	Total	Total	Men	Women	Native-born	EU	Foreign-born Non-EU	Sub-total	Target
EU	13.9	12.0	13.6	10.2	11.0	21.0	23.2	22.6	< 10.0
Belgium	11.9	11.0	13.2	8.7	9.5	16.9	24.6	21.7	9.5
Bulgaria	13.9	12.5	12.3	12.7	12.6	:	:	:	11.0
Czech Republic	4.9	5.4	5.4	5.5	5.4	:	(15.4)	(9.1)	5.5
Denmark	11.0	8.0	9.9	6.2	8.0	:	(10.4)	(8.8)	< 10.0d
Germany	11.9	9.9	10.4	9.3	8.6	:	:	:	< 10.0d
Estonia	11.0	9.7	13.6	5.8	9.7	:	:	:	9.5
Ireland	11.5	8.4	9.8	6.9	8.0	12.6	:	10.4	8.0
Greece	13.5	10.1	12.7	7.5	7.5	32.7	36.4	35.7	9.7
Spain	28.2	23.6	27.2	19.8	20.6	40.1	37.8	38.3	15.0d
France	12.5	9.7b	10.7b	8.7b	9.1b	24.3b	16.1b	17.8b	9.5
Croatia	3.7	4.5	(5.5)	(3.4)	4.0	:	(11.9)	(11.5)	4.0
Italy	18.8	17.0	20.2	13.7	14.8	30.2	36.1	34.4	16.0
Cyprus	12.7	9.1	14.8	4.2	7.2	(14.4)	(18.5)	16.4	10.0
Latvia	12.9	9.8	13.6	5.8	9.8	:	:	:	10.0
Lithuania	7.9	6.3	7.8	(4.7)	6.3	:	:	:	< 9.0d
Luxembourg	7.1	6.1	8.4	(3.7)	5.3	(9.1)	:	(8.1)	< 10.0d
Hungary	10.5	11.8	12.5	11.1	11.8	:	:	:	10.0
Malta	23.8	20.8	23.2	18.4	20.7	:	:	(25.6)	10.0
Netherlands	10.0	9.2	10.9	7.4	9.0	(11.1)	11.2	11.2	< 8.0
Austria	8.3	7.3	7.7	7.0	5.7	(12.5)	22.0	18.5	9.5
Poland	5.4	5.6	7.9	3.2	5.6	:	:	:	4.5
Portugal	28.3	18.9	23.4	14.3	18.8	:	22.7	20.1	10.0
Romania	18.4	17.3	18.6	16.0	17.4	:	:	:	11.3
Slovenia	5.0	3.9	5.0	(2.6)	3.5	:	(17.6)	(16.4)	5.0
Slovakia	4.7	6.4	6.7	6.1	6.4	:	:	:	6.0d
Finland	10.3	9.3	10.4	8.3	8.9	:	(20.1)	(17.4)	8.0
Sweden	6.5	7.1	7.9	6.2	6.3	(7.5)	12.9	12.2	< 10.0d
United Kingdom	14.9	12.4	13.7	11.2	12.8	13.7	7.8	9.9	-

Source: Eurostat (LFS). Online data code: *edat_ifse_02*. Intermediate break in time series for LV (2011). Notes: "b" = break in time series; "(" = Data lack reliability due to small sample size; ":" = data either not available or not reliable due to very small sample size; "d" = definition of national target follows a different measurement of the indicator than the one used in this Table.

The risk of early school leaving

The rate of early leavers from education and training is 33.3% higher amongst men than amongst women (Table 2.1.1)⁶⁹. The relative disadvantage of men is most pronounced in CY and PT (more than 9 percentage points), whereas BG and CZ are the only Member States with a (small) *advantage* of men. Between 2010 and 2013, men have decreased their average risk of early school leaving most in percentage points, whereas women have decreased their average rates most in percentage terms. The overall gender gap has remained relatively stable.

The risk of early school leaving for foreign-born individuals is more than twice the risk for the native-born. Early school leaving rates are more than three times higher for foreign-born in AT and more than four times higher in EL and SI. In addition to the ten Member States that had reached their national targets by 2013, five further Member States have early school leaving rates for native-born reaching at or beyond the national target level (BE, IE, EL, FR, IT). Differences between EU foreign-born and non-EU foreign-born vary from country to country (with available data), hinting at different historical migration patterns.

Table 2.1.2. Cross-tabulation of early school leaving by sex and migrant status (2013)

	Native-born	EU	Foreign-born Non-EU	Sub-total	Total
Men	12.7	23.4	24.5	24.2	13.6
Women	9.2	19.1	21.9	21.1	10.2
Total	11.0	21.0	23.2	22.6	12.0

Source: Eurostat (LFS). Online data code: *edat_lfse_02*.

The gap between native-born and foreign-born decreased in the majority of Member States between 2010 and 2013, with an EU average of 2 percentage points. Most notable improvement is found in CY, DK, EL, IT and CZ. The foreign-born/native-born gap *increased* by 1 percentage point or more in BE, PT, SE and UK. Combining the findings for sex and migrant status for the EU as a whole reveals that native-born women have already reached the Europe 2020 headline target of an early school leaving rate below 10% (Table 2.1.2). Foreign-born men show the highest risk of early school leaving (24.2%), slightly higher for non-EU foreign-born (24.5%) than for EU foreign-born (23.4%).

Additional data from the EU Labour Force Survey (LFS) in 2011, furthermore, enable a comparison of average early school leaving rates by disability status⁷⁰. Those 18-24 stating to have physical difficulties in basic activities were at a 102.4% higher risk of being early school leavers than those stating to have no such difficulties. Those experiencing a limitation in work caused by a health condition or a basic activity difficulty showed a 156.1% higher likelihood of early school leaving than those who did not. These striking results illustrate how early school leaving is a complex, multi-faceted social process.

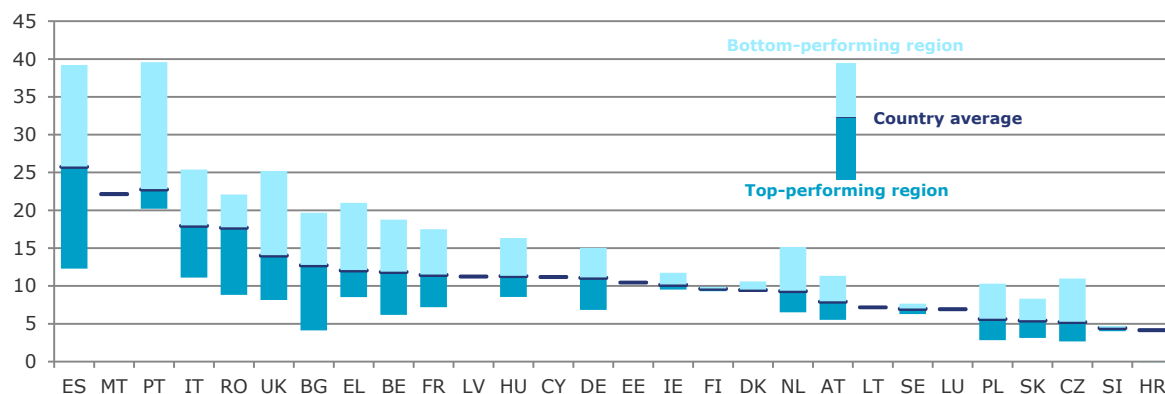
Finally, looking at early school leaving rates by region⁷¹ reveals that in many countries inequality has a geographical dispersion (Figure 2.1.3). Top-performing regions have reached the Europe 2020 headline target in nineteen Member States and the respective national target in seventeen Member States. However, bottom-performing regions have reached the headline target only in five Member States (HR, SI, SK, SE, FI) and the national target only in one (SI). Between 2010 and 2013, the risk of early school leaving in bottom-performing regions was more than three times the risk in top-performing regions for BG, CZ, PL, ES, UK and BE.

⁶⁹ No fewer than nine additional Member States have reached their national targets when only looking at the female early school leaving rates (BE, EE, IE, EL, FR, HR, IT, NL, PL), reaching a total of nineteen Member States where women have reached the respective national target.

⁷⁰ EU LFS 2011 ad hoc module on the employment of disabled people (online data code: *hlth_de010*).

⁷¹ Top-performing EU regions are Prague (CZ) with a 2010-2013 average of 2.7% and Malopolskie (PL) with 2.8%. Bottom-performing EU regions are Região Autónoma dos Açores (PT) with 39.6% and Ciudad Autónoma de Ceuta (ES) with 39.2%.

Figure 2.1.3. Early school leaving and regional extremes (2010-2013 averages)



Source: DG EAC calculations based on Eurostat (LFS) data. Online data code: *edat_ifse_16*. Note: The Figure depicts four-year average performances at the level of basic regions (NUTS 2). The NUTS 2 level does not exist for EE, CY, LV, LT, LU and MT.

Next steps

The Working Group on early school leaving⁷² identified key factors for successful policies against early school leaving and delivered a set of key messages for policy makers, a checklist on comprehensive policies and examples from several EU countries illustrating the key recommendations. These recommendations are also reflected in the ex-ante conditionality for Member States to apply for ESF funding to reduce early school leaving⁷³. *Second-chance education*, part of these recommendations and funding criteria, will be discussed in Section 3.6.

The work is now continuing within the new ET 2020 Working Group on School Policy, which will look more in depth at measures at the school level to improve school achievement and hence prevent disengagement and early school leaving, as well as to policy conditions needed to support schools in this task. The outcomes of the Working Group could be implemented in practice and up-scaled with the support of the ESF⁷⁴. In parallel, a forthcoming Eurydice report, with contributions from Cedefop, will assess the policies and practices introduced in the Member States⁷⁵.

Key findings and policy relevance

Reducing the number of early school leavers will save Europe large public and social costs and protect the individual from a high risk of poverty and social exclusion. There are still more than five million early school leavers across Europe, facing an unemployment rate of 41%. As Europe gets closer to the Europe 2020 headline target, 12.0% in 2013, it becomes increasingly visible what a complex, multi-faceted problem early school leaving is. A slow but steady progress is hiding significant disparities between but also within countries. The risk of early school leaving is 33.3% higher amongst men; more than twice as high for the foreign-born; no less than 156.1% higher for those suffering physical difficulties; and more than three times as high in bottom-performing regions than in top-performing regions in BG, CZ, PL, ES, UK and BE.

⁷² See: http://ec.europa.eu/education/policy/strategic-framework/doc/esl-group-report_en.pdf.

⁷³ See: ec.europa.eu/esf.

⁷⁴ See the investment priority on "Reducing and preventing early school-leaving and promoting equal access to good quality early-childhood, primary and secondary education including formal, non-formal and informal learning pathways for reintegrating into education and training" (Article 3(1)(c)(i) of Regulation (EU) No 1304/2013 on the European Social Fund).

⁷⁵ EACEA/Eurydice (forthcoming), *Tackling early leaving from education and training in Europe: Strategies, policies and measures* (<http://eacea.ec.europa.eu/education/eurydice/>).

2.2. Tertiary education attainment

To keep pace with the increasing demand for high-skilled labour, fuelled by on-going technological progress and the intensity of global competition, the expansion of higher education will have to continue. Indeed, as quoted in the introduction above, current skills forecasts estimate that high-qualified employment will have grown by another 13% by 2020.

The Commission has identified two main challenges in raising levels of tertiary education attainment or equivalent⁷⁶ amongst 30 to 34 year-olds: (1) broadening access to higher education: increasing participation in higher education by groups in society that are currently under-represented; and (2) reducing dropout rates and the time it takes to complete a degree. The additional priority of improving the quality of higher education and making it more relevant, sensitising Higher Education Institutions (HEIs) to the needs of the modern labour market, will be addressed in Part 3 of the Monitor.

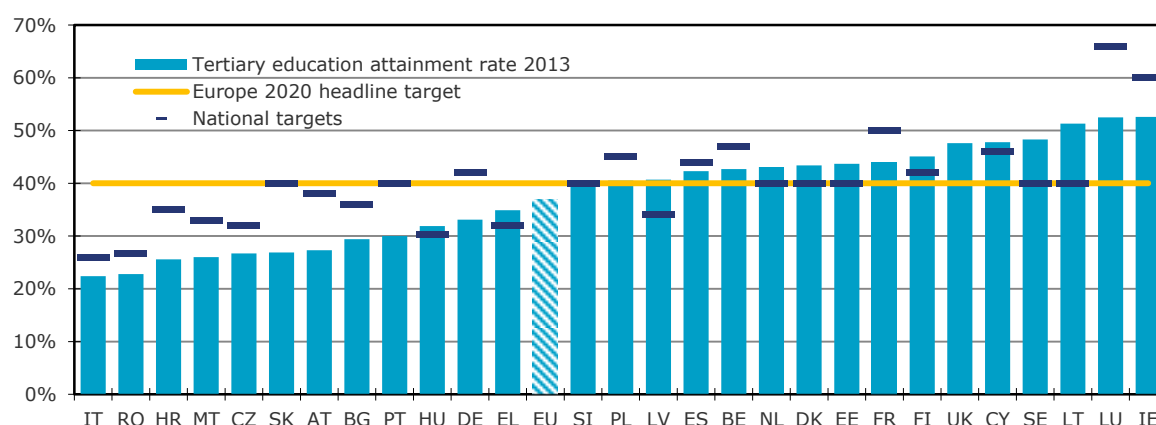
The ten CSRs issued within the 2014 European Semester on tertiary education attainment (AT, BG, CZ, EE, ES, HU, IT, LV, RO, SK) reflect these different policy priorities in higher education. Some of the recommendations are concerned with widening access and boosting completion rates (AT, BG, HU, RO, SK), whereas others are directed at the quality and relevance of education programmes (BG, CZ, ES, IT, LV, RO), as well as the link with business and research (EE, ES, SK).

Current state of play

The EU average rate of tertiary education attainment is now 36.9% (Figure 2.2.1), up 1 percentage point from 2012. This improvement is in line with recent progress and, if continued, means that the Europe 2020 headline target of 40% is within reach. However, as with early school leaving, striking discrepancies persist both between and within Member States.

Sixteen Member States have attainment rates above the Europe 2020 headline target of 40% (BE, DK, EE, IE, ES, FR, CY, LV, LT, LU, NL, PL, SI, FI, SE, UK). This number was twelve in 2012, as EE, LV, PL and SI increased beyond the 40% between 2012 and 2013. For EE, this was not the first time, as it had already reached the target in 2010 and had fallen slightly below it again in 2012.

Figure 2.2.1. Tertiary education attainment (2013) and target levels (%)



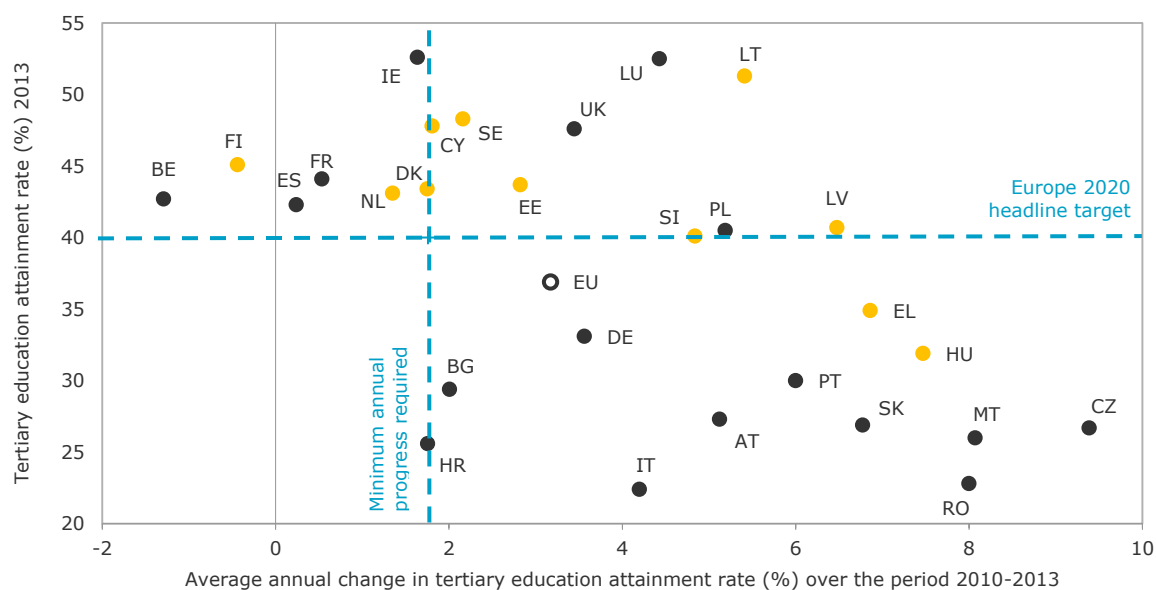
Source: Eurostat (LFS). Online data code: *t2020_41*. Note: The indicator covers the share of the population aged 30-34 years having successfully completed ISCED level 5 or 6. National targets follow different definitions of the indicator in some countries (see Table 2.2.1).

⁷⁶ Throughout this section, tertiary education attainment is measured as International Standard Classification of Education (ISCED) level 5 and 6. National targets follow different definitions of the indicator in some countries (see Table 2.2.1).

Eleven Member States have now reached their national targets for tertiary education attainment (DK, EE, EL, CY, LV, LT, HU, NL, SI, FI, SE)⁷⁷. Three of these countries have done so for the first time (EL, HU, SI). The scatterplot in Figure 2.2.2 provides a more comprehensive assessment of progress over the period of 2010-2013. This reveals a moderate relationship between current performance and recent change, with low-performing countries on average showing stronger increases in tertiary attainment rates than countries that are already performing at a high level.

Using the two reference points, Figure 2.2.2 reveals three different groups of countries. First are countries that have tertiary education attainment rates above 40% yet are still showing significant increases in attainment rates (CY, SE, EE, UK, LU⁷⁸, SI, PL, LT, LV). Most of these countries have also reached their national targets.

Figure 2.2.2. Tertiary education attainment: current performance and recent change



Source: DG EAC calculation based on Eurostat (LFS) data. Note: The indicator covers the share of the population aged 30-34 years having successfully completed ISCED level 5 or 6. Member States having already reached their national targets are depicted in yellow. National targets follow different definitions of the indicator in some countries (see Table 2.2.1). Annual change preceding a break in times series (LV, 2010-2011) or a change in definition (PT, 2010-2011) is not taken into account.

Second are countries that have tertiary education attainment rates above 40% but that are now showing progress that is equal to or below the minimum requirement for the EU as a whole to reach its target by 2020 (ES, FR, NL, IE, DK) or *decreasing* tertiary education attainment rates (BE, FI). Some of these countries have some distance to go to reach their national targets.

The third group is made up of countries that have tertiary education attainment rates below 40% but that are showing various levels of improvement (HR, BG, DE, IT, AT, PT, MT, SK, EL, HU, RO, CZ). These twelve Member States are the lowest performing countries in terms of 2013 tertiary attainment rates, but are widely different in terms of recent change. Their improvement ranges from what is minimally required of the EU as a whole to reach the 40% by 2020 (HR) to the best average annual improvement recorded between 2010 and 2013 across the EU (CZ).

⁷⁷ This number of countries is based on the EU level measurement of the indicator as used in this section: the share of the population aged 30-34 years having successfully completed ISCED level 5 or 6. However, national targets follow different definitions of the indicator in some countries (see Table 2.2.1), resulting in a different country performance vis-à-vis the national target.

⁷⁸ The LU performance and national target reflect to a large degree the highly qualified immigrant population living and working in the country rather than the output of its education and training system.

In the 2010-2013 assessment illustrated by Figure 2.2.2, no countries are found in the lower left quadrant of the scatterplot (low attainment with slow growth rates), confirming the positive trend that is observed for tertiary education attainment.

Inequalities in tertiary education attainment

The rate of tertiary education attainment is 26.0% higher amongst women than it is amongst men (see Table 2.2.1). The relative disadvantage for men is most pronounced in LV and EE (more than 20 percentage points), and smallest in AT and DE (less than 2 percentage points). While the gender gap has on average remained stable between 2012 and 2013, the broader 2010-2013 assessment still reveals a negative overall trend. The gender gap has increased most in DK, LV, EE, PL, LT and CY, all due to women improving their tertiary attainment rates significantly faster than men.

Women are more likely to have a higher education degree but are significantly under-represented amongst the so-called STEM fields

Overall, in addition to the eleven Member States that have reached their national targets in 2013, six other Member States have female tertiary attainment rates above their national targets (BE, BG, EE, ES, IT, PL). Women have, in fact, already reached the 40% Europe 2020 headline target when taken into account separately in a weighted EU average.

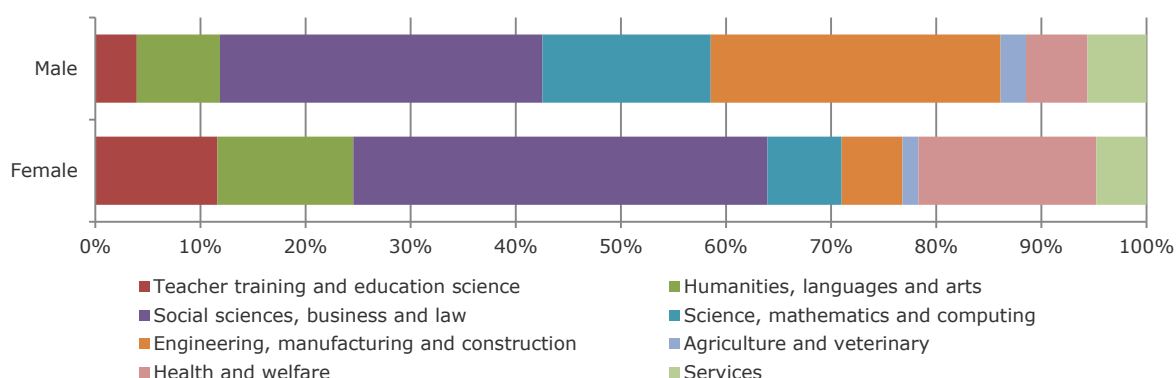
Table 2.2.1. Tertiary education attainment by sex and migrant status (2013)

	2010	2013							2020
	Total	Total	Men	Women	Native-born	Foreign-born			Target
						EU	Non-EU	Sub-total	
EU	33.6	36.9	32.7	41.2	37.7	37.9	32.3	34.1	40
Belgium	44.4	42.7	36.2	49.3	45.7	42.9	26.5	32.5	47
Bulgaria	27.7	29.4	21.8	37.6	29.4	:	:	:	36
Czech Republic	20.4	26.7	24.0	29.6	26.3	39.8	33.0	36.0	32
Denmark	41.2	43.4	35.2	51.8	44.2	69.2	29.1	37.6	40
Germany	29.8	33.1	32.2	34.0	34.2	:	:	:	42d
Estonia	40.2	43.7	33.1	54.9	42.7	:	62.1	61.8	40
Ireland	50.1	52.6	45.9	58.7	51.7	50.5	62.8	54.7	60
Greece	28.6	34.9	30.8	39.0	38.2	(14.8)	11.1	11.8	32
Spain	42.0	42.3	37.1	47.5	46.9	33.7	22.0	25.0	44
France	43.4	44.1	39.5	48.5	44.9	43.2	38.0	38.9	50d
Croatia	24.3	25.6	21.7	29.7	25.9	(49.4)	(18.0)	(22.2)	35
Italy	19.8	22.4	17.7	27.2	25.3	12.7	10.2	11.1	26d
Cyprus	45.3	47.8	41.6	53.4	54.2	42.4	32.1	36.5	46
Latvia	32.6	40.7	28.3	53.1	40.5	:	(42.6)	45.0	34d
Lithuania	43.8	51.3	41.9	60.8	51.0	:	:	:	48.7
Luxembourg	46.1	52.5	49.2	55.6	44.2	60.0	51.7	58.5	66
Hungary	25.7	31.9	26.5	37.4	31.7	(38.3)	:	40.3	30.3
Malta	20.6	26.0	22.6	29.5	24.5	:	(49.7)	45.4	33
Netherlands	41.4	43.1	39.8	46.3	45.8	36.2	26.9	29.2	40d
Austria	23.5	27.3	26.7	27.9	27.7	37.7	18.0	26.1	38d
Poland	34.8	40.5	32.9	48.4	40.5	:	:	:	45
Portugal	24.0	30.0	24.0	35.7	30.2	36.5	24.7	28.8	40
Romania	18.1	22.8	21.2	24.6	22.8	:	:	:	26.7
Slovenia	34.8	40.1	31.1	49.6	42.4	(28.0)	(9.9)	(13.1)	40
Slovakia	22.1	26.9	22.3	31.8	26.8	:	:	:	40
Finland	45.7	45.1	37.6	52.9	46.4	34.7	31.5	32.7	42d
Sweden	45.3	48.3	41.8	55.2	49.6	63.1	39.8	45.1	40d
United Kingdom	43.0	47.6	44.6	50.5	44.9	49.0	59.3	55.1	:

Source: Eurostat (LFS). Online data code: *edat_ifs_9912*. Notes: The indicator covers the share of the population aged 30-34 years having successfully completed ISCED level 5 or 6. Intermediate break in time series for LV (2011) and intermediate change in definition for PT (2011). "()" = Data lack reliability due to small sample size; ":" = data either not available or not reliable due to very small sample size; "d" = definition of national target follows a different measurement of the indicator than the one used in this Table.

Gender patterns can also be observed in the distribution of the study field for tertiary education students. When looking at the field of study chosen by 30 to 34 year olds with tertiary education attainment, a significantly different pattern between men and women appears (Figure 2.2.3). Grouping the STEM⁷⁹ fields of study at the level of tertiary education attainment, it shows that 40.4% of men opted for these disciplines compared to only 12.0% of women. These gender patterns in tertiary education help explain the gender differences that exist on the European labour market⁸⁰.

Figure 2.2.3. Distribution of study field for men and women (2013)



Source: Eurostat (LFS) based on an April 2014 extraction.

Amongst 30 to 34 year-olds across Europe, native-born individuals are about 10% more likely to have attained tertiary education than foreign-born individuals. This advantage amounted to about 19% in 2010, pointing to a considerable narrowing of the gap between native-born and foreign-born in recent years. The only countries where native-born individuals are more than twice as likely to have attained tertiary education as those born abroad are EL, IT and SI. The gap is reversed – i.e. to the advantage of foreign-born people – in eight countries (CZ, EE, HU, IE, LU, LV, MT, UK), partly as a result of different historical migration patterns.

Moreover, the disadvantage of foreign-born individuals is largely driven by the low tertiary education attainment rates among non-EU foreign-born populations. In nine of the nineteen Member States with data available, tertiary education attainment rates among foreign-born individuals from the EU are even higher than rates among the native-born population (CZ, DK, LU, HR, HU, AT, PT, SE, UK). Only in EL, SI, ES, IT, CY and FI do foreign-born individuals from other EU countries have a more than 10 percentage point disadvantage compared to native-born. Finally, combining the findings for gender and migrant status reveals that the gap between native-born and foreign-born is much larger for women than men (Table 2.2.2).

Table 2.2.2. Cross-tabulation of tertiary attainment by sex and migrant status (2013)

	Native-born	EU	Foreign-born Non-EU	Sub-total	Total
Men	33.0	32.5	30.9	31.4	32.7
Women	42.5	42.6	33.5	36.5	41.2
Total	37.7	37.9	32.3	34.1	36.9

Source: Eurostat (LFS). Online data code: *edat_lfs_9912*.

As with early school leaving, additional data from the LFS (2011) enables a further breakdown of the tertiary education attainment rate by disability status⁸¹. Amongst 30 to 34 year-olds,

⁷⁹ Science, technology, engineering and mathematics. The two broader fields of study grouped here are "Science, mathematics and computing" and "Engineering, manufacturing and construction".

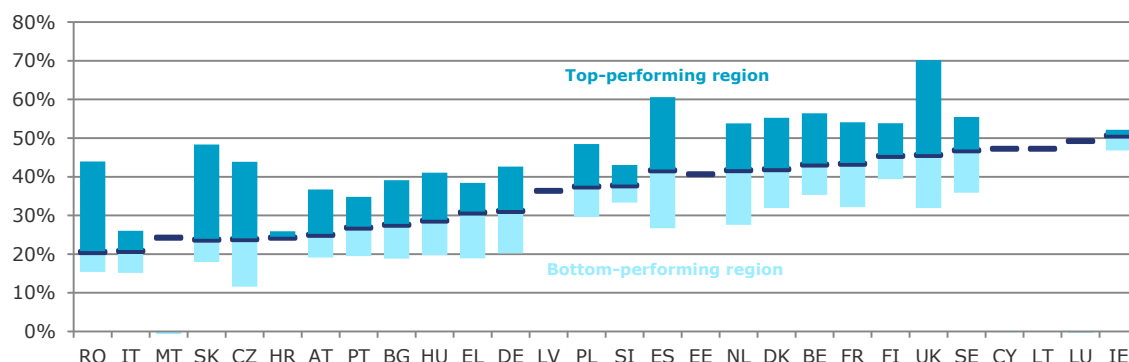
⁸⁰ These gender disparities are unrelated to school performance, as will be shown in Section 2.3. Evidence suggests they are related more to norms and attitudes. See OECD (2012), *Closing the Gender Gap: Act Now* (<http://www.oecd.org/gender/closingthegap.htm>).

⁸¹ EU LFS 2011 ad hoc module on the employment of disabled people (online data code: *hlth_de020*).

those with physical difficulties in basic activities were 49.8% less likely to have attained tertiary education than those with no difficulties in basic activities. Individuals suffering a limitation in work caused by a health condition or a basic activity difficulty were 62.4% less likely to have attained tertiary education than those who did not.

Finally, inequalities in tertiary education attainment have a geographical dimension as well, with strong regional disparities⁸² apparent in almost all countries (Figure 2.2.4). Sixteen Member States have top-performing regions with tertiary attainment rates above the Europe 2020 headline target. Sixteen is also the number of Member states with top-performers above their respective national targets. On the other hand, only IE has a bottom-performing region with a tertiary attainment rate higher than 40% and *none* of the Member States have bottom-performing regions that have reached their respective national target. In CZ, RO and SK, bottom-performing regions have attainment rates that are at least 60% lower than those found in top-performing regions.

Figure 2.2.4. Tertiary education attainment rates and regional extremes (2010-2013)



Source: DG EAC calculations based on Eurostat (LFS) data. Online data code: *edat_lfse_12*. Notes: The Figure depicts four-year average performances at the level of basic regions (NUTS 2). The dark blue lines denote the country average (2010-2013). The NUTS 2 level does not exist for EE, CY, LV, LT, LU and MT.

Country efforts to widen participation and boost completion rates

As Table 2.2.3 illustrates, the vast majority of Member States combine general policy objectives or targets with concrete policy measures to widen participation in higher education. Somewhat fewer Member States monitor the socio-economic characteristics of the student body and only a handful have attainment targets for under-represented groups (BE nl, IE, FR, LT, MT, FI, UK-SCT) or performance-based funding mechanisms with a social dimension focus (BE nl, IE, FR, IT, AT, PL, PT, RO).

Recognition of prior learning is a mechanism to gain access to higher education, opening opportunities for citizens that have failed, for whatever reason, to complete successfully the form of upper secondary education that gives direct access to higher education. However, only in about half of the Member States can admission to higher education be granted on the basis of the recognition of non-formal and informal learning.

Efforts to widen participation and boost completion rates amongst disadvantaged groups are to be strengthened

Similarly, in only half of the Member States are completion rates assessed in external quality assurance. Completion rates in higher education average below 75% in the majority of Member

⁸² Top-performing EU regions are Inner London (UK) with a 2010-2013 average of 70.2% and País Vasco (ES) with 60.6%. Bottom-performing EU regions are Severozápad (CZ) with 11.6% and Campania (IT) with 15.1%.

States⁸³. The latest data from 2011 reveals completion rates lower than 70% in HU, SE, PL, AT, PT plus NO. Moreover, completion rates are marked by inequalities, with students coming from poor socio-economic backgrounds by far the most likely to drop out of higher education⁸⁴.

In addition to completion rates, upper secondary education attainment rates can be monitored to understand the potential influx of students into higher education. However, as shown in the introduction above, given that the share of individuals with medium-level qualifications has remained relatively stable, efforts should be made to attract a higher share of secondary school students into tertiary education. Only in MT and PT is upper secondary education attainment increasing to the extent that higher education influx could be expected to increase as well⁸⁵.

Table 2.2.3. Country efforts to widen participation and boost completion rates

	National policy approaches to widening participation		Monitoring socio-economic characteristics of the student body	Performance-based funding mechanisms with a social dimension focus	Recognition of prior learning	Completion rates as a requirement in external QA
	Attainment targets for specified groups	Concrete measures				
BE fr		•	•		•	•
BE de						•
BE nl	•	•	•	•	•	•
BG		•	•			
CZ						
DK		•	•		•	
DE		•				
EE		•				
IE	•	•	•	•	•	•
EL		•				•
ES		•			•	•
FR	•	•	•	•	•	•
HR		•				
IT		•	•	•	•	•
CY		•	•			
LV		•				
LT	•	•	•			
LU	:	:	:	:	:	:
HU		•	•		•	•
MT	•	•	•			
NL	:	:	:	:	:	:
AT		•	•	•		
PL		•	•	•		•
PT				•	•	•
RO				•		
SI		•				•
SK						
FI	•	•	•		•	•
SE			•		•	•
UK		•	•		•	
UK-SCT	•		•		•	

Source: EACEA/Eurydice (2011), *Modernisation of higher education in Europe: funding and the social dimension*; EACEA/Eurydice (2014), *Modernisation of higher education in Europe: access, retention and employability* (<http://eacea.ec.europa.eu/education/eurydice>).

⁸³ This is based on UOE 2011 data as published in OECD (2013), *Education at a Glance 2013* (<http://www.oecd.org/edu/eag2013%20%28eng%29--FINAL%2020%20June%202013.pdf>). *Completion rate* is one of the additional contextual indicators for tertiary education attainment that can be found online (ec.europa.eu/education/monitor).

⁸⁴ NESET (2013), *Drop-out and completion in higher education in Europe among students from under-represented groups* (<http://www.nesetweb.eu>).

⁸⁵ See the additional contextual indicators at: ec.europa.eu/education/monitor.

Next steps

The data analysed in this section underline the social and geographical disparities that persist in higher education. Broadening access to higher education and reducing dropout rates are likely to remain significant challenges in the years to come. To tackle these issues, higher education leaders and policy makers need both solid data – to be able to measure the extent of the challenges – and a sound understanding of the factors underlying the differences in tertiary education participation and completion rates.

Funding available from the ESF in the 2014-20 period will support Member States in enhancing participation levels in tertiary education⁸⁶. Furthermore, a number of European-level initiatives are being developed to support mutual learning across borders in the field of access and completion in higher education. The fifth round of the *Eurostudent* survey will provide a new set of comparable and policy-relevant information on the socio-economic background and on the living conditions of students across Member States in early 2015⁸⁷. At the same time, the Commission has launched a new study to explore effective policy approaches in reducing dropout rates and increasing completion in higher education. This will also provide results and recommendations in 2015.

The expansion of higher education discussed here, with a growing proportion of the population entering HEIs and completing degrees, means the quality and relevance of provision is more important than ever. It is crucial that systems deliver a range of relevant high-level qualifications that equip students with the knowledge, skills and competences they need to succeed in professional life. This topic is treated in Part 3 of the Monitor.

Key findings and policy relevance

In higher education, broadening access and reducing dropout rates amongst disadvantaged groups remains challenging. The rate of tertiary education attainment in Europe has steadily grown to 36.9%, yet high-qualified employment is forecasted to have increased a further 13% by 2020. Moreover, the persisting disparities between and within countries leave no room for complacency. The rate of tertiary education attainment is 26% higher amongst women; about 10% higher for native-born; 62.4% lower for individuals suffering physical difficulties; and in CZ, RO and SK, bottom-performing regions have attainment rates that are at least 60% lower than those found in top-performing regions. Only a handful of countries strive to widen participation and boost completion rates amongst disadvantaged groups.

2.3. Key basic competences

What does it mean to attain or to fail the level of upper secondary education? What can someone with tertiary education attainment do? In a context of high youth unemployment and labour market mismatches, policy makers are increasingly looking at the competences behind the qualifications. With the OECD's Programme for International Student Assessment (PISA) and more recently the Survey of Adult Skills (PIAAC), it has become clear that neither school education nor higher education are likely to instil learners with the same level of key basic competences across different Member States.

⁸⁶ See the investment priority: "Improving the quality and efficiency of, and access to, tertiary and equivalent education with a view to increasing participation and attainment levels, especially for disadvantaged groups" (Article 3(1)(c)(ii) of Regulation (EU) No 1304/2013 on the European Social Fund).

⁸⁷ See http://www.eurostudent.eu/index_html.

Proper levels of basic competences are key outcomes of initial education because they build the *foundation* for long-term economic growth of societies and social inclusion of individuals⁸⁸. Through the CSRs within the 2014 European Semester, fifteen Member States were asked to pursue reforms in the context of school education and low-skilled youth (AT, BG, CZ, DE, DK, ES, FR, IT, LU, LV, MT, PT, SE, SK, UK). Ten countries received CSRs to focus on disadvantaged learners in particular (AT, BG, CZ, DE, DK, HU, LU, RO, SE, SK).

Raising adult competences or strengthening provisions for continued learning (the latter being the topic of Section 3.6) was emphasised in no fewer than seventeen CSRs (BE, BG, DE, EE, ES, FR, HR, IE, IT, LT, LU, PL, PT, RO, SI, SK, UK). Funding available from the ESF in the 2014-20 period can contribute to reducing low achievement in basic competences both for students and adults⁸⁹.

Basic competences of students

The ET 2020 target aims at reducing the share of low achievement in reading, mathematics and science amongst 15 year-olds to below 15% by 2020⁹⁰. The results from PISA 2012 clearly indicate that performance in three areas of key basic competences (reading, mathematics and science) correlate strongly with each other. Member States that show certain levels of basic competences in one of the areas tend to perform similarly in the other areas. Therefore, policies designed to tackle low achievement in one field often converge with similar policies in another.

The percentage of low achievement in reading has declined from 23.1% in 2006 to 19.7% in 2009 and to 17.8% in 2012 (Table 2.3.1). If this trend continues, the benchmark of 15% may be an achievable goal by 2020, but sustained efforts are crucial. The decrease is mainly due to a handful of Member States where the proportion of low achievement dropped substantially (AT, IE, PL, DE, EE, CZ). However, so far, only seven countries have reached the EU benchmark of less than 15% (EE, IE, PL, FI, NL, DE, DK). Notably, in some Member States, the proportion of low achievement went up in comparison to their 2009 levels to a significant extent (SK, SE, FI).

The average share of low achieving students in maths in Member States has essentially remained the same in PISA 2012 (22.1%) in comparison to PISA 2009 (22.3%)⁹¹, which means that EU countries should considerably step up their efforts towards reducing the share of low achievement in mathematics.

Many Member States show very little change in their rates of low achievement in maths since 2009 (LT, IT, ES, FR, SI, BE, DK). BG does show some, if insufficient, progress but is the country with the highest share of low achievement in maths (43.8%). LU, PT, UK and NL, with various rates of current performance, reveal slight increases in their rates of low achievement in maths, whereas EL, HU, SE and SK show a significant increase in their rate of low achievement while still far removed from the 2020 benchmark.

The EU is lagging behind in its challenge to reduce the share of low achievement in mathematics

Overall, across the EU, there is a steady trend towards improvement in science competences. The percentage of low achievement has been dropping from 20.3% in 2006 to 17.8% in 2009 and 16.6% in 2012. The EU, on average, is on track to reach the ET 2020 benchmark, albeit

⁸⁸ EENEE (2014), *The economic case for education* (<http://www.eenee.de>).

⁸⁹ See investment priorities on "Reducing and preventing early school-leaving and promoting equal access to good quality early-childhood, primary and secondary education including formal, non-formal and informal learning pathways for reintegrating into education and training," (Article 3(1)(c)(i) of Regulation (EU) No 1304/2013 on the European Social Fund) and "Enhancing equal access to lifelong learning for all age groups in formal, non-formal and informal settings, upgrading the knowledge, skills and competences of the workforce, and promoting flexible learning pathways including through career guidance and validation of acquired competences" (Article 3(1)(c)(iii) of Regulation (EU) No 1304/2013 on the European Social Fund).

⁹⁰ The PISA 2012 scores in mathematics are divided into six proficiency levels ranging from the lowest, level 1, to the highest, level 6. Low achievement is defined as performance below level 2.

⁹¹ The figure for PISA 2006 was only slightly higher (24.1%).

with little room for manoeuvre. FR, BE, DK, UK, NL and EL made little or no progress at all between 2009 and 2012, but most of these Member States are already close to or beyond the 2020 target level. The situation is worse for SE, PT, HU and particularly SK, where low achievement in science is still higher than 15% and has significantly increased since 2009.

Table 2.3.1. Percentage of low achievement in reading, maths and science, by sex

	Reading				Maths				Science			
	2009	2012			2009	2012			2009	2012		
	Total	Total	Boys	Girls	Total	Total	Boys	Girls	Total	Total	Boys	Girls
EU	19.7	17.8	23.7	12.0	22.3	22.1	21.2	23.0	17.8	16.6	17.5	15.7
Belgium	17.7	16.1	20.8	11.5	19.1	19.0	19.3	18.5	18.0	17.7	19.1	16.2
Bulgaria	41.0	39.4	50.9	27.0	47.1	43.8	45.1	42.3	38.8	36.9	41.8	31.7
Czech Republic	23.1	16.9	22.8	10.6	22.3	21.0	19.3	22.7	17.3	13.8	14.6	12.9
Denmark	15.2	14.6	19.2	10.1	17.1	16.8	15.1	18.6	16.6	16.7	16.4	17.0
Germany	18.5	14.5	20.1	8.7	18.6	17.7	16.8	18.7	14.8	12.2	12.9	11.5
Estonia	13.3	9.1	14.2	4.2	12.6	10.5	10.6	10.4	8.3	5.0	6.0	4.1
Ireland	17.2	9.6	13.0	6.1	20.8	16.9	15.2	18.7	15.2	11.1	11.6	10.6
Greece	21.3	22.6	32.2	13.3	30.3	35.7	34.5	36.9	25.3	25.5	29.8	21.3
Spain	19.6	18.3	23.4	13.1	23.7	23.6	22.1	25.1	18.2	15.7	15.9	15.5
France	19.8	18.9	25.5	12.7	22.5	22.4	22.3	22.4	19.3	18.7	20.5	17.0
Croatia	22.4	18.7	27.6	9.5	33.2	29.9	28.8	31.0	18.5	17.3	19.5	15.0
Italy	21.0	19.5	25.9	12.6	24.9	24.7	22.8	26.7	20.6	18.7	19.6	17.8
Cyprus	:	32.8	44.5	20.5	:	42.0	42.8	41.3	:	38.0	41.9	34.0
Latvia	17.6	17.0	25.7	8.2	22.6	19.9	21.5	18.3	14.7	12.4	15.3	9.4
Lithuania	24.4	21.2	31.9	10.4	26.3	26.0	27.7	24.3	17.0	16.1	19.5	12.6
Luxembourg	26.0	22.2	26.6	17.6	23.9	24.3	20.1	28.7	23.7	22.2	20.3	24.2
Hungary	17.6	19.7	26.9	13.0	22.3	28.1	27.6	28.5	14.1	18.0	18.8	17.4
Malta	36.3	:	:	:	33.7	:	:	:	32.5	:	:	:
Netherlands	14.3	14.0	17.2	10.6	13.4	14.8	13.9	15.8	13.2	13.1	13.2	13.0
Austria	27.6	19.5	26.2	12.8	23.2	18.7	16.1	21.2	21.0	15.8	16.2	15.4
Poland	15.0	10.6	16.2	5.2	20.5	14.4	15.0	13.8	13.1	9.0	10.2	7.9
Portugal	17.6	18.8	25.0	12.5	23.7	24.9	24.0	25.9	16.5	19.0	20.3	17.7
Romania	40.4	37.3	46.8	28.1	47.0	40.8	40.4	41.2	41.4	37.3	39.5	35.3
Slovenia	21.2	21.1	30.5	11.1	20.3	20.1	20.4	19.8	14.8	12.9	14.8	10.8
Slovakia	22.2	28.2	35.4	20.4	21.0	27.5	27.6	27.3	19.3	26.9	26.8	26.9
Finland	8.1	11.3	17.7	4.6	7.8	12.3	14.1	10.4	6.0	7.7	9.7	5.6
Sweden	17.4	22.7	31.3	14.0	21.1	27.1	28.2	26.0	19.1	22.2	24.8	19.6
United Kingdom	18.4	16.6	19.8	13.5	20.2	21.8	19.7	23.8	15.0	15.0	13.9	16.0

Source: OECD (PISA 2009 and 2012). Notes: ":" = data not available. See the Annex for data on EEA and candidate countries participating in PISA 2012.

Inequalities in basic competences of students

PISA data show that there are no striking differences in the share of low achievement in maths and science between boys and girls. The negligible gender gap for maths and science holds a positive message for future tertiary education fields of study in science, technology, engineering and mathematics (STEM), as illustrated by Figure 2.2.3 in the previous section. However, it could also mean that girls are not sufficiently encouraged to pursue a higher education in STEM domains despite an average performance that does not significantly differ from that of boys⁹².

The underperformance of boys is a main cause for slow progress in reducing low achievement in reading

In reading, girls widely outperform boys in all EU countries. The countries with the largest gender gap are CY, BG and LT. The countries that show a smaller gender gap are UK, NL and IE. Most EU countries narrowed the gender gap between 2009 and 2012, but this accounts only for a change of 1 percentage point at the EU level. Where countries show an overall increase of the proportion of low achievement in reading (FI,

⁹²

In fact, gender disparities in subjects chosen tend to be related more to norms and attitudes than school performance. See OECD (2012), *Closing the Gender Gap: Act Now* (<http://www.oecd.org/gender/closingthegap.htm>).

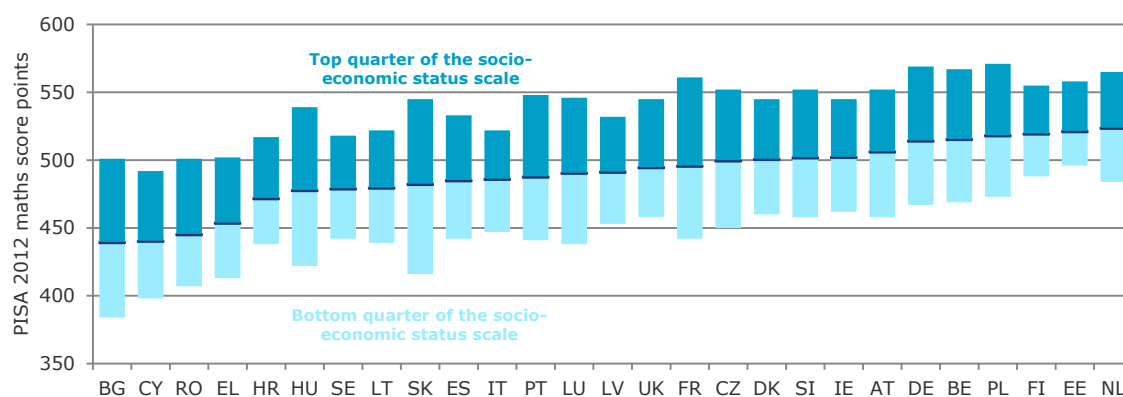
HU, SE and EL), this is largely due to the growing number of low performing boys.

Socio-economic status is one of the main determinants for the development of key basic competences. In many countries, schools tend to reproduce existing patterns of socio-economic status, rather than create a more equitable distribution of learning opportunities and outcomes. Figure 2.3.1 compares the average maths scores for those 15-year-olds with a low socio-economic status with the average maths scores of those with a high socio-economic status⁹³.

The difference in maths score points⁹⁴ between two groups is more than 100 in eight Member States (BG, SK, HU, LU, PT, FR, CZ, DE). It is only less than 70 score points in FI and EE. The gaps illustrated in Figure 2.3.1 capture the persisting inequities found in European education and training systems⁹⁵. Since 2003 – the last time when PISA provided these breakdowns for mathematics – equity in school achievement has improved for some Member States (BE, DE, NL, SE, DK), whereas it has worsened for others (FR, ES, SK).

The socio-economic background of a student remains the most influential factor for the acquisition of key basic competences

Figure 2.3.1. Impact of socio-economic background in mathematics



Source: OECD (PISA 2012). Notes: The dark blue lines denote the national mean PISA 2012 mathematics score.

PISA 2012 data reveals that the disadvantage in maths performance for migrant students is at least 30% smaller in almost all Member States when adjusting for socio-economic status (as was illustrated by Figure 1.3.1 in Section 1.3). This distinguishes the socio-economic disadvantages from the socio-cultural disadvantages. What remains of the migrant background effect is partly related to the language used for the test administered, which for first generation migrants tends to be different from that spoken at home. The competences of first generation migrant students are closely related to the age at arrival in the host country and the language spoken at home⁹⁶.

⁹³ This is not a comparison of extremes. Indeed, 50% of the total sample is covered in this comparison.

⁹⁴ PISA maths scores are used in this section. To interpret these scores, note that "41 score points corresponds to the equivalent of one year of formal schooling". See page 46 of OECD (2014), *PISA 2012 Results: What Students Know and Can Do – Student Performance in Mathematics, Reading and Science* (www.oecd.org/pisa/).

⁹⁵ See also the additional contextual indicators for the ET 2020 benchmark at ec.europa.eu/education/monitor.

⁹⁶ TIMSS 2011 showed that mathematics achievement is higher for students who frequently speak the language of the test at home (see: http://www.iea.nl/timss_2011.html). Teacher competences in dealing with a multicultural, multilingual environment can be another factor, as was concluded in Section 1.3. Their continuing professional development will be discussed in Section 3.2.

Country efforts to improve the basic competences of students

The latest available Eurydice data illustrate how tackling low achievement in reading, maths and science has become a top-priority for secondary education across Europe (Table 2.3.2). The vast majority of Member States feature a national administration of standardised tests and centrally set examinations. Most countries use student performance data in external school evaluations (with the exception of EE, EL, HR, IT, CY, LU, AT, SI, SK and FI). Some evidence suggests that school accountability is a pre-requisite for the benefits of school autonomy; the two are important factors to increase student performance and learning outcomes⁹⁷.

Table 2.3.2. Country efforts to improve achievement in key basic competences

	National tests in compulsory education			National reports on low achievement			Performance data as criterion in school evaluation	Induction programmes for beginning teachers	Compulsory continuing professional development plan at school level	Guidelines on low achievement as a topic in initial teacher education		
	Reading	Maths	Science	Reading	Maths	Science				Reading	Maths	Science
BE fr	•	•	•	:		:	•		•		•	:
BE de				:		:	•		•	•		:
BE nl	•	•	•	:	•	:	•		•		•	:
BG	•	•	•	:		:			•		•	:
CZ				:	•	:	•		•			:
DK	•	•	•	:	•	:	•		•		•	:
DE	•	•		:		:	•	•				:
EE	•	•	•	:		:		•	•		•	:
IE	•	•	•	:	•	:	•	•				:
EL				:		:						:
ES				:	•	:	•		•	•	•	:
FR	•	•	•	:	•	:	•	•	•	•	•	:
HR	•	•	•	:		:		•		:	:	:
IT	•	•	•	:	•	:		•	•			:
CY	•	•	•	:		:		•	•	•	•	:
LV	•	•	•	:		:	•			•		:
LT	•	•		:	•	:	•		•	•	•	:
LU	•	•		:		:		•			:	:
HU	•	•		:		:	•		•		•	:
MT	•	•	•	:		:	•	•	•	•	•	:
NL	•	•	•	:	•	:	•				•	:
AT		•		:	•	:		•			•	:
PL	•	•	•	:		:	•		•			:
PT	•	•		:		:	•	•	•			:
RO	•	•	•	:	•	:	•	•	•			:
SI	•	•	•	:	•	:		•	•	•	•	:
SK	•	•		:	•	:		•	•		•	:
FI	•	•		:	•	:						:
SE	•	•	•	:	•	:	•	•				:
UK	•	•		:	•	:	•	•	•		•	:
UK-SCT	•			:	•	:	•				•	:

Source: EACEA/Eurydice (2012), *Developing Key Competences at School in Europe*; EACEA/Eurydice (2011), *Teaching Reading in Europe: Contexts, Policies and Practices*; EACEA/Eurydice (2011), *Mathematics Education in Europe: Common Challenges and National Policies*; EACEA/Eurydice (2011), *Science Education in Europe: National Policies, Practices and Research*; EACEA/Eurydice (2013), *Key Data on Teachers and School Leaders in Europe*; EACEA/Eurydice (2012), *Key Data on Education in Europe* (<http://eacea.ec.europa.eu/education/eurydice>).

⁹⁷

JRC-CRELL (2014), *Monitoring the evolution of education and training systems: A guide to the Joint Assessment Framework* (<https://crell.jrc.ec.europa.eu/>).

The policy priority is less reflected in initial teacher education. Moreover, only ten Member States (EE, FR, IT, CY, MT, PT, RO, SI, SK, UK) combine induction programmes for beginning teachers with the requirement for schools to have a professional development plan for teachers. The teaching profession is key in tackling both low achievement and early school leaving. Section 3.2 will shed light on this important policy lever, using data from the OECD's Teaching and Learning International Survey (TALIS).

Basic competences of adults

Key basic competences of students echo into the labour market productivity of the working-age population, which in turn fuel competitiveness and innovation at the societal level. For example, low achievement in literacy is associated with an unemployment risk that is more than twice the unemployment risk of those with high achievement in literacy. Higher numeracy skills, furthermore, are systematically and strongly related to higher earnings in all Member States⁹⁸.

One in five adults across Europe has low literacy skills; for numeracy the prevalence of low skills is even higher

The OECD's Survey of Adult Skills (PIAAC), carried out in 2012 in seventeen Member States, captures the literacy and numeracy skills of 16 to 65 year-olds and as such reflects the human capital of each country's adult population⁹⁹.

Table 2.3.3. Low achievement in literacy and numeracy (%)

	Literacy			Numeracy		
	Total	Men	Women	Total	Men	Women
EU	19.9	20.1	19.7	23.6	21.0	26.2
Belgium (nl)	14.0	13.2	14.9	13.4	11.0	15.7
Czech Republic	11.8	11.3	12.3	12.9	10.9	14.8
Denmark	15.7	17.0	14.4	14.2	13.1	15.4
Germany	17.5	16.5	18.5	18.4	14.6	22.2
Estonia	13.0	13.6	12.5	14.3	13.3	15.2
Ireland	17.4	17.6	17.3	25.2	21.7	28.5
Spain	27.5	26.3	28.7	30.6	27.1	34.2
France	21.6	22.3	20.9	28.0	25.8	30.2
Italy	27.7	29.0	26.4	31.7	28.8	34.6
Cyprus	11.8	12.1	11.6	15.5	13.2	17.6
Netherlands	11.7	10.9	12.5	13.2	10.8	15.6
Austria	15.3	14.7	15.8	14.3	12.2	16.3
Poland	18.8	21.3	16.2	23.5	23.8	23.1
Slovakia	11.6	11.9	11.4	13.8	13.8	13.7
Finland	10.6	11.5	9.7	12.8	11.9	13.8
Sweden	13.3	12.6	14.0	14.7	12.5	17.0
United Kingdom (ENG/NIR)	16.4	16.6	16.2	24.1	21.1	27.1

Source: OECD (PIAAC 2012). Notes: "-" = data not available. EU weighted average is calculated for 17 countries. Low achievement in literacy and numeracy refers here to 16 to 65 year-olds whose proficiency level is level 1 or below.

PIAAC shows that low achievement in literacy and numeracy is strongly correlated. It is slightly less prevalent for literacy – 19.9% versus 23.6% for numeracy – but country variation is comparable (Table 2.3.3). Amongst the seventeen participating Member States, IT and ES are bottom-performers as regards both literacy and numeracy; FI and NL are in the top three EU performers for both literacy and numeracy. Taking into account the rising demand in technical, high-skilled professions and seen in connection with the lack of improving maths proficiency

⁹⁸ See EENEE (2014), *The economic case for education* (<http://www.eenee.de/>). For non-market outcomes of adult skills, such as social trust, volunteering, political efficacy and health, see JRC-CRELL (2014), *Adult skills, competences and social outcomes: empirical evidence from the Survey of Adult Skills* (<https://crell.jrc.ec.europa.eu/>).

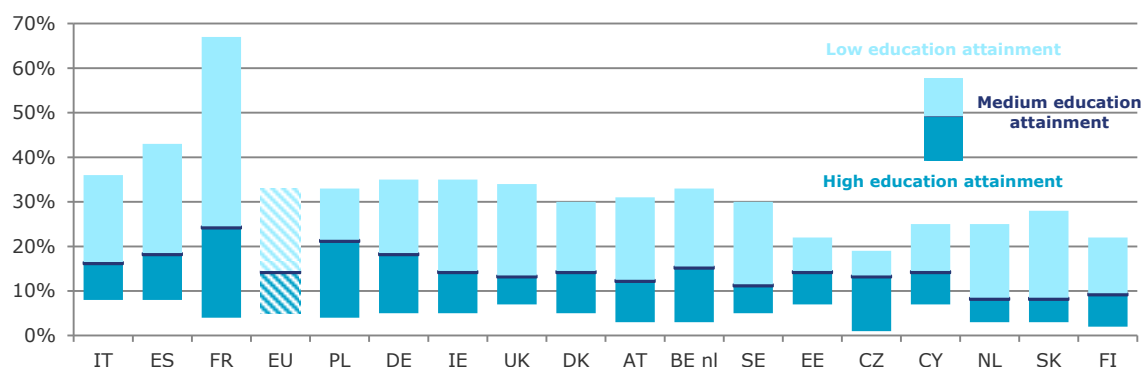
⁹⁹ This section focuses on low achievement in literacy and numeracy, but a complementary measure of *medium to high skills* is featured in the country reports of Volume 2 of the Education and Training Monitor (ec.europa.eu/education/monitor).

among the young as explained above, proficiency in numeracy could in the medium term become an obstacle to meeting the demands of the modern labour market.

The skills-value of qualifications is not the same across all European countries

In all participating Member States low achievement in literacy is more prevalent amongst those with low education attainment than it is amongst those with medium or high education attainment. On average across the participating EU countries, 33% of individuals without upper secondary education are low-skilled in literacy, versus 38% in numeracy. Amongst those with higher education degrees, 5% of individuals are low-skilled in literacy, versus 6% in numeracy. The skills differentials, however, vary greatly from country to country (Figure 2.3.2).

Figure 2.3.2. Low achievement in literacy by education attainment



Source: OECD (PIAAC 2012). Note: countries are ordered according to their average rate of low achievement in literacy (see Table 2.3.3). UK refers to UK-ENG and UK-NIR. Low achievement in literacy and numeracy refers here to 16 to 65 year-olds whose proficiency level is level 1 or below.

Skills gaps between the high and low educated are widest in FR and smallest in EE. Overall it can be concluded from Figure 2.3.2 that lower average rates of low achievement are associated with smaller skills gaps between the high and low educated. Low education attainment, furthermore, does not relate to low skills equally across countries. CZ, for example, has fewer low-skilled adults amongst its population with low education attainment than FR and PL have amongst its population with medium education attainment.

Linking the important finding that the skills-value of qualifications varies across Member States with the persisting youth unemployment and occupation mismatch recorded across Europe reveals an urgent need to look beyond qualifications and competences; to focus on the quality and relevance of education and training – and its capacity to adapt to the needs of the modern labour market. It also requires further debate on the desired learning outcomes of individual qualifications, with a view to achieve a common understanding of quality that is transparent across sectors of education and across countries. These will be amongst the education policy levers dealt with in Part 3 of the Monitor.

Inequalities in basic competences of adults

The older generation is considerably less proficient in both literacy and numeracy when compared to the younger generation. Comparing the PIAAC literacy scores of 25 to 34 year-olds with those of 55 to 65 year-olds, the performance gap is higher than 30 score points¹⁰⁰ in FI, NL, FR, ES and BE nl. When it comes to numeracy, the gap is higher than 30 score points in FI, ES, FR, BE nl, IT and NL. With only one measurement of adult competences it is impossible to

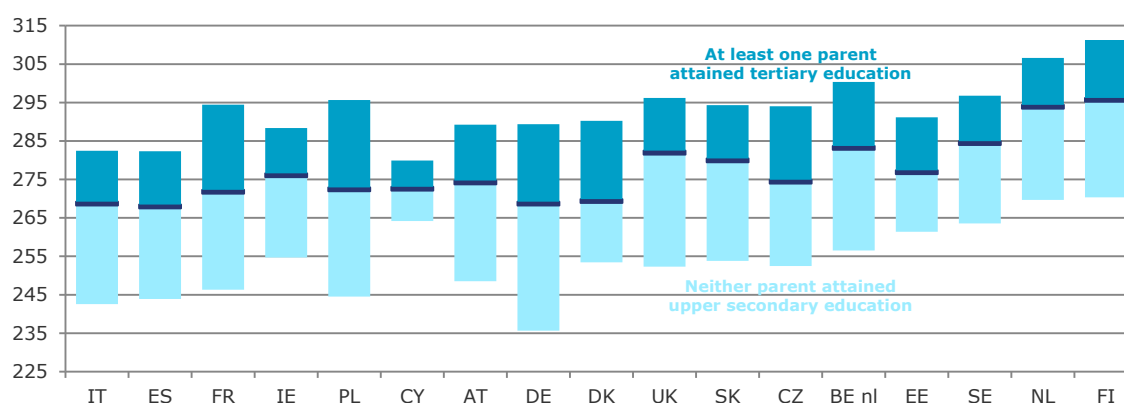
¹⁰⁰ PIAAC literacy and numeracy scores are used in this section. To interpret these scores, note that "the average score-point difference associated with an additional year of completed education or training (i.e. between a person who has completed n years of education and one who has completed $n+1$ years) is approximately 7 score points, on average, on both the literacy and numeracy scales". See page 61 of OECD (2013), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills* (<http://www.oecd.org/site/piaac/>).

know to what extent literacy and numeracy proficiency decline with age and to what extent each generation is simply more proficient than the previous one. Nonetheless, it is clear that participation in lifelong learning is crucial for the older age groups in particular (see Section 3.6).

The PIAAC data also reveals strong cross-national differences in the performance gap between the native-born and the foreign-born¹⁰¹. The disadvantage of the foreign-born is more than 40 score points on the PIAAC literacy scale in SE, FI and NL. It is less than 10 score points in IE, SK and CZ. The pattern is much the same for numeracy proficiency, with SE, FI and NL showing the strongest gaps between native-born and foreign-born and CY joining IE and SK as the three countries with the smallest performance gap.

The strongest determinant is again related to socio-economic status. Figure 2.3.3 shows the literacy performance gaps between those with neither parent having attained upper secondary education, those with at least one parent having attained upper secondary education (the dark blue horizontal line in each bar) and those with at least one parent having attained tertiary education. The Figure confirms the strong inter-generational transmission of education attainment found in Section 1.3, which here translates into key basic competences and, in turn, is likely to affect labour market inequalities. The majority of countries reveal performance gaps of more than 30 score points between those with an advantaged and disadvantaged parental background; ten have gaps close to or beyond 40 score points (DE, PL, FR, UK-ENG/NIR, BE nl, CZ, FI, AT, SK, IT).

Figure 2.3.3. Literacy proficiency by parental background (16 to 65 year-olds)



Source: OECD (PIAAC 2012). Note: countries are ordered according to the national average PIAAC literacy score. UK refers to UK-ENG and UK-NIR.

Next steps

Upon their 2013 release, the Commission has presented the main implications of PISA¹⁰² and PIAAC¹⁰³ findings for education and training policies in Europe. The work now continues in cooperation with the OECD, including more in-depth secondary analyses to better inform relevant policy areas of Europe 2020 and ET 2020. Both surveys, finally, cover measures of transversal competences too, as dealt with in Section 2.4.

¹⁰¹ See also S. Bonfanti & T. Xenogiani, *Migrants' skills: Use, mismatch and labour market outcomes – A first exploration of the International Survey of Adult Skills (PIAAC)*, in OECD/European Commission (2014), *Matching Economic Migration with Labour Market Needs*.

¹⁰² See: http://ec.europa.eu/education/policy/strategic-framework/doc/pisa2012_en.pdf.

¹⁰³ See: http://ec.europa.eu/education/policy/strategic-framework/doc/piaac_en.pdf.

Key findings and policy relevance

Targeted policy action is needed to reduce low achievement in key basic competences across Europe. Amongst 15 year-olds, the EU is not making enough progress in order to reach the 2020 target of at most 15% low achievement in maths, even if negligible gender differences in maths and science hold potential for later STEM fields of study that can be exploited more fully. At the same time, the large and persisting reading disadvantage for boys across all Member States calls for specific policy initiatives. Across the EU's working-age population, the overall rate of low achievement in literacy and numeracy is 19.9% and 23.6% respectively, with significant discrepancies between countries in the skills-value of qualifications. Socio-economic status is still by far the most important determinant of an individual's key basic competences.

2.4. Key transversal competences

Changes in society and technology mean that the knowledge, skills and competences needed on the labour market and in everyday life evolve rapidly. Young people as well as adults must have the ability to cope with the complexity of the present and to seize the opportunities of an unpredictable future. In addition to a solid foundation of basic competences, education and training systems need to equip young people and adults alike with key transversal competences covering digital technology, entrepreneurship and foreign languages. For the individual, weak transversal competences can hamper active citizenship and the ability to enter and succeed on the labour market. For society and the economy, insufficient transversal competences in the population reduce the prospects for innovation and growth¹⁰⁴.

Digital competences

Only half of the so-called *digital native* generation can solve more than basic problems in technology rich environments

Digital technology is becoming near omnipresent in our daily lives as well as at work. Technology offers important opportunities for individuals to be creative and innovative, as well as more productive; and to connect and collaborate across borders. It also gives potential access to a continuously expanding online pool of knowledge. The competences needed to reap these benefits are, however, not equally distributed in the population. As the role of digital technology increases in our lives, the problem of a digital divide – between individuals but also between countries and regions – is becoming more pronounced.

Results from the OECD's Survey of Adult Skills (PIAAC) show the severity of the situation: more than one in four adults in the thirteen Member States that participated in the problem solving module of the survey had very low to no skills in problem solving in technology-rich environments. As shown in Table 2.4.1, the share ranges from less than 20% in NL, FI, and SE, as well as in NO (see results in the Annex), to countries where more than 30% lacked these abilities (PL and SK)¹⁰⁵.

¹⁰⁴ The ESF in the 2014-20 period can provide substantial support to measures aimed at equipping people with transversal competences, which could be addressed under all four ESF investment priorities. See Article 3(1)(c) of Regulation (EU) No 1304/2013 on the European Social Fund.

¹⁰⁵ Results from the *Digital Agenda Scoreboard 2014* show a similar picture. See: <https://ec.europa.eu/digital-agenda/en/pillar-6-enhancing-digital-literacy-skills-and-inclusion>.

Table 2.4.1. Achievement in problem solving in a technology rich environment (%)

	16 to 65 year-olds 2011		16 to 24-year-olds 2011	
	Low	High	Low	High
EU	26.9	33.2	12.7	49.1
Belgium (nl)	25.8	34.5	8.3	57.1
Czech Republic	25.4	33.1	10.1	54.7
Denmark	21.7	38.7	12.2	50.4
Germany	26.0	36.0	11.1	54.2
Estonia	27.1	27.6	10.2	50.4
Ireland	27.3	25.3	14.3	40.3
Netherlands	19.1	41.5	8.0	58.3
Austria	23.6	32.5	9.9	50.7
Poland	38.0	19.2	19.1	37.9
Slovakia	33.1	25.6	14.4	40.5
Finland	19.7	41.6	6.7	61.9
Sweden	19.5	44.0	9.2	61.7
United Kingdom (ENG/NIR)	25.2	34.8	14.6	42.4

Source: OECD (PIAAC 2012). EU weighted average is calculated for 13 countries (in ES, FR, CY and IT this module was not applied). Low achievement in problem solving refers to adults who scored at below level 1, failed the ICT core test or had no computer experience. High achievement refers to proficiency of level 2 or above. Notes: "-" = data not available.

At the upper end of the proficiency scale, a rather small number of countries (FI, SE and NL in addition to NO) have more than 40% of their adults demonstrating skills at levels 2 or above. Furthermore, in no country do more than 9% perform at the highest level (level 3), which is a concern in view of the increasing need for highly skilled ICT practitioners.

Indeed, recent projections, published in the *Digital Agenda Scoreboard 2014*, suggest there will be around 900,000 unfilled vacancies for ICT professionals in the EU by 2020¹⁰⁶. The *Grand Coalition for Digital Jobs*, a multi-stakeholder partnership launched by the European Commission in 2013, aims to increase the number of ICT professionals in the EU by bringing together different stakeholders (business and education, the private and public sector) to attract, through a number of measures, career changers and unemployed young people to ICT careers¹⁰⁷.

There is a widespread notion that we are currently seeing a young generation of *digital natives* that acquire a solid level of digital competences through the daily use of technology at home. Admittedly, among the younger generation of 16-24 year olds, the share with very low or no skills is much smaller than in the overall population. However, only half of this younger age group have an above basic level of proficiency in problem solving in a technology rich environment.

These findings suggest that there is a key role for education and training systems in assuring that all learners have the necessary digital competences for employability and active participation in society¹⁰⁸. The International Computer and Information Literacy Study (ICILS) will provide further evidence in this area when results are released in November 2014.

Entrepreneurship competences

Entrepreneurship as a key competence is essential if Europe is to have innovative, creative, dynamic citizens who are prepared to seize opportunities. Entrepreneurship can constitute an important driver of economic growth and job creation, and combining social and entrepreneurial aspects can also contribute to tackling social challenges through social entrepreneurship. The Council Conclusions of 20 May 2014 on promoting youth entrepreneurship to foster social

¹⁰⁶ See: <https://ec.europa.eu/digital-agenda/en/grand-coalition-digital-jobs>.

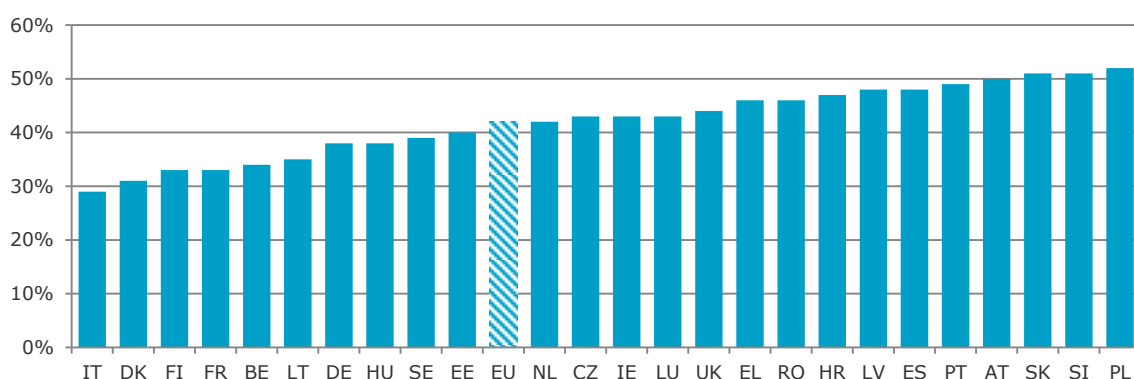
¹⁰⁷ As an example, a new European coding initiative by the *Grand Coalition for Digital Jobs* seeks to improve the digital skills of young people and attract them to ICT related careers through introducing them to coding. For further information, see: <http://codeweek.eu/>.

¹⁰⁸ See also: European Commission (2013), *Survey of Schools: ICT in Education. Benchmarking Access, Use and Attitudes to Technology in Europe's Schools* (<https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/KK-31-13-401-EN-N.pdf>).

inclusion of young people¹⁰⁹ underline that “Entrepreneurship can constitute an important element with regards to the autonomy, personal development and wellbeing of young people. Entrepreneurship can be seen as one of the solutions to combat youth unemployment”.

Education systems can, through promoting entrepreneurship in education, play a vital role in giving learners the ability to think creatively, work in teams, solve problems, manage risk and turn ideas into action. Evidence from UK-WLS¹¹⁰ and DK¹¹¹ has shown that entrepreneurship in education has a positive link not only with business start-ups but also with future income and students’ likelihood to take on leadership roles. However, efforts across Member States to support and promote entrepreneurship in education are fragmented and lack coherence¹¹². Few countries have a comprehensive learning outcomes approach in this area and the assessment of entrepreneurship is under-developed¹¹³. Even when there are good practice examples available, these are rarely fed into policy or national-level reforms.

Figure 2.4.1. Individuals aged 18 to 64 who believe to have the required skills and knowledge to start a business



Source: Global Entrepreneurship Monitor 2013. Results for AT and DK are from 2012.

The need to further strengthen the entrepreneurial competences of European citizens is partly illustrated by data from the *Global Entrepreneurship Monitor* on adults’ belief as to whether they have the required skills and knowledge to start a business (Figure 2.4.1)¹¹⁴. In all but three (PL, SK and SI) of the participating Member States did less than half of the population aged 18-64 hold a positive view about their own prerequisites for starting a business, with the share being as low as less than one in three in countries like FI, FR, DK and IT¹¹⁵.

The DG EAC led Expert Group on Indicators on Entrepreneurial Learning and Competence pointed to *collaborative problem-solving* as a potential sub-indicator in the area of

¹⁰⁹ See http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/142702.pdf.

¹¹⁰ J. Levie & M. Hart (2012), *Global Entrepreneurship Monitor: United Kingdom 2011 Monitoring Report* (<http://www.gemconsortium.org/docs/download/2425>).

¹¹¹ FFE-YE (2013), *Impact of Entrepreneurship Education in Denmark* (<http://eng.ffe-ye.dk/media/202218/impact-assessment-of-ee-in-dk-2013.pdf>).

¹¹² European Commission (2014), *Thematic Working Group on Entrepreneurship Education. Final Report*.

¹¹³ On the lack of assessment of entrepreneurship key competence, see also chapter 3 of EACEA/Eurydice (2012), *Developing Key Competences at School in Europe: Challenges and Opportunities for Policy* (eacea.ec.europa.eu/education/eurydice).

¹¹⁴ International data on entrepreneurship competences tend to have a strong focus on the business start-up dimension of entrepreneurship, and contextual factors may influence the cross-country comparability of respondents’ self-assessment. Piloting work is foreseen in 2015 to develop existing data sources in order to better cover entrepreneurship education and entrepreneurship as a key transversal competence.

¹¹⁵ Through cross-border exchange under *Erasmus for Young Entrepreneurs*, new or aspiring entrepreneurs are given the chance to learn from experienced entrepreneurs running small businesses. Further information about additional programmes and initiatives can be found at: http://ec.europa.eu/education/policy/strategic-framework/entrepreneurship_en.htm.

entrepreneurship competences, as it supports entrepreneurial action¹¹⁶. The OECD's PISA is set to collect such data for the first time in 2015. PISA 2012 aimed to shed light on a similar problem-solving competence, although without the emphasis on the collaborative element¹¹⁷. The test captured the general cognitive processes involved in solving problems that are likely to be new to the students tested. Adapting to changing contexts, daring to try out new things and learning from mistakes are key elements of successful problem-solving.

As much as one in every five 15-year-olds in the EU demonstrate low problem-solving skills, and only one in ten have high problem-solving skills (Table 2.4.2). The results from PISA show that students who do well in mathematics, science and reading also tend to show strong performance in problem-solving. Yet on average, 15-year-olds in Europe tend to perform worse in problem-solving than one would expect from their mathematics, reading and science skills.

Table 2.4.2. Share of low and high performance in problem solving of 15 year-olds

	Low	High
EU	20.6	11.0
Belgium	20.8	14.4
Bulgaria	56.7	1.6
Czech Republic	18.4	11.9
Denmark	20.4	8.7
Germany	19.2	12.8
Estonia	15.1	11.8
Ireland	20.3	9.4
Spain	28.5	7.8
France	16.5	12.0
Croatia	32.3	4.7
Italy	16.4	10.8
Cyprus	40.4	3.6
Hungary	35.0	5.6
Netherlands	18.5	13.6
Austria	18.4	10.9
Poland	25.7	6.9
Portugal	20.6	7.4
Slovenia	28.5	6.6
Slovak Republic	26.1	7.8
Finland	14.3	15.0
Sweden	23.5	8.8
United Kingdom (ENG)	16.4	14.3

Source: OECD (PISA 2012). Note: Low achievement is below Level 2 on the PISA 2012 scale for problem solving. High achievement equals Level 5 or above.

Besides skills, education systems in Europe also need to make learners understand the role of entrepreneurs in society and further develop their sense of initiative and entrepreneurial attitude. Available data suggests that European education systems have been less successful than in other key parts of the world in fostering the entrepreneurial spirit in learners or motivating them towards entrepreneurship¹¹⁸.

European education systems are lagging behind in fostering an entrepreneurial spirit in learners

In November 2013, the self-evaluation tool *HEInnovate* was launched, intended for the assessment, promotion and support of an entrepreneurial institutional mind-set in higher

¹¹⁶ ICF GHK (2014), *Expert Group on Indicators on Entrepreneurial Learning and Competence: Final Report* (http://ec.europa.eu/education/library/reports/2014/entrepreneurial-expert-report_en.pdf).

¹¹⁷ In PISA 2012, problem-solving is defined as "...an individual's capacity to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately obvious. It includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen".

¹¹⁸ European Commission (2012), *Flash Eurobarometer 354: Entrepreneurship in the EU and beyond* (http://ec.europa.eu/public_opinion/flash/fl_354_en.pdf).

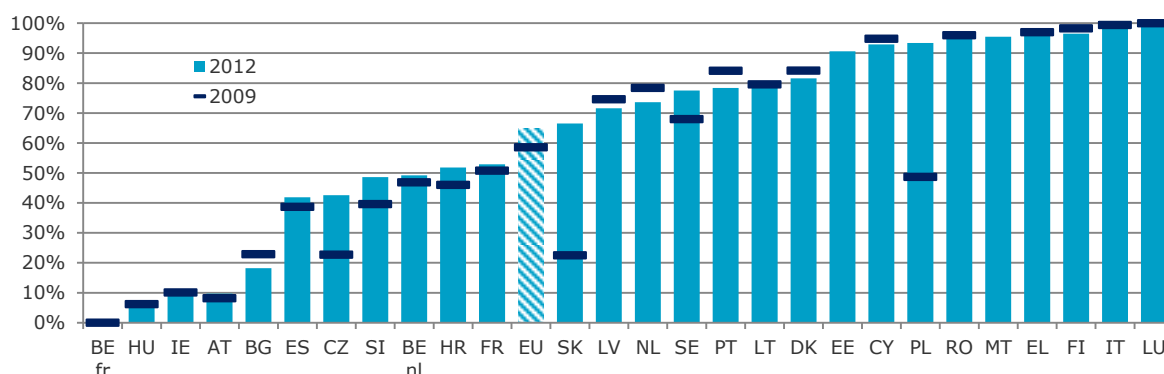
education¹¹⁹. *HEInnovate* is targeted at Higher Education Institutions (HEIs) interested in assessing themselves against a number of statements of self-reflection related to the entrepreneurial nature of their higher education environment. Together with OECD, a similar institutional self-assessment tool is being developed for schools and VET institutions through the *Entrepreneurship360* project in consultation with stakeholders¹²⁰.

To make sure that transversal competences valued by employers, such as entrepreneurship competences, can be recognised and made visible, it is important to further develop assessment practices of entrepreneurship as a key competence. To support this, work is ongoing to develop a European competence framework for entrepreneurship; a voluntary guide for education and educators.

Foreign language competences

Language competences contribute to mobility and employability of European citizens and facilitate intercultural dialogue. In the context of ET 2020, and in view of the importance of learning two foreign languages from an early age, as highlighted in the 2002 Barcelona European Council, the 2014 Council Conclusions on multilingualism and development of language competences¹²¹ invite both the Commission and the Member States to make efforts to develop appropriate ways for assessing language proficiency. With support of the European Commission, Member States are prompted to make use of the Open Method of Coordination to exchange experiences and best practices in order to improve the effectiveness and quality of language teaching and learning.

Figure 2.4.2. Percentage of pupils at ISCED 2 learning two or more foreign languages



Source: Eurostat (UOE). Online data code: *educ_ilang*. Note: Data for UK and DE not available. Only languages in the curriculum drawn up by the central education authorities are included. Languages taught outside the curriculum as optional subjects are not included.

Existing EU data on language learning in lower secondary school show that Europe is still far from reaching the Barcelona objective of *mother tongue plus two* (Figure 2.4.2). In the EU, on average, only 6 in 10 pupils learn two or more foreign languages in lower secondary school (ISCED 2), and there is considerable variation between countries. While in BE fr, HU, IE, and AT, less than 10% of pupils in lower secondary school learn two or more foreign languages, more than 50% of them do so in eighteen other Member States. In as many as nine Member States, over 90% of pupils at lower secondary level learn two or more foreign languages (EE, CY, PL, RO, MT, EL, FI, IT, LU).

¹¹⁹ See: <https://heinnovate.eu>.

¹²⁰ See: <http://www.oecd.org/site/entrepreneurship360/home/>.

¹²¹ Conclusions on multilingualism and the development of language competences; see: http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/142692.pdf.

In Belgium (fr), Hungary, Ireland and Austria, less than 10% of pupils in lower secondary school learn two or more foreign languages

However, these data mask important differences in the structure of educational systems¹²². In this light, the Commission, in cooperation with Eurostat, is exploring the possibility of changing the ISCED reference period for the number of languages studied into a specific grade-based or aged-based level. This would allow for greater comparability of results across countries.

The Commission will further explore the feasibility of assessing language competences in the Member States, by making use of national data, where available, and with the support of experts from the Member States. EU countries on the other hand will also make efforts to develop appropriate methods for assessing language proficiency, on the basis of a common methodological approach that is outlined in the annex to the Council Conclusions.

Key findings and policy relevance

For individuals to thrive in a modern and evolving labour market, education needs to equip people with key transversal competences. Policy efforts regarding digital competences are to be strengthened, as even amongst the younger generation only half can solve more than very basic problems with the use of ICT. Efforts across Member States to support and promote entrepreneurship in education are fragmented and lack coherence, while 15-year-olds are performing worse in solving non-routine problems than one would expect from their reading, maths and science skills. Despite language competences becoming key for employability of young people, national curricula show significant differences in the number of foreign languages being taught. The percentage of students in lower secondary school learning two or more foreign languages is less than 10% in BE fr, HU, IE and AT.

¹²² See EACEA/Eurydice (2013), *The structure of the European education systems 2013/14: schematic diagrams* (<http://eacea.ec.europa.eu/education/eurydice/>).

3. Education policy levers for building growth

Within its wider role of nurturing self-development and responsible, active citizenship, this Monitor has looked at the key outcome of education and training, measured by qualifications and competences, and how its potential of raising employment rates and tackling inequalities is not sufficiently being exploited. The policy levers discussed in this last part of the Monitor can help to make sure that qualifications and competences have a stronger impact in terms of employability for all learners, translating into productivity, innovation and competitiveness.

A first policy lever is to improve the quality of pre-primary and compulsory education. This is a first step to tackle the persistent socio-economic and socio-cultural inequalities in education and training as outlined in Parts 1 and 2, which translate into early school leaving and low achievement in basic competences. In this context it is relevant to recognise high-quality early childhood education and care as an effective early investment to level the playing field for subsequent skills development and to promote excellent education outcomes in general. More broadly, it is important to learn more about the state of the teaching profession, with over 60% of Member States' education budgets devoted to what is widely acknowledged as the most important in-school factor to influence education outcomes. Finally, it is necessary to modernise school education and to profit more from new technologies and their potential to foster more personalised, inclusive and innovative pedagogies.

A second policy lever is to further enhance the level and relevance of vocational education and training (VET) programmes and to sharpen the focus on employability in all types of higher education institutions. Ensuring quality and relevance is all the more essential as graduate employment remains low and basic competences of adults have been shown to vary not only by level of education but also across education and training systems. Better monitoring and forecasting of labour market demand and greater cooperation with employers can increase the relevance of VET and higher education. Closer career guidance and regular graduate tracking surveys to improve feedback from the world of work can help improve the transition to the labour market.

A third policy lever is to improve the role of education and training after initial education. Continued up-skilling and re-skilling should be facilitated, promoted and incentivised. This is not only relevant as a compensation measure for the more than five million early school leavers currently found across Europe, but also for the seventy million adults with lower secondary education attainment at most. Both second chance education and adult learning face the challenge of the *low skills trap*, with those who are in need of it most also the least likely to participate. A better validation and recognition of qualifications and competences is crucial in this context as well, as it increases the transferability of skills obtained through formal, non-formal or informal learning.

3.1. Improving the inclusiveness of early childhood education and care

Lots can be done to target most disadvantaged groups in compulsory schooling and higher education, but it is commonly acknowledged that the most effective – and perhaps most efficient – means to break the cycle of disadvantage is to invest earlier on in the lives of learners. The potential of early childhood education and care (ECEC) to reduce inequalities in education and training early on is illustrated by the 2014 CSRs. Six Member States (AT, BG, CZ, DE, RO, UK) received CSRs to improve the availability of quality ECEC services, with three of

them (AT, BG, CZ) referring explicitly to disadvantaged children, such as those from a migrant background or ethnic minority¹²³.

ECEC, more generally, ensures a strong start for all young learners, providing the right foundation for children's personal development and for education and training later on. Various international skills surveys now confirm the positive effects of having participated in early learning activities before starting primary schooling¹²⁴. Funding available from the ESF and ERDF in the 2014-20 period could make a significant contribution in enhancing access to quality ECEC for all children in Member States¹²⁵.

Current state of play

Participation in ECEC is low for children aged 3 years or younger¹²⁶, but high during one or two years before the start of primary education. The ET 2020 benchmark captures *the early education of children between the age of 4 and the age for starting primary education*, which varies from country to country¹²⁷. Looking at the latest available data from 2012, the EU average stands at 93.9%, close to the ET 2020 target of a 95% ECEC participation rate.

Thirteen Member States have already reached the ET 2020 target (FR, MT, NL, IT, IE, DK, BE, LU, ES, UK, DE, SE, PT). An additional three Member States are getting close to the 95% target while still making progress (SI, AT, LV). EE and HU are fairly close to the target as well, but have not shown significant progress in recent years¹²⁸. The ten remaining Member States are still far away from the ET 2020 target of a 95% ECEC participation rate (HR, FI, EL, SK, CY, PL, LT, RO, CZ, BG). A complementary assessment reveals that there are two main reasons for this underperformance.

The first reason is the earliest age at which ECEC provision is available to children. In seven of the ten underperforming Member States, the ECEC participation rate of 4-year-olds is more than 10 percentage points lower than the ECEC participation rate of those age 5 or over (EL, PL, FI¹²⁹, CY, HR, LT, BG). This ranges from 11.5 percentage points in BG to 41.1 percentage points in EL (see Table 3.1.1). Focusing on the youngest would be a meaningful strategy for these countries¹³⁰.

Underperformance in ECEC participation is due to a lack of focus on younger children and an overreliance on non-professional care

The second reason for underperformance can be seen in informal care. Six of the underperforming countries (RO, PL, EL, CY, HR, LT) are also the countries that record the

¹²³ An additional five Member States (EE, IE, IT, PL, SK) received a CSR to improve the availability of quality ECEC services with the aim to strengthen parental labour market participation.

¹²⁴ See the OECD's PISA 2012 (<http://www.oecd.org/pisa/>) and the IEA's PIRLS 2011 and TIMSS 2011 (<http://www.iea.nl/home.html>).

¹²⁵ Article 3(1)(c)(i) of Regulation (EU) No 1304/2013 on the European Social Fund and Article 5(10) of Regulation (EU) No 1301/2013 on the European Regional Development Fund.

¹²⁶ Childcare for children under the age of 3 is one of the indicators used for the Barcelona objectives set by the European Council in 2002. This *Barcelona target* is one of the additional contextual indicators that can be found online (ec.europa.eu/education/monitor).

¹²⁷ The ET 2020 benchmark definition, however, is narrower than the ECEC definition in many countries, where ECEC can cover both childcare and early education services, and therefore children from the age of 0 to mandatory school age. See COM (2013) 322.

¹²⁸ Between 2008 and 2011, both EE and HU have also seen a *decrease* in ECEC investment (see the additional contextual indicators at ec.europa.eu/education/monitor). However, EE's ECEC investment is showing improvements again and HU is making ECEC participation compulsory, as of September 2015, for all children above the age of 3.

¹²⁹ FI is an exceptional case, with many children attending high quality home-based ECEC, which is not captured by the Eurostat (UOE) indicator. See THL (2011), *Lasten päivähoito 2010: Kuntakyselyn osaraportti* (http://www.stakes.fi/tilastot/tilastotiedotteet/2011/Tr37_11.pdf); and Economist Intelligence Unit (2012), *Starting well: Benchmarking early education across the world* (http://www.lienfoundation.org/pdf/publications/sw_report.pdf).

¹³⁰ With the potential exception of HR, where both children aged 4 and 5+ record ECEC participation rates far below the EU average. Here, the older children (5+) should be a first priority.

highest weekly number of hours alternative care is used for, provided by the extended family, acquaintances, babysitters, etc.¹³¹. Although it facilitates parental labour market participation (a secondary benefit of ECEC, just as well as formal provisions), informal care is not governed by the same quality assurance standards that govern formal ECEC. As shown below, these quality standards comprise e.g. educational guidelines and high education requirements for professional staff. As such, informal care is likely to lack most of the structured early learning exercises that contribute to the positive long-term impacts of ECEC.

Table 3.1.1. Participation rates in early childhood education and care

		2009	2012					
		Total (4+)	Total (4+)	Gender		Age		Age for starting ISCED 1
				Boys	Girls	4	5+	
EU		92.1	93.9	93.9	94.0	91.8	96.1	-
Belgium		99.3	98.0	98.0	98.1	98.1	98.0	6
Bulgaria		84.2	87.1	87.1	87.1	79.5	91.0	7
Czech Republic		90.6	86.1	86.1	86.0	82.3	90.1	6
Denmark		91.9	98.3	98.2	98.4	97.8	98.2	6
Germany		96.0	96.5	96.4	96.7	95.8	97.2	6
Estonia		96.1	90.0	89.9	90.0	88.0	91.0	7
Ireland		73.6	99.1	98.8	99.4	96.9	100.0	6
Greece		68.9 ²⁰⁰⁸	75.2	75.2	75.3	54.5	95.6	6
Spain		98.4	97.4	97.1	97.7	97.0	97.7	6
France		100.0	100.0	100.0	100.0	100.0	100.0	6
Croatia		69.2	71.7	71.9	71.6	58.1	78.4	6
Italy		99.8	99.2	99.9	98.4	98.8	99.6	6
Cyprus		84.7	83.8	83.9	83.6	72.0	95.2	6
Latvia		91.7	93.3	93.1	93.6	87.3	96.6	7
Lithuania		84.3	84.8	85.1	84.4	75.0	89.8	7
Luxembourg		94.6	97.8	97.6	98.1	97.9	97.8	6
Hungary		94.8	94.5	94.5	94.4	93.8	95.1	6
Malta		94.6	100.0	100.0	100.0	100.0	100.0	5
Netherlands		99.5	99.6	99.3	99.9	99.6	99.6	5
Austria		91.3	93.8	93.6	93.9	90.9	96.5	6
Poland		70.9	84.3	84.2	84.4	65.5	94.4	7
Portugal		90.1	95.0	96.6	93.3	91.6	98.3	6
Romania		88.0	85.5	84.7	86.4	82.4	88.6	6
Slovenia		87.7	93.4	93.9	92.9	89.4	92.5	6
Slovakia		77.4	77.1	76.9	77.2	72.8	81.4	6
Finland		71.9	75.1	75.1	75.1	59.3	83.1	7
Sweden		94.7	95.9	95.8	95.9	94.2	96.7	7
United Kingdom		97.3	97.3	97.2	97.4	97.3	96.8	5

Source: Eurostat (UOE). Online data code: *tps00179*. Notes: the indicator captures ECEC participation of children between four years old and the mandatory schooling age, with a breakdown by specific age (4 versus 5+). Intermediate break in time series for MT (2011). Intermediate change in definition for EE (2010), DK (2011) and IE (2011). The age for starting primary education (ISCED 1) follows EACEA/Eurydice (2013), *The structure of the European education systems 2013/14: schematic diagrams* (<http://eacea.ec.europa.eu/education/eurydice/>). It is 5 for UK-ENG, UK-WLS and UK-SCT but 4 for UK-NIR.

Inequalities in ECEC participation

There is hardly any gender gap in ECEC participation, which implies that boys and girls have equal chances for a strong start in education. However, the OECD's PISA 2012 results indicate that disadvantaged students (those from low socio-economic status, poorly educated and immigrant families) are less likely to have attended ECEC for longer than one year (see Figure 3.1.1).

¹³¹ *Informal care* is one of the additional contextual indicators for ECEC (ec.europa.eu/education/monitor).

PIRLS 2011 and TIMSS 2011 data¹³² demonstrate that the beneficial impact of ECEC on reading achievement is stronger for children from families with a low level of education, than for those children who have at least one parent with tertiary level education. It is with this in mind that the importance of ECEC participation amongst the most disadvantaged has been emphasised in three of the 2014 CSRs (AT, BG, CZ).

Figure 3.1.1. Relative ECEC participation of disadvantaged children



Source: OECD (PISA 2012); as referenced in EACEA/Eurydice (2014), *Key Data on Early Childhood Education and Care in Europe* (<http://eacea.ec.europa.eu/education/eurydice>). Note: the Figure depicts ECEC participation of disadvantaged children relative to that of children without this disadvantage (in percentage points). Statistically not significant differences are depicted with grey bars. Low socio-economic status refers to students scoring in the lowest quartile on the PISA index for socio-economic status.

The number of children at risk of poverty across the EU underlines the importance of a universal approach to ECEC and additional targeted strategies for most disadvantaged groups¹³³. Across Europe today, one in four children under the age of 6 is at risk of poverty or social exclusion and

¹³² From the International Association for the Evaluation of Educational Achievement (IEA). See <http://www.iea.nl>.

¹³³ See also the 2013 Commission Recommendation on investing in children (OJ 2013/112/EU); and European Network of Independent Experts on Social Inclusion (2014), *Investing in children: Breaking the cycle of disadvantage. A study of national practices*.

may need specific measures to support their educational needs¹³⁴. This is linked to significant regional differences in ECEC provision and a lack of targeting of families living in remote or rural areas.

Table 3.1.2. Examples of country efforts to increase ECEC quality

	Guarantee to a place in ECEC for min 20 hrs/week (*)			Staff with a minimum of 3 years ISCED 5		CPD (**) professional duty or necessary for promotion		Educational guidelines for the entire ECEC phase	Home-learning guidance or parenting programmes		Targeted support measures: language programmes	
	From birth or soon after childcare leave	From the age of 3	Guarantee for the last 1-2 years of ECEC	Only for older children	For both younger and older children	Only for older children	For both younger and older children		Only for older or younger children	For both younger and older children	Only for older or younger children	For both younger and older children
BE fr		•		•			•	•			•	
BE de		•		•			•				•	
BE nl		•		•			•					
BG			•	•			•		•		•	
CZ			•			•						
DK	•				•			•		•		
DE	•						•	•		•		•
EE	•				•		•	•		•		•
IE						•	•	•		•		
EL			•		•		•	•			•	
ES		•			•		•	•			•	
FR		•			•	•						
HR					•			•				•
IT				•		•						
CY			•	•								
LV			•				•	•				•
LT					•		•	•				•
LU		•		•			•		•			•
HU		•		•			•	•			•	
MT	•					•	•	•	•			•
NL	•	•	•	•	•	•	•	•	•	•	•	•
AT			•				•			•		•
PL			•	•		•				•	•	
PT		•			•		•			•	•	
RO				•			•	•				•
SI	•				•		•	•		•		•
SK						•			•			
FI	•				•		•	•				•
SE	•				•			•				•
UK-ENG				•				•		•		•
UK-WLS				•		•				•	•	
UK-NI				•		•						•
UK-SCT							•	•		•		

Source: EACEA/Eurydice (2014), *Key Data on Early Childhood Education and Care in Europe* (<http://eacea.ec.europa.eu/education/eurydice>). Note: (*) limited to parents who are in employment or education; (**) continuing professional development.

Quality of ECEC provision

Eurydice has documented the quality of ECEC provision in its 2014 publication *Key Data on Early Childhood Education and Care in Europe*. Table 3.1.2 summarises a number of system-level indicators capturing the quality of ECEC provision and its capacity to reach out to disadvantaged families. All Member States apart from IE, HR, IT, LT, RO, SK and UK guarantee a place in ECEC for a minimum of 20 hours per week, although only seven countries do so from birth or soon after leaving childcare (DK, DE, EE, MT, SI, FI, SE).

Similarly, all Member States apart from CZ, DE, IE, LV, MT, AT, SK and UK-SCT demand at least three years of higher education (first stage) from at least one member of staff in centre-based

¹³⁴

About one in two children in BG (51.4 %) and RO (47.4 %) is at risk of poverty or social exclusion. Other countries with considerably higher rates than the EU average are EL, HR, IT, LV, HU and UK, all exceeding 30%. Eurostat (EU-SILC) 2012. Online data code: *ilc_peps01*.

ECEC settings, and all but DK, CY and SE promote continuing professional development. Even educational guidelines apply to the entire ECEC phase in sixteen Member States plus BE fr and UK-SCT. Much less common is targeted support for disadvantaged children. Home-learning guidance, parenting programmes and language support are prevalent in less than half of the Member States.

Key findings and policy relevance

Policy action should better acknowledge the essential role of early childhood education and care (ECEC) in tackling inequalities and raising proficiency in basic competences. ECEC is an effective and an efficient investment in education, as reflected in CSRs to ten Member States (AT, BG, CZ, DE, IE, IT, PL, RO, SK and UK). Although older children in the age bracket are commonly in early education all across Europe, the need to focus on the younger ones remains – and cannot be met by informal, non-professional care only. Moreover, new evidence shows that while ECEC quality is a priority for many Member States, targeted support for disadvantaged families is still not prevalent.

3.2. Attracting, retaining and motivating teachers for better education

When a child enters school, the most crucial driver of qualifications and competences is perhaps a teacher's ability to enable, motivate and inspire students to reach their maximum potential¹³⁵. With over 60% of Member States' public expenditure on education being spent on teacher salaries¹³⁶, strengthening the teaching profession is an indispensable policy lever in tackling early school leaving and raising the key basic and transversal competences of students.

Raising the attractiveness of the profession

Attractiveness captures the capacity of the teaching profession to attract, retain and motivate a qualified workforce for the job. As a policy field, it is significantly gaining momentum. Within the 2014 European Semester, the Council adopted CSRs specifically encouraging CZ and SK to raise the attractiveness of the teaching profession. And according to a 2013 study¹³⁷, only four countries/regions in the EU (EE, IE, LT, UK-SCT) plus NO had a significant targeted policy for making the teaching profession more attractive. Furthermore, few countries seemed to have a system to anticipate shortages of qualified teachers and act accordingly.

The OECD's Teaching and Learning International Survey (TALIS) 2013¹³⁸ reveals that more than 80% of Europe's teachers feel undervalued in society, and this perception is particularly widespread in SK, FR, SE, ES and HR, where less than 10% of the teachers feel appreciated.

¹³⁵ This reflects results of Eurobarometer 417, *European Area of Skills and Qualifications* (http://ec.europa.eu/public_opinion/archives/ebs/ebs_417_en.pdf). Results show that for 65% of EU citizens, the teacher's ability to engage and motivate students is the most important aspect of education, far more than teacher's expertise or subject knowledge.

¹³⁶ Eurostat, 2012, online data code: *gov_a_exp*. General government expenditure by function (COFOG).

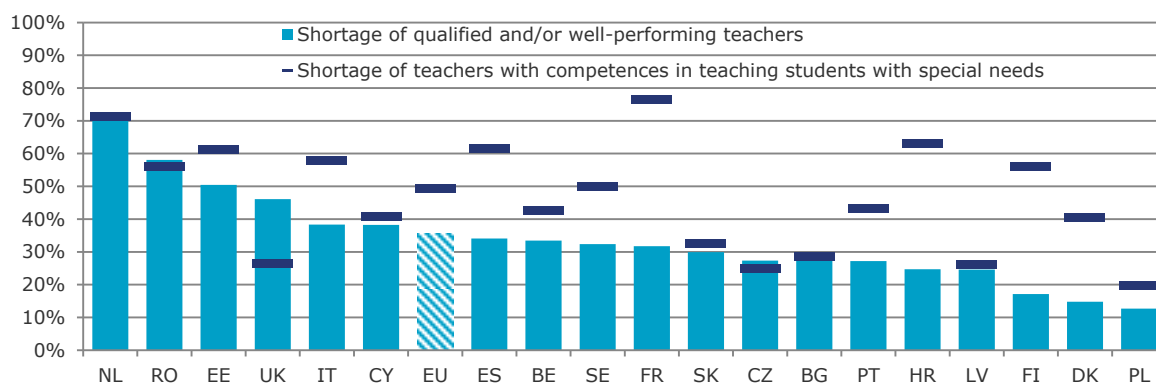
¹³⁷ European Commission (2013), *Study on Policy Measures to improve the Attractiveness of the Teaching Profession in Europe* (http://ec.europa.eu/education/library/study/2013/teaching-profession1_en.pdf).

¹³⁸ TALIS gathered the views of teachers and school leaders at lower secondary schools in 34 countries, including 19 Member States, on teaching practices, working conditions and school environments. For further information, see the Commission's main findings from TALIS, published for the survey's launch (http://ec.europa.eu/education/library/reports/2014/talis_en.pdf).

About 30% of school leaders across the EU also agreed that the value of teaching in society is underestimated¹³⁹.

An attractive profession will have the capacity to select and recruit the best candidates. This is highly needed, as 36% of teachers across the EU work in schools where reported shortages of qualified and/or well-performing teachers affect the offer of quality education negatively (Figure 3.2.1).

Figure 3.2.1. Teacher shortage according to school leader



Source: OECD (TALIS 2013). Notes: BE refers to BE nl only; UK refers to UK-ENG only.

In three EU countries (NL, RO, and EE) half or more of the teachers work in schools with a reported shortage of qualified or well-performing teachers. In only five EU countries (HR, LV, FI, DK and PL) this concerns no more than 25% of the teaching force. A global shortage of qualified teachers has been identified in eleven Member States (AT, BE fr, DK, DE, IT, LU, NL, RO, SI, SK, SE) and in TR¹⁴⁰. The TALIS survey also reveals a significant perceived shortage of teachers with competences in teaching students with special needs. In nine EU countries school leaders report that more than half of all teachers are exposed to such shortages at their own school (more than 70% in NL and FR).

The lack of qualified teachers for disadvantaged schools is of particular concern

School leaders surveyed under PISA 2012¹⁴¹ confirmed that a significant shortage of teachers can be observed in a high number of countries, including LU, NL, DE, BE, IT, and, to a lesser extent, EE. Some countries, for example SE and CZ, display high variation in terms of perceived lack of qualified teachers between advantaged and disadvantaged schools – with nearly all nineteen EU countries in the TALIS survey featuring a higher shortage in disadvantaged than in advantaged schools.

Monetary and non-monetary incentives can contribute to the attractiveness of the teaching profession, but recent evidence shows that teachers' minimum statutory salaries have been directly affected by the economic downturn in the majority of countries¹⁴². In about half of the

¹³⁹ The recently published European Commission *Study on Policy Measures to improve the Attractiveness of the Teaching Profession in Europe* (2014) shows that while in most European countries the teaching profession has lost much of its capacity to attract the best candidates, in some countries (IE, FI, UK-SCT) the best students still very much appreciate it. See: http://ec.europa.eu/education/library/study/2013/teaching-profession1_en.pdf.

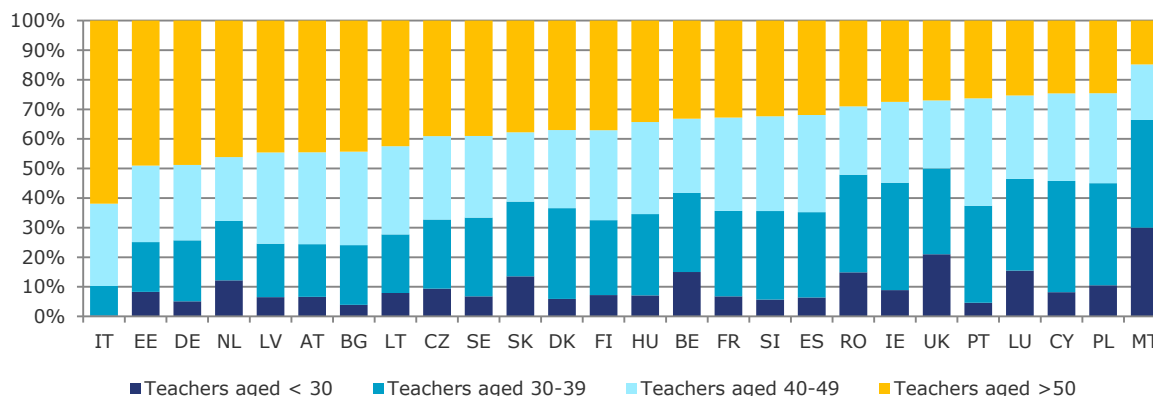
¹⁴⁰ European Commission (2014), *Study on Policy Measures to improve the Attractiveness of the Teaching Profession in Europe* (http://ec.europa.eu/education/library/study/2013/teaching-profession1_en.pdf).

¹⁴¹ OECD (2013), *PISA 2012 Results: What Makes Schools Successful? Resources, Policies and Practices (Volume IV)*.

¹⁴² About half of European countries applied salary cuts or freezes for public employees in 2009-2014 for one or more years and as a consequence teachers saw their purchasing power decrease. For

European countries, teachers' purchasing power in 2014 is still below the 2009 level. In IE, ES, RO SI and IS the decrease were between 13 and 17 %. Not surprisingly, the most significant falls in minimum statutory salaries in real terms are registered in the countries most affected by the economic crisis in recent years. This is the case particularly of EL, the country with the greatest reduction (roughly 40%).

Figure 3.2.2. Age distribution of teachers (2012)



Source: Eurostat (UOE), online data code: *educ_thpertch*. Note: the Figure covers teachers in public and private institutions at ISCED level 2-3. No data for EL and HR.

The problem of attracting the best candidates becomes even more urgent in light of demographic trends across Europe. The most recent data shows that in eight Member States (BG, DE, EE, IT, LT, LV, NL and AT), over 40% of the teachers working in secondary education are over 50 years old (Figure 3.2.2). The phenomenon is particularly evident in BG, AT, PT and SI, with an increase in the number of teachers aged 50+ by more than 50% between 2003 and 2012.

Strengthening initial teacher education and early career support

The May 2014 Council Conclusions on effective teacher education¹⁴³ stress that initial teacher education should focus on the core competences required to deliver high quality teaching, as well as on the motivation to update competences throughout one's career. In addition to subject knowledge, pedagogical competences and practical teaching experience, initial teacher education should also encourage self-reflection, collaborative working, adaptation to multicultural classrooms, and acceptance of leadership roles. In this light, the new ET 2020 Working Group on School Policy (2014-15) will identify Member States' policies that are successful in raising the quality and effectiveness of initial teacher education.

Guidelines on tackling low achievement as a topic in initial teacher education can help strengthen country performance in key basic competences. However, the latest available data from Eurydice, as presented in Section 2.3, reveals that only fifteen Member States have introduced such guidelines for mathematics and eight Member States for reading. A particular emphasis is also to be placed on helping learners to acquire key transversal competences such as digital literacy, entrepreneurship and foreign language competences (see Section 2.4).

Once new teachers start their career, it is crucial to provide them with appropriate personal, social and professional support (induction) for a successful transition into the reality of working life at a school. Systematic induction has critical implications for teachers' subsequent professional commitment and performance, it has the potential to tackle skills deficits in

further details see EACEA/Eurydice (2014), *Teachers' and School Heads' Salaries and Allowances in Europe 2013/2014* (<http://eacea.ec.europa.eu/education/eurydice>).

¹⁴³ Council of the European Union (2014), *Conclusions on effective teacher education* (http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/142690.pdf).

teaching early on, and as a result it helps preventing new and expensively-trained teachers from leaving the profession prematurely¹⁴⁴.

Only around half of all EU teachers state in TALIS that they took part in formal induction at the beginning of their career. While more than 60% of the teachers in UK-ENG, BG, HR and SK report having taken part in formal induction programmes at the beginning of their career, less than 30% of the teachers in DK, EE, FI and SE have done the same. Even if induction is more widely available today, still 38% of school leaders report that no formal induction programme for new teachers is currently offered at their school¹⁴⁵.

Continuing professional development and appraisal systems

In addition to initial teacher education and induction, in-service continuing professional development must be organised in such a way that it helps teachers to continuously improve their practice. While most teachers participate in at least some continuing professional development over a year, in some countries as many as one in four do not do so at all. Both TALIS and Eurydice's Key Data on Teacher and School Leaders¹⁴⁶ confirm that there are still barriers for teachers in participating in continuing professional development. In teachers' views, the greatest barriers to engaging in professional development are conflicts with their work schedule, lack of (monetary or non-monetary) incentives and the costs involved¹⁴⁷.

Teachers report that the areas of most critical need for continuing professional development are special needs education and teaching in a multicultural or multilingual setting, in addition to developing ICT skills for teaching as well as introducing new technologies in the workplace¹⁴⁸. Whereas the first links back to the education inequalities observed in Parts 1 and 2 of the Monitor, the second and third are discussed in Section 3.3.

Teachers require training on special needs education and multicultural settings

Maintaining high professional standards also requires that teachers receive regular, systematic feedback on their daily workings from their school management or other teachers in order to evaluate and improve their own performance. The TALIS data, however, show that such feedback mechanisms are not being systematically used in an effective manner. Almost half of teachers surveyed in TALIS maintain that appraisal of their work is only used in order to fulfil administrative requirements. No less than 43% of teachers express the opinion that current systems of teacher appraisal and feedback have little impact upon the way teachers teach in the classroom.

On average in the EU, only about half of the teachers report having received feedback from the school principal or school management team (Figure 3.2.3). While 41% teachers on average receive feedback from other teachers, the number of them who engage in peer learning and observing each other's classes is lower (29%). In ES, FR, BE nl and PT, over 70% of the teachers do not engage in this type of peer learning. Peer reviewing and mutual class observations are more common in UK-ENG, PL, RO and LV, where only about 20% of teachers never engage in such practices. On average, nearly one in five teachers states never to take part in any form of peer learning at all.

¹⁴⁴ SEC (2010) 538; SEC (2012) 374.

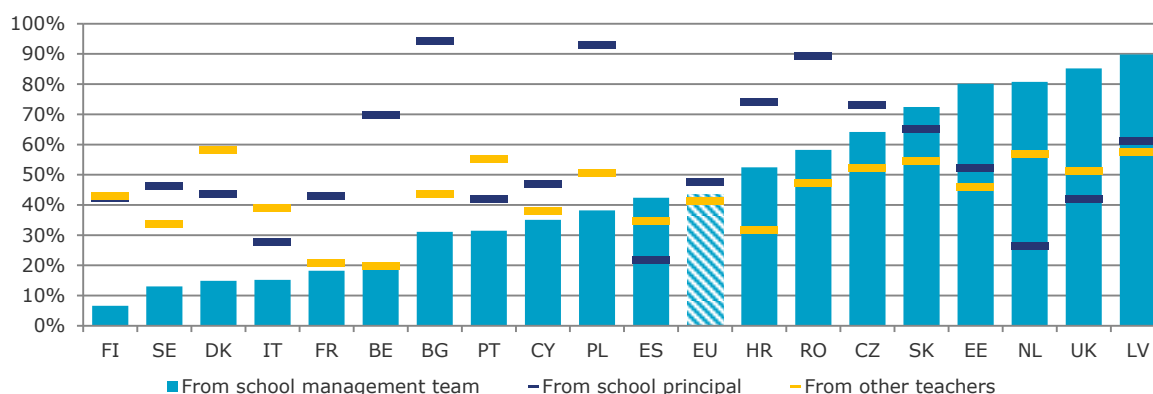
¹⁴⁵ A reason behind this, as was illustrated in Table 2.3.2 in Section 2.3, is that only sixteen Member States systematically offer formal induction programmes to beginning teachers.

¹⁴⁶ EACEA/Eurydice (2013), *Key data on teachers and school leaders in Europe* (http://eacea.ec.europa.eu/education/eurydice/documents/key_data_series/151EN.pdf).

¹⁴⁷ Further research is needed to better understand the barriers to continuing professional development. It links to a broader discussion on changing mind-sets and removing obstacles in the context of lifelong learning (see Section 3.6).

¹⁴⁸ Concerning ICT in particular, the Commission cooperates with Member States through the ET 2020 Working Group on Digital and Online Learning to share practices and expertise on how to promote open education practices, namely through enhancing the ICT training for teachers. The ET 2020 Working Group on Transversal Skills will also focus on the development of a digital competence reference framework which will help teachers identify which skills pupils need in terms of digital competences; in turn, this could be used to support development of ICT training for teachers.

Figure 3.2.3. Teachers' reporting on feedback



Source: OECD (TALIS 2013). Notes: BE refers to BE nl only; UK refers to UK-ENG only. The Figure denotes the percentage of teachers that have reported receiving feedback from the school management team, the school principal or from other teachers.

Key findings and policy relevance

Focussing on the teaching profession should be a priority for the next years. Eleven Member States suffer a shortage of qualified teachers (AT, BE fr, DK, DE, IT, LU, NL, RO, SI, SK, SE), while the lack of qualified teachers for disadvantaged schools is of particular concern. The TALIS results also highlight the need for beginning teachers to have access to formal induction programmes, continuing professional development opportunities, and systematic appraisal mechanisms. A coherent policy framework on teaching should address the attractiveness of the teaching profession and the recruitment, allocation and retention of qualified teachers. Due attention is to be put into devising teacher education programmes that develop the skills needed for teaching to a diverse group of learners.

3.3. Introducing new pedagogies and technologies in education and training

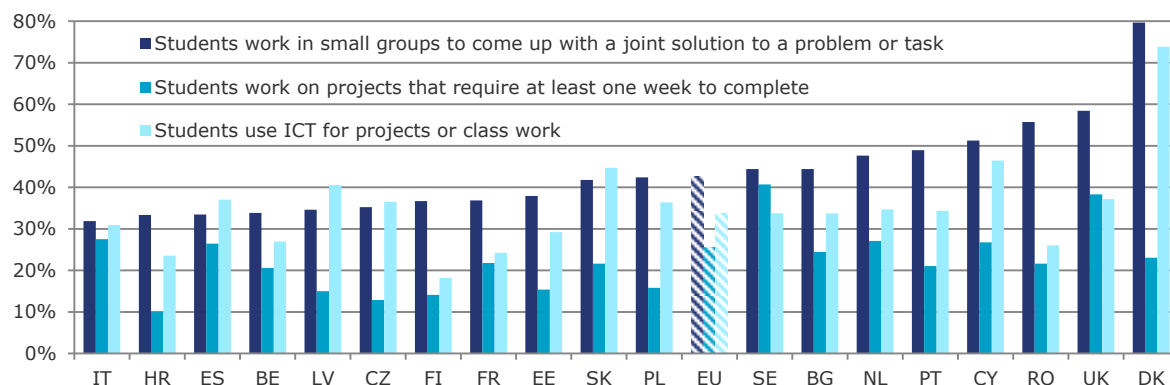
Education and training systems in Europe need to respond effectively to the challenges of equipping citizens with the range and depth of competences required in the context of global competition and interconnectedness, demographic changes and rapid technological developments. To succeed in doing so, it is of key importance that Europe fully exploits the potential offered by pedagogical research and new technologies to foster more personalised, collaborative, creative and innovative methods of learning, and better access to learning resources and learning opportunities. Currently, Europe is not fully exploiting the potential of new technologies, and there is a need for education and training systems to further adapt to the digital era.

Stimulating active teaching practices

Teaching practices that give students a central role in the learning process are often referred to in the literature as *active practices*¹⁴⁹. These active teaching practices promote qualifications and competences that facilitate further learning and academic success and prepare them for society and the labour market. TALIS 2013 (see Section 3.2) provides recent evidence on active teaching practices in lower secondary schools across Europe (Figure 3.3.1).

¹⁴⁹ See a review of the literature in chapter 6 of OECD (2013), *TALIS 2013 Results. An International Perspective on Teaching and Learning* (<http://www.oecd.org/edu/school/talis.htm>).

Figure 3.3.1 Active teaching practices in lower secondary education



Source: OECD (TALIS 2013). Note: the Figure shows the percentage of teachers reporting the use of active teaching practices frequently (in all or nearly all lessons). BE refers to BE nl only; UK refers to UK-ENG only.

In the nineteen participating Member States, 43% of teachers report at least frequent use of practices involving students working in small groups. In contrast, just one out of three teachers report such frequent use of practices involving ICT, and only one in four teachers are frequently using practices involving projects that require at least a week to complete.

Across Europe, there is considerable variation in the use of innovative teaching practices

The effectiveness of active teaching practices for learning largely depends on how they are implemented in the classroom. In the area of science teaching, the way in which ICT is used in lower secondary school in Europe is limited in terms of the level of integration of technologies in lessons¹⁵⁰. More advanced use of computers to conduct experiments or simulations of natural phenomena is far less common than other types of use during lessons, such as looking up ideas and information or practicing skills and procedures.

The use of active learning is related to the subject matter taught. This relationship is particularly clear for mathematics and science teachers, who are on average less likely than teachers in other subjects to report using active learning practices¹⁵¹. Only in IS are maths and science teachers more likely to have students work in small groups than teachers in other subjects. Only in DK and NO are maths and science teachers more likely to actively use ICT than teachers in other subjects.

In general, the use of ICT teaching tools *per se* has not been shown to be of primary importance for improving the outcome of the educational efforts. Preliminary findings of a study launched by the Commission on innovative pedagogies aimed at tackling low achievement in basic competences point out that pedagogical methods that engage students in active learning on their own or in collaboration are more effective. In addition, PISA delivers the message that the overall learning environment, accountability and autonomy are crucial components for promotion of active teaching practices in schools.

Supplying infrastructure and continuing professional development

Evidence from the *European Survey of Schools on ICT in Education* published in 2013¹⁵² shows that only 37% of grade 4 students, 24% of grade 8 students, and around 50% of grade 11

¹⁵⁰ See the IEA's TIMSS 2011 (<http://timss.bc.edu/>); and EACEA/Eurydice (2011), *Key data on Learning and Innovation through ICT at School in Europe 2011* (<http://eacea.ec.europa.eu/education/eurydice/>).

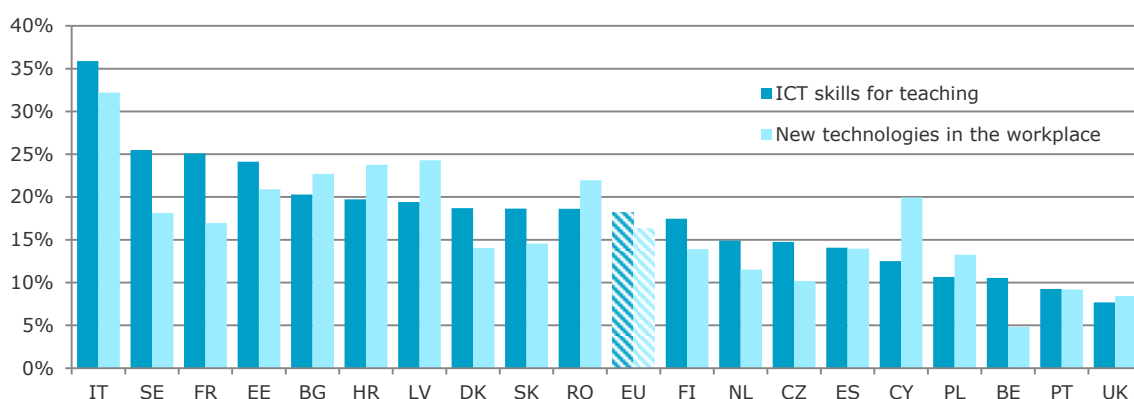
¹⁵¹ OECD (TALIS 2013).

¹⁵² European Commission (2013), *Survey of schools: ICT in education – benchmarking access, use and attitudes to technology* (<https://ec.europa.eu/digital-agenda/sites/digital-agenda/files/KK-31-13-401-EN-N.pdf>).

students attend *highly digitally equipped schools*¹⁵³, with considerable variation across countries. In IT, PL, RO and SK, less than 10% of both grade 4 and grade 8 students attend such schools, compared with more than 75% in the Nordic countries. The evidence suggests that increased policy efforts are still needed, especially in countries lagging behind, to avoid that a lack of solid infrastructure becomes barrier for the pedagogical use of ICT.

A recent JRC-IPTS study shows that stakeholders regard continuing professional development as the most relevant area of policy reform for mainstreaming ICT-enabled innovation in education and training¹⁵⁴. There is, however, an imbalance in the provision and demand for teachers' professional development in the use of ICT for learning. Close to 20% of lower secondary school teachers indicate that they have a high level of need for continuing professional development in the area of ICT skills for teaching and new technologies in the workplace (Figure 3.3.2). The need for such professional development is particularly prevalent in IT (around one third of the teachers), whereas less than one in ten teachers express a similar need in UK-ENG and PT.

Figure 3.3.2. The need for professional development in lower secondary education



Source: OECD (TALIS 2013). Note: the Figure captures the percentage of teachers indicating a high need for professional development as regards two specific domains. BE refers to BE nl only; UK refers to UK-ENG only.

Yet the *European Survey of Schools* shows that teacher training on the pedagogical use of ICT is rarely compulsory. Only around 25% of grade 8 students are taught by teachers for whom such training is compulsory. PL, ES and CY are amongst the countries where compulsory ICT training is less widespread, and are at the same time amongst the countries where relatively few teachers signal a need for continuing professional development linked to ICT skills for teaching. This can indicate a double need of stimulating both the supply and demand for such continuing professional development to strengthen the pedagogical use of ICT in these countries.

Opening up education through technology

In addition to professional development, sharing and collaborating are proven to be successful in changing attitudes and introducing innovative ways of teaching and learning¹⁵⁵. The *eTwinning* online community for teachers and schools allows teachers to develop a collaborative practice by working together with their peers across Europe, and is actively used across Europe, with more than 200,000 registered users and 100,000 schools. Through the *School Education Gateway*, the EU will further develop this successful tool by providing open educational resources and by extending the dialogue to stakeholders in school education.

¹⁵³ Schools with relatively high equipment levels, fast broadband (10mbps or more) and high *connectedness* (e.g. having a website, email, a virtual learning environment and a local area network).

¹⁵⁴ See page 4 of JRC-IPTS (2014), *Mainstreaming ICT-enabled Innovation in Education and Training in Europe* (<http://ftp.jrc.es/EURdoc/JRC83502.pdf>).

¹⁵⁵ See e.g. chapter 4 of European Commission (2013), *Study of the impact of eTwinning on participating pupils, teachers and schools*.

Technological advances resulting in the rapid development of digital distance learning tools such as Massive Open Online Courses (MOOCs) and other Open Educational Resources (OERs) is also presenting higher education and adult learning with new opportunities and challenges. These new channels and tools for learning have the potential of reaching a far larger and more diversified audience than traditional forms of learning, and at a lower cost. They also enable learners to take part in co-creation of knowledge to an extent not previously possible.

Europe now sees a significant growth in MOOCs, but is still lagging behind

For individual learners, online learning offers flexibility both in terms of where they learn and the pace at which they learn. This makes it easier for adult learners, for instance, to combine studies with work (see Section 3.6). The appearance of phenomena like MOOCs is pushing for a globalisation of educational markets, as underlined in the two Communications on *European Higher Education in the World*¹⁵⁶ and *Opening Up Education*¹⁵⁷. Even if the growth in MOOCs offered by European learning institutions is rapid, Europe is currently lagging behind compared with the growth rate of MOOCs provided by non-EU institutions¹⁵⁸.

It is clear that a key challenge to fully reap the benefits of online learning and OER is to find comparable and transparent ways to assess and validate their learning outcomes. Development of and support for new recognition and certification tools (e.g. open badges) are amongst relevant actions to build a bridge from non-formal and informal online learning to formal qualifications and recognition on the labour market. This issue is further explored in Section 3.7.

Key findings and policy relevance

Combining innovative pedagogies with an effective use of digital tools and content will boost education in terms of quality, equity and efficiency. The most effective teaching methods place students at the centre of the learning process. Digital tools are often involved in such active teaching practices, yet only one out of three teachers in the EU reports frequent use of practices involving ICT. Close to 20% of lower secondary school teachers indicate that they have a high need for continuing professional development in the area of ICT skills for teaching and new technologies in the workplace. Meanwhile, MOOCs are becoming more prevalent, but Europe is still lagging behind. This is a policy priority, as MOOCs and Open Educational Resources have the potential of reaching a far larger and more diversified audience than traditional forms of learning, and at a lower cost.

3.4. Boosting the quality and relevance of higher education

The employment rate of higher education graduates has decreased since 2008 (see Section 1.2) – and although a clear employment advantage over those with lower qualifications still exists, an estimated 25% of employed higher education graduates (20 to 34 year-olds) have jobs which would not have traditionally required a third-level qualification¹⁵⁹. At the same time, the labour market demand for highly skilled people is predicted to grow by a further 13% by 2020¹⁶⁰. The ET 2020 benchmark on graduate employment is, in part, intended to prioritise issues of youth unemployment, skills bottlenecks and skill mismatch in the higher education sector.

¹⁵⁶ COM (2013) 499.

¹⁵⁷ COM (2013) 654.

¹⁵⁸ For the latest data, see: http://openeducationeuropa.eu/en/european_scoreboard_moocs.

¹⁵⁹ See Section 1.2 for more information and disclaimers about this particular indicator.

¹⁶⁰ Based on the Cedefop skills forecast published in March 2014 (www.cedefop.europa.eu).

The discussion on employability partly revolves around the quality and relevance of higher education. Quality of higher education is not easily captured, let alone compared reliably across education and training systems. Yet the OECD's Survey of Adult Skills (PIAAC) revealed that having a tertiary education qualification does not avoid low achievement in literacy and numeracy to the same extent across the different participating countries (see Section 2.3). And when it comes to relevance, the types of qualifications and competences with which individuals leave education and training systems are at times found to be in disconnect with labour market needs¹⁶¹.

Governments and higher education institutions (HEIs) can implement policies to prepare students better for the transition from education to work, including through better guidance and career counselling, a greater focus on skills development as part of all third-level programmes¹⁶², increased opportunities for gaining quality work experience and promoting international learning mobility as a means to acquire relevant skills and experience.

Within the 2014 European Semester, the Council has adopted CSRs on the quality and relevance of higher education programmes (BG, CZ, ES, IT, LV, RO), as well as on the link with business and research (EE, ES, SK). Funding available from the ESF and ERDF in the 2014-20 period can be used in an effective way to improve the quality and labour market relevance of higher education.

Focusing on quality for students

Providing teachers and professors with the right competences, as well as monitoring HEIs over time, are central elements underpinning the supply of quality assurance for students. Much like in compulsory education (see Section 3.2), good teachers have repeatedly been shown to be the most important in-school factor for providing quality education.

Teachers in higher education do not always have solid pedagogical competences

At tertiary level, the attention devoted to good teaching practices has traditionally been given less importance than the R&D performance of HEIs¹⁶³. While pedagogical training for teachers in school education and at upper secondary level is compulsory, academic personnel teaching in university are normally recruited on the basis of their research qualifications, and the discourse on teaching practices receives less institutional attention.

In 2013, the EU's High Level Group on the Modernisation of Higher Education published sixteen recommendations for improving quality in teaching and learning in HEIs, accompanied by a checklist for the essential dimensions of teaching quality¹⁶⁴. This report was developed as part of a package to make both HEIs and students better prepared for a globalised world. Importantly, recommendations included that all HEIs staff should by 2020 have received certified pedagogical training, and that continuing professional development should be made compulsory. Teaching capabilities, moreover, should be part of recruitment, progression and promotion criteria.

¹⁶¹ European Commission (2013), *The employability of higher education graduates: The employers' perspective* (http://ec.europa.eu/education/library/study/2013/employability_en.pdf).

¹⁶² To specifically increase the employability of doctorate holders outside academia, an increasing number of institutions in Europe tend to enrich the basic training of the students by reflecting the *Salzburg principles* of the European Universities Association which the Council endorsed in 2011 (http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/educ/126375.pdf). These principles include notably the exposure of students to non-academic sectors, an international experience and the provision of interdisciplinary and transversal competences. See European Commission (2011), *Exploration of the implementation of the principles for innovative doctoral training in Europe: Final report* (http://ec.europa.eu/euraxess/pdf/research_policies/IDT%20Final%20Report%20FINAL.pdf).

¹⁶³ High Level Group on the Modernisation of Higher Education (2013), *Report to the European Commission on improving the quality of teaching and learning in Europe's higher education institutions* (http://ec.europa.eu/education/library/reports/modernisation_en.pdf).

¹⁶⁴ See http://ec.europa.eu/education/library/reports/modernisation_en.pdf.

International and domestic rankings of higher education institutions are increasingly used to judge the "quality" of institutions. However, many existing rankings focus on indicators in the field of research, not meaningfully capturing the quality of the learning experience or the wider performance of institutions. The *U-Multirank*¹⁶⁵, launched for the first time in May 2014, is a new ranking tool that seeks to overcome many of these limitations by including a broader range of indicators of performance. In its first version, the tool covers data from more than 850 HEIs with over 1,000 faculties and 5,000 study programmes.

Encouraging international learning mobility in higher education

The Commission has a long record of promoting and supporting learning mobility across Europe as another way to help individuals gain valuable skills and experience to improve their subsequent employment prospects¹⁶⁶. The *Erasmus+* programme¹⁶⁷ allows for a much larger pool of students to benefit from an EU grant to cross borders and attend education programmes or undertake work placements in another country.

The Council has committed to an ET 2020 benchmark on learning mobility, stating that at least 20% of higher education graduates should have had a period of study or training abroad¹⁶⁸. Official statistics on learning mobility are gradually improving and the first indications show that the benchmark levels have not yet been achieved. On average, around 7% of students enrolled are mobile students who intend to obtain a *degree* from a HEI in a country different from the one where they obtained their upper secondary qualification¹⁶⁹. In contrast, most of the student mobility funded by the EU is designed as *credit* mobility. This means that students go abroad to follow programmes or undertake placements of their choice and as a result of their work receive credits that will count towards their final qualification in the home country.

Additional data¹⁷⁰ show, firstly, that the balance between incoming and outgoing students differ significantly according to Member State. Countries such as AT, CZ, DK, NL and particularly UK receive significantly more students from abroad than they send away. Only IT, FI and SI currently succeed in balancing their incoming versus outgoing students. Secondly, a few stable relationships between origin and destination countries are visible through the student flows between IE and UK; EL and CY; AT and DE (and CH); and CZ and SK¹⁷¹.

The Council Recommendation on promoting the learning mobility of young people¹⁷² commits Member States to removing obstacles. These obstacles can be financial or administrative and can have something to do, for instance, with recognition of diplomas, language proficiency or a simple lack of information and guidance about the possibilities. Eurydice has developed a *scoreboard* to track each country's efforts to promote student mobility in higher education and to eliminate its obstacles¹⁷³. This scoreboard covers the portability of funds and the use of

¹⁶⁵ The on-line *U-Multirank* tool allows for selecting institutions based on five dimensions: (1) teaching and learning, (2) research, (3) knowledge transfer, (4) international orientation and (5) regional engagement. For every dimension, universities are ranked according to five different performance levels, ranging from *very good* to *weak*. See http://ec.europa.eu/education/tools/u-multirank_en.htm.

¹⁶⁶ See JRC-CRELL (2013), *Does student mobility during higher education pay? Evidence from 16 European countries* (<https://crell.jrc.ec.europa.eu>); and European Commission (2014), *The Erasmus impact study: Effects of mobility on the skills and employability of students and the internationalisation of higher education institutions* (http://ec.europa.eu/education/library/study/2014/erasmus-impact_en.pdf).

¹⁶⁷ See <http://ec.europa.eu/programmes/erasmus-plus/>.

¹⁶⁸ The ET 2020 benchmark has a VET component as well, which says that an EU average of at least 6% of VET graduates should have had a study or training abroad (including work placements).

¹⁶⁹ Eurostat (UOE), online data codes *educ_momo_gen* and *educ_mofa_gen*.

¹⁷⁰ European Commission (forthcoming), *The European Higher Education Area in 2012: Bologna Process Implementation report*. This report is being prepared by Eurydice with the cooperation of Eurostat and Eurostudent for the Yerevan Ministerial Conference to take place 14-15 May 2015.

¹⁷¹ Also see indicator C4 in OECD (2014), *Education at a Glance 2014* (<http://www.oecd.org/edu/eag.htm>) for analysis on international learning mobility.

¹⁷² OJ 2011/C 199/01.

¹⁷³ EACEA/Eurydice (2013), *Towards a mobility scoreboard: Conditions for learning abroad in Europe* (<http://eacea.ec.europa.eu/education/eurydice/>).

recognition tools, but also indicators such as guidance, foreign language preparation and conditions for disadvantaged learners.

Table 3.4.1. Provisions to strengthen graduate employability in higher education

	Regular Labour Market Forecasting	Required involvement of employers in planning and decision making bodies	Required involvement of employers in external QA	Regular Graduate tracking surveys	Career guidance at HEIs for all students
BE fr	•	•	•	•	•
BE de		•	•		
BE nl		•			•
BG		•	•		•
CZ					
DK			•	•	•
DE			•	•	
EE	•		•		•
IE	•			•	•
EL	•		•		•
ES	•	•			•
FR	•	•	•	•	•
HR				•	
IT	•				•
CY	•		•		•
LV	•	•	•		
LT		•			•
LU	:	:	:	:	:
HU				•	•
MT					•
NL	:	:	:	:	:
AT	•	•	•	•	•
PL			•	•	•
PT		•	•		•
RO	•				•
SI		•	•		•
SK					•
FI	•	•		•	•
SE	•	•	•	•	•
UK	•			•	•
UK-SCT	•		•	•	•

Source: EACEA/Eurydice (2014), *Modernisation of Higher Education in Europe: Access, Retention and Employability* (<http://eacea.ec.europa.eu/education/eurydice>). Note: ":" = data not available.

Countries have different traditions for making student grants and loans portable when their students travel abroad to study. Evidence shows that many Central and Eastern European countries do not allow grants to be transferred with the student to another study country, whereas most Western European and Nordic countries give this possibility for both degree and credit mobile students. Likewise, several countries differentiate between paying grants for students during a credit mobility period as opposed to degree mobility. Therefore, especially in Southern and Eastern Europe, the students or their families are expected to finance themselves if they choose to study away from their home country. Many of these countries also have low student mobility figures, particularly for degree mobility¹⁷⁴.

Country efforts to strengthen graduate employability

As can be seen in Table 3.4.1, students have the possibility to consult career guidance service throughout the whole student lifecycle in the vast majority of Member States. However, data on the proportion of students using such services are not available. It is known that career

¹⁷⁴ See Table 4.3 of the Education and Training Monitor 2013.

guidance is not always based on regular labour market forecasting or regular graduate tracking surveys, which are both conducted only in about half of the Member States.

Regular labour market forecasting and graduate tracking surveys are conducted only in half of the Member States

The involvement of employers in tertiary education is another means to help adjust curricula, qualifications and competences to continuously changing labour market demands, thereby tackling subsequent skill mismatches and bottlenecks. The assumption is that the closer employers cooperate with tertiary education, the more they can help ensure that students acquire skills, knowledge and experience that are better sensitised to the needs of the modern labour market once they qualify.

Only in BE, BG, ES, FR, LV, LT, AT, PT, SI, FI and SE are employers prescribed by law to be involved in planning and management with decision-making or consultative bodies. Additional data reveals that the involvement of employers in curriculum development is only required in six Member States (DK, LV, LT, IT, BG, FR) and their involvement in teaching only in five (DK, LV, IT, BG, FR)¹⁷⁵. Finally, as can be seen in Table 3.4.1, the required involvement of employers in external quality assurance is somewhat more prevalent.

Key findings and policy relevance

In higher education, increasing the quality and relevance of qualifications and competences is a critical priority. Ten Member States received a CSR on higher education (AT, BG, CZ, EE, ES, HU, IT, LV, RO and SK). Higher education institutions should pay particular attention to the pedagogical competences and continued professional development of their teaching staff. International learning mobility and the involvement of employers in the development and quality assurance of programmes can be helpful in boosting graduate employability. Regular labour market forecasting and graduate tracking surveys, fed back into career guidance for higher education students, can help prevent skill mismatches and bottlenecks in the labour market.

3.5. Strengthening the offer of high-quality vocational education and training

High-quality vocational education and training (VET) is key to lowering youth unemployment and facilitating the transition to the labour market. Evidence shows that within the group of graduates from upper secondary education, graduates from VET programmes have better employment prospects¹⁷⁶. Positive effects on both employability and skills are found to be particularly strong in countries with well-developed traditions of VET and work-based learning, such as DE, AT and CZ.

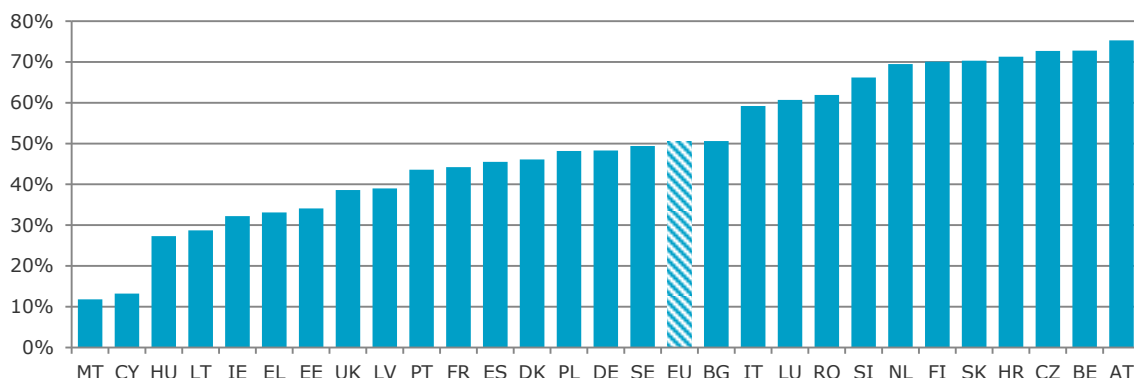
Within the 2014 European Semester, the Council has adopted CSRs to the majority of Member States on VET reform and work-based learning (notably apprenticeships, which combine school-based learning with on-the-job learning). VET was the subject of no fewer than twenty-two CSRs, eight of which explicitly referring to the Youth Guarantee (BG, ES, HR, IE, IT, PL, PT and SK). Funding available from the ESF in the 2014-20 period can make a major contribution in strengthening the offer of high-quality VET in Member States¹⁷⁷.

¹⁷⁵ In practice, the involvement of employers is much more widespread than what is prescribed by law. Furthermore, as far as FR is concerned, the required involvement of employers only applies to technical and professional higher education.

¹⁷⁶ Cedefop (2012), *From education to working life: the labour market outcomes of vocational education and training* (<http://www.cedefop.europa.eu/EN/publications/21556.aspx>).

¹⁷⁷ Such measures could be supported under the investment priority: "Improving the labour market relevance of education and training systems, facilitating the transition from education to work, and

Figure 3.5.1. Upper secondary students enrolled in VET programmes (2012)



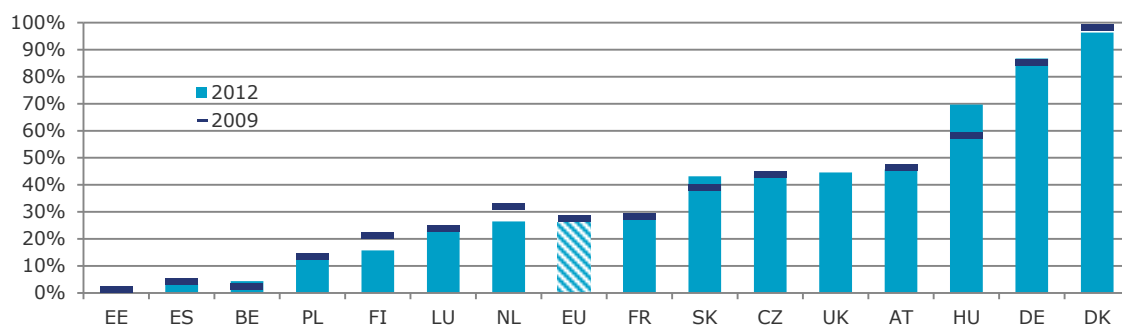
Source: Eurostat (online data code: *educ_ipart_s*).

About half of upper secondary students across Europe are in VET programmes, the other half following general programmes. The share of VET students in upper secondary education is below 30% in MT, CY, HU and LT – and above 70% in AT, BE, CZ and HR (Figure 3.5.1).

However, despite their advantages as a way of aligning VET to labour market needs, apprenticeships remain underused. In DK, almost all initial VET students at the upper secondary level are in some form of combined school- and work-based learning (Figure 3.5.2). In DE, the proportion is also very high, whereas in AT and UK the figure is just about 45%. FR and NL with around 27% of initial VET students combining school- and work-based learning are both close to the EU average (26.5%). BE, despite having a high proportion of vocational students enrolled in upper secondary education, has only 4.3% combining school- and work-based learning.

About half of upper secondary students are enrolled in VET programmes, but only 27% of them are in combined school- and work-based learning programmes

Figure 3.5.2. Students in work-based upper secondary VET as a percentage of all students in upper secondary VET



Source: Cedefop calculations based on Eurostat data (UOE). Notes: EU figure depicts weighted average of available country data. UK data is missing before 2012.

With an estimated 48% of jobs requiring medium level qualifications by 2020¹⁷⁸ and the imminent retirement of many older workers with medium level qualifications looming, policy makers across the EU have directed their attention towards raising the attractiveness of VET

strengthening vocational education and training systems and their quality, including through mechanisms for skills anticipation, adaptation of curricula and the establishment and development of work-based learning systems, including dual learning systems and apprenticeship schemes". See Article 3(1)(c)(iv) of Regulation (EU) No 1304/2013 on the European Social Fund.

Based on the Cedefop skills forecast published in March 2014 (www.cedefop.europa.eu).

¹⁷⁸

and apprenticeships¹⁷⁹. There is increasing pressure of VET to be seen as a promising alternative route to general upper secondary and higher education.

Raising the attractiveness of vocational education and training

The perceived benefits and reputation of VET largely drive its attractiveness. Exogenous demand drivers, such as the composition and strength of the labour market and expenditure on vocational education, are important in raising attractiveness, as are wider societal factors such as the views of family members, perceptions about the quality of VET, and norms within countries¹⁸⁰.

The labour market relevance of VET is likely to be one of the most important influences on student decision-making, alongside personal interest in the subject. Perceptions about the likelihood of finding employment after completing initial VET are found to be correlated with its relative attractiveness. Furthermore, there is scope for campaign and communication efforts as well as for “taster” opportunities, exposing students to initial VET at the lower secondary level. Finally, short-term courses, which can then be extended, could also be useful in increasing student engagement in initial VET.

For several years, European countries have worked to make VET a more attractive learning option. They have agreed to set up national common quality assurance frameworks for VET providers by 2015, which will also include work-based learning. They have also committed themselves to increasing numbers of young learners in apprenticeships¹⁸¹.

The Commission supports Member States in implementing VET reforms through the so-called Copenhagen process. In the specific area of work-based learning, the *European Alliance for Apprenticeships* brings together all key stakeholders, with the aim of increasing both the supply and the quality of apprenticeships across Europe. The Youth Guarantee, as mentioned in Section 1.2, ensures that all young people under the age of 25 years receive a good-quality offer of employment, continued education, an apprenticeship or a traineeship within a period of four months after leaving formal education or becoming unemployed. At present, all Member States have presented national Youth Guarantee Implementation Plans, and the implementation itself is underway¹⁸².

Main actors ensuring quality in VET and success of VET reforms are VET teachers and trainers. The Commission and Cedefop supported the work on the competence development of VET trainers through a Thematic Working Group, which formulated guiding principles and action points, illustrated by concrete examples of practice from Member States¹⁸³. Those are mainly addressed to education and training policy- and decision-makers and can be further translated into actions for all involved stakeholders, depending on the national situations and contexts.

A recent report of the Commission shows that the European quality assurance reference framework for vocational education (EQAVET) has helped developing a quality culture, by offering a set of tools to build and monitor quality assurance systems, including online guidance, and encouraging the sharing of experience and best practice¹⁸⁴. However, the report also indicates that quality assurance needs to be made more transparent, and that there is a need to

¹⁷⁹ The views of EU citizens on VET were captured in: European Commission (2011), *Attitudes towards vocational education and training: Special Eurobarometer No 369* (http://ec.europa.eu/public_opinion/archives/ebs/ebs_369_en.pdf).

¹⁸⁰ Cedefop (2014), *Attractiveness of initial vocational education and training: identifying what matters. Research paper No 39* (http://www.cedefop.europa.eu/EN/Files/5539_en.pdf).

¹⁸¹ See the 2010 Bruges Communiqué, which set the modernisation agenda in VET up to 2020, including making work-based learning a feature of all initial VET courses (http://ec.europa.eu/education/policy/vocational-policy/doc/brugescom_en.pdf); and Cedefop (2014), *Developing apprenticeships* (<http://www.cedefop.europa.eu/EN/publications/23915.aspx>).

¹⁸² For more information on the Youth Guarantee and the Youth Employment Initiative (YEI), see: ec.europa.eu/social/youthguarantee.

¹⁸³ Cedefop (2014), *Guiding principles on professional development of trainers in vocational education and training* (www.cedefop.europa.eu).

¹⁸⁴ See COM (2014) 30 and www.eqavet.eu.

build a culture of trust by coordinating with other quality assurance initiatives and with instruments for transparency and recognition of qualifications.

Country efforts to strengthen VET graduate employability

Recent data from Cedefop captures a number of different provisions to strengthen employability in VET¹⁸⁵. Table 3.5.1 selects and simplifies two dimensions of such provisions – the cooperation between VET institutions and enterprises and feedback on the employability of VET graduates. While country performance as regards these broad categorisations needs to be interpreted with caution, some interesting patterns do indeed emerge.

Table 3.5.1. Provisions to strengthen graduate employability in VET

	Cooperation between VET institutions and enterprises		Feedback on the employability of VET graduates		
	Strategy to foster VET enterprise cooperation to ensure quality and relevance	Measures encouraging staff exchange between enterprises and VET providers	Data collection on VET graduate employability	VET institutions taking account of employability data	Legislation allowing to combine data on learning, labour market entry and career
BE nl	•	•	•		
BE fr	•	•	•		•
BE de	•	•	•	•	•
BG	•		•		•
CZ	•	•	•		
DK	•	•		•	•
DE	•	•	•	•	•
EE	•	•	•	•	
IE		•	•	•	
EL		•			
ES	•	•	•		
FR	•	•	•	•	•
HR	•				•
IT	•		•		
CY	•	•	•		
LV	•		•		
LT	•	•	•	•	•
LU	•	•			•
HU			•	•	
MT	•	•	•		
NL	•	•	•	•	•
AT	•	•	•	•	
PL		•			
PT	•	•	•		
RO	•	•	•	•	•
SI	•	•	•		
SK					
FI	•	•	•		•
SE	•	•	•	•	•
UK-ENG	•		•	•	
UK-WLS	•	•	•	•	•
UK-SCT	•		•	•	•
UK-NIR	•			•	•

Source: Cedefop (forthcoming), *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-2014* (<http://www.cedefop.europa.eu/>). Notes: measures encouraging staff exchange between enterprises and VET providers can also include VET teacher development including enterprise traineeships. As Cedefop's monitoring focuses on national level VET policies and measures, as defined in the 2010 Bruges Communiqué (http://ec.europa.eu/education/policy/vocational-policy/doc/brugescom_en.pdf), initiatives at regional or local level have not systematically been captured.

¹⁸⁵ Cedefop (forthcoming), *Stronger VET for better lives: Cedefop's monitoring report on vocational education and training policies 2010-2014* (<http://www.cedefop.europa.eu/>).

Cooperation between VET institutions and enterprises to ensure quality and relevance seems prevalent across Europe. All Member States either have a strategy in place to foster cooperation between VET and businesses or, in the case of IE, EL, HU, PL and SK, are in the process of implementing such strategies¹⁸⁶. Almost as common is staff exchange between VET providers and enterprises and training for VET teachers in enterprises¹⁸⁷. Only IT, HU, SK, UK-SCT and UK-NIR show no such measures, whereas BG, HR, LV and UK-ENG are in the process of implementing them.

Feeding back employability data into VET programmes is not prevalent across Europe

While the majority of Member States collects data on VET graduate employability and other labour market outcomes (and DK, EL, HR, LU, SK and UK-NIR is in the process of implementing such data collection)¹⁸⁸, the actual use of such data for VET provision is less common, possibly due to legal limitations¹⁸⁹. The underlying Cedefop data shows that legislation allowing combining data on learning, labour market entry and career exists in only half of the countries.

Key findings and policy relevance

VET, work-based learning and apprenticeships play a key role in tackling youth unemployment and facilitating the transition to the labour market, by linking more closely the worlds of education and work. This was the subject of no fewer than twenty-two CSRs in 2014, eight of which explicitly referring to the Youth Guarantee (BG, ES, HR, IE, IT, PL, PT and SK). About half of upper secondary students across Europe follow vocational education and training (VET) programmes and around 27% of them are in combined school- and work-based learning programmes, including apprenticeships. Key challenges lie in raising the attractiveness of VET through improving its quality and relevance, particularly by feeding employability data back into VET programmes.

3.6. Facilitating lifelong learning after initial education

Around seventy million adults across Europe have lower secondary education attainment at most, i.e. the equivalent qualification level of an early school leaver. Building sustainable, inclusive growth and facing rapid population ageing means that Europe will not only have to fully exploit the talent pool among its school-age population, but also among its working-age population. The opportunities for re-skilling and up-skilling are an indispensable policy lever in this regard. Linking the worlds of education and work after all means that those having finished their initial education – successfully or unsuccessfully – should be able to find their way back to formal, non-formal or informal learning.

¹⁸⁶ Cooperation strategies should be interpreted broadly. Some countries do not have explicit strategies for cooperation in place, but have a tradition for doing so, address this in strategies in other domains or have arrangements or take measures that have a clear strategic component.

¹⁸⁷ The information reported under staff exchange between VET providers and enterprises (and establishing training for VET teachers in enterprises) can refer to different types of measures. While some countries have worked towards systemic and sustainable measures, others have used project-based approaches.

¹⁸⁸ The way the data is presented does not reflect the wide variety in terms of approaches, coverage and methodology for VET graduate data collection. In some countries, comprehensive VET monitoring systems with secure funding have been established, while in others, the approaches have been more project-based or have taken the form of one-off studies.

¹⁸⁹ The way the collected data is used for feedback to VET provision differs greatly between countries. In some, the feedback links are strong (for instance embedded in legislation or regulation), while in others, more ad-hoc approaches are used.

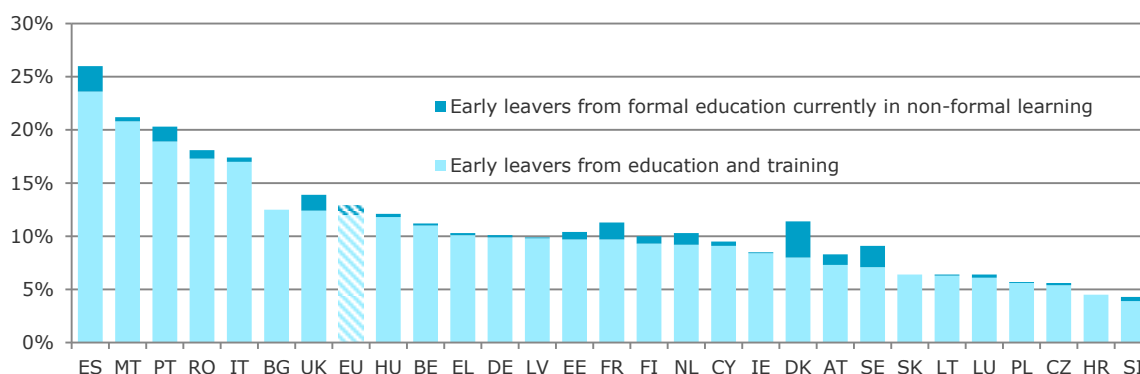
As part of the 2014 European Semester, the Council adopted eleven CSRs regarding continued learning for adults after initial education and training (BG, EE, ES, FR, IE, LT, LU, PL, RO, SE, SK). The overarching Communication *Building Growth* stresses explicitly that education and training systems should contribute to the upgrading of the human capital of older workers, with a view to achieving longer and more productive working lives¹⁹⁰. Continued learning is, moreover, crucial for personal development, maintaining active citizenship and preventing social exclusion. The ESF will provide substantial amounts of funding to enhance participation in adult learning¹⁹¹.

Second chance education for early school leavers

For the population without an upper secondary degree, particularly those below the age of 25, providing continued learning opportunities after the end of initial education is a growingly important part of the education and training system. This *second chance education* is the cornerstone of compensation measures in the context of early school leaving¹⁹². Too many young people leave education and training prematurely, before achieving upper secondary qualification. Second chance education in Europe is often successful in helping young people by taking a different approach to learning.

Cross-national evidence on second chance education is, however, limited. For those 18 to 24 year-olds with lower secondary education at most who are currently participating in formal education, learning activities could either be part of their initial education or indeed of second chance education¹⁹³, assuming that they have found their way back to formal education after having left it unsuccessfully at an earlier stage.

Figure 3.6.1. Non-formal learning and early school leaving (2013)



Source: Eurostat (LFS). Online data code: *edat_lfse_14* and *edat_lfse_15*.

Non-formal learning for early school leavers is virtually non-existent

Non-formal learning, however, is also part of second chance education. Figure 3.6.1 illustrates the early leavers from formal education across Europe. Some of them have

¹⁹⁰ COM (2014) 400.

¹⁹¹ See the investment priority on "Enhancing equal access to lifelong learning for all age groups in formal, non-formal and informal settings, upgrading the knowledge, skills and competences of the workforce, and promoting flexible learning pathways including through career guidance and validation of acquired competences" (Article 3(1)(c)(iii) of Regulation (EU) No 1304/2013 on the European Social Fund).

¹⁹² There is, however, evidence that prevention of early school leaving shows better results than compensating the negative effects of early school leaving. See COM (2011) 18 and OJ 2011/C 191/01.

¹⁹³ See also European Commission (2014), *Preventing early school leaving: Lessons learned from second chance education* (http://ec.europa.eu/education/news/2014/20140410-study-second-chance-education_en.htm).

left formal education but are now participating in non-formal learning. The Figure shows how non-formal second chance education remains unexploited.

On average across the EU, less than 1% of 18 to 24 year-olds is currently participating in non-formal learning after having left formal education without upper secondary qualifications. This share tops 2% only in DK (3.4%), ES (2.4%) plus IS (2.5%; see Annex).

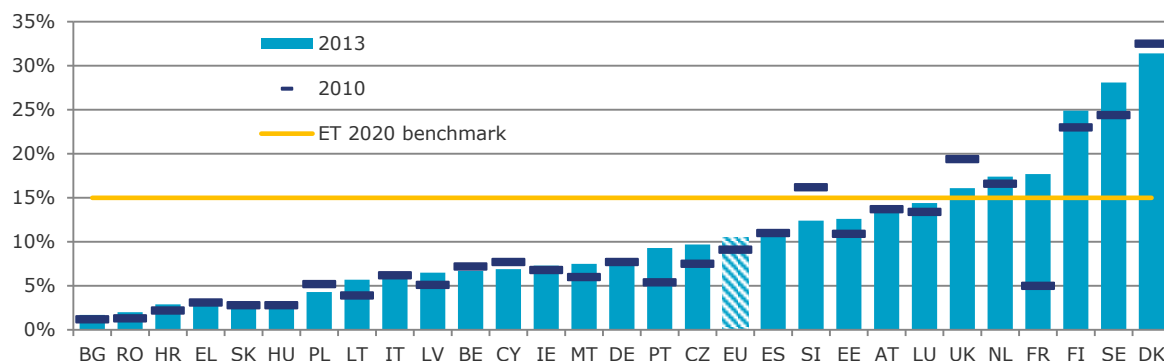
Non-formal learning has potential of up-skilling and re-skilling for those young individuals leaving formal education without successfully finishing upper secondary level (early school leavers) and for those young individuals neither in employment, nor in education and training (NEETs). It could even be a bridge back to formal education.

Adult participation in lifelong learning

Adult learning is captured by an ET 2020 benchmark that aims for 15% of 25 to 64 year-olds to participate in formal or non-formal learning by 2020. Progress towards the 15% target has been unsatisfactory in recent years. In 2013, the EU recorded a participation of 10.5%, which is 1.4 percentage points more than in 2010 (Figure 3.6.2)¹⁹⁴, after about a decade of small fluctuations around the 9%. Current rates of adult participation in lifelong learning are below 10% in no less than seventeen Member States and only six Member States have actually exceeded the ET 2020 target (DK, SE, FI, FR, NL and UK).

About 70% of learning activities across the EU are non-formal¹⁹⁵. Furthermore, adult participation in lifelong learning is on average more prevalent amongst women than it is amongst men. This is the case in all Member States apart from RO, EL, DE and CZ (Table 3.6.1) and the gap is particularly large in DK and SE, where it is greater than 10 percentage points.

Figure 3.6.2. Adult participation in lifelong learning (2013)



Source: Eurostat (LFS). Online data code: *trng_lfs_13*. Note: The indicator captures the participation rate in formal and non-formal education and training (last four weeks) of 25 to 64 year-olds.

The Adult Education Survey (AES), most recent data of which refer to 2011, shows that about 40% of adults across Europe take part in adult learning at least once per year¹⁹⁶. Almost all adult learning recorded by the AES is job-related, with employees participating the most and two-thirds of job-related learning sponsored by the employer¹⁹⁷. Company training, a major

¹⁹⁴ It must be highlighted that the indicator records a break in time series in 2013 due to a change in the methodology adopted by FR in measuring adult learning. This methodological change accounts for most of the increase for FR (and, in turn, for the EU).

¹⁹⁵ Adult education and training can nevertheless result in formal qualifications. Data on upper secondary qualifications attained during adulthood will be presented in EACEA/Eurydice (forthcoming), *Adult Education and Training in Europe: Advancing Access to Learning Opportunities* (<http://eacea.ec.europa.eu/education/eurydice>).

¹⁹⁶ AES results are based on a one-year reference period, whereas LFS results are based on a four-week reference period.

¹⁹⁷ See also Cedefop (2014), *Developing apprenticeships* (<http://www.cedefop.europa.eu>).

component of adult learning, often takes the form of a seminar or conference and tends to be of very short duration.

Table 3.6.1. Adult participation in lifelong learning by sex and country of birth (%)

	2010	2013						
	Total	Total	Men	Women	Native-born	Foreign-born		
						EU	Non-EU	Sub-total
EU	9.1	10.5b	9.6b	11.3b	10.4b	11.1b	12.3b	11.9b
Belgium	7.2	6.7	6.6	6.8	6.4	7.0	9.2	8.3
Bulgaria	1.2	1.7	1.6	1.8	1.7	:	:	:
Czech Republic	7.5	9.7	9.7	9.7	9.8	7.1	9.3	8.0
Denmark	32.5	31.4	25.7	37.2	31.4	34.0	30.9	31.9
Germany	7.7	7.8	7.9	7.8	8.1	:	:	:
Estonia	10.9	12.6	9.8	15.2	13.6	:	6.2	6.6
Ireland	6.8	7.3	6.9	7.7	6.6	6.7	16.4	9.9
Greece	3.1	3.0	3.1	2.9	3.2	(1.6)	1.1	1.2
Spain	11.0	11.1	10.3	12.0	11.7	5.9	8.9	8.0
France	5.0	17.7b	15.4b	19.8b	18.6b	13.2b	12.1b	12.3b
Croatia	2.2	2.9	2.8	3.0	2.9	:	(2.7)	(2.5)
Italy	6.2	6.2	5.8	6.5	6.6	3.3	3.6	3.5
Cyprus	7.7	6.9	6.6	7.1	7.5	5.7	4.4	5.0
Latvia	5.1	6.5	5.0	7.8	6.9	:	3.9	3.7
Lithuania	3.9	5.7	5.0	6.3	5.7	:	:	:
Luxembourg	13.4	14.4	13.8	14.9	16.0	12.3	15.6	12.9
Hungary	2.8	3.0	2.9	3.1	3.0	(4.2)	:	4.4
Malta	6.0	7.5	7.4	7.7	7.6	:	8.6	7.1
Netherlands	16.6	17.4	16.8	18.0	17.3	18.6	17.6	17.8
Austria	13.7	13.9	12.6	15.3	14.4	15.8	10.0	12.2
Poland	5.2	4.3	3.8	4.9	4.3	:	:	:
Portugal	5.4	9.3	8.9	9.8	9.1	12.4	11.5	11.7
Romania	1.3	2.0	2.2	1.9	2.0	:	:	:
Slovenia	16.2	12.4	10.3	14.5	13.1	(12.1)	5.6	6.1
Slovakia	2.8	2.9	2.8	3.1	2.9	:	:	:
Finland	23.0	24.9	21.1	28.8	24.9	26.1	25.6	25.8
Sweden	24.4	28.1	21.3	35.1	28.0	25.1	29.9	28.5
United Kingdom	19.4	16.1	14.6	17.6	15.6	16.5	19.7	18.7

Source: Eurostat (LFS online data code *trng_lfs_13*). Notes: Note: The indicator captures the participation rate in formal and non-formal education and training (last four weeks) of 25 to 64 year-olds. Intermediate breaks in time series for CZ (2011), LV (2011) and PT (2011) and changes to the methodology in the UK (2011). Notes: "b" = break in time series; "p" = provisional; "()" = Data lack reliability due to small sample size; ":" = data either not available or not reliable due to very small sample size.

Additional data from the Continuing Vocational Training Survey (CVTS) add to this that firm size matters. In big enterprises, half of employees take part in adult learning, whereas in medium-sized enterprises only a third of employees take part in adult learning and in small enterprises no more than one in four employees.

Figure 3.6.3 illustrates this prevalence of lifelong learning amongst particular subgroups of the population, based on AES data. It is particularly the young and higher qualified, employed in large-size firms with permanent contracts, that are likely to participate in learning activities.

Those least likely to participate in adult learning, on the other hand, tend to be the ones who would need it most. Results from the OECD's Survey of Adult Skills (PIAAC, see Section 2.3) confirmed that skills levels are lowest amongst the lower qualified, the older population and the unemployed. Adult learning, too, is least prevalent amongst the lower qualified, the older population and the unemployed. This points to a *low skills trap*; those with the highest need for up-skilling actually participate the least in lifelong learning and are as such unable to escape their often precarious labour market position.

Adult learning
negligible amongst
those individuals
most in need of up-
skilling or re-skilling

Changing mind-sets and removing barriers

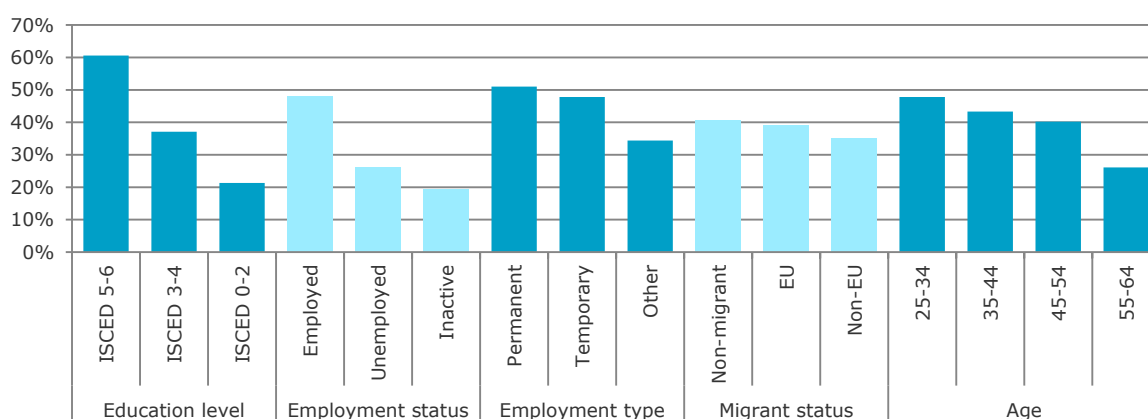
Affordability and work-related barriers prevent the working-age population from participating in lifelong learning

AES shows that the most prominent barrier preventing the working-age population from participating – or from participating *more* – in lifelong learning is work-related. Either lack of support from the employer or a conflict in the work schedule prevents 16% of adults across the EU from participating (more) in lifelong learning¹⁹⁸. Another important obstacle is the affordability of the training, with 8.4% of adults considering the available learning opportunities too expensive¹⁹⁹.

Perhaps more striking is the large proportion of individuals who appear not to be interested in any participation in lifelong learning at all. In their efforts to tackle the *low skills trap*, policy makers will face a challenge in changing mind-sets and creating a culture of learning. This applies as much to adult learning as it does to second chance education for the younger age groups.

The widespread unwillingness to participate in lifelong learning may be linked to a lack of awareness regarding the benefits of learning and its possibilities for both self-development and strengthening one's labour market position. Awareness raising is clearly necessary here, as particularly the low-skilled and low qualified should know about the purpose, needs and benefits of continued learning after initial education.

Figure 3.6.3. Adult participation in lifelong learning (2011)



Source: Eurostat (AES, 2011). The Figure depicts EU average participation rates of 25 to 64 year-olds in formal or non-formal education and training.

¹⁹⁸ In this context, it is worth mentioning the need for supporting small and medium-sized enterprises (SMEs) in overcoming barriers to offer more training. See OECD (2013), *Skills Development and Training in SMEs* (<http://dx.doi.org/10.1787/9789264169425-en>); and European Commission (2009), *Guide for training in SMEs* (ec.europa.eu/social/BlobServlet?docId=4202&langId=en).

¹⁹⁹ Both barriers to participation, affordability and work-related issues, are part of the additional contextual indicators for the ET 2020 benchmark: ec.europa.eu/education/monitor.

Key findings and policy relevance

Continued learning after initial education is crucial for raising productivity levels of the working-age population and tackling skill mismatches and bottlenecks on the labour market. It was the topic of eleven CSRs in 2014 (BG, EE, ES, FR, IE, LT, LU, PL, RO, SE, SK). However, those most in need of up-skilling are barely participating in continued learning at all. Non-formal second chance education for early school leavers is almost non-existent and adult participation in lifelong learning is negligible amongst the low-skilled or unemployed. The lack of lifelong learning creates a *low skills trap* for the seventy million adults without upper secondary education attainment that are most in need of up-skilling.

3.7. Enabling the validation of qualifications and competences

This final section looks at the flexibility of systems of initial education and of lifelong learning to cope with the dynamism of the EU's highly integrated economy as it is dependent on the free movement of citizens both as learners and workers. Only by making the qualifications and competences of learners and workers easily understood and quickly recognised can they be effectively used for employability, learning mobility, or continued learning.

Recognising qualifications and competences

In the last decade, several European policies and instruments have been developed and are being implemented in the context of ET 2020 and the Bologna process. European *qualifications frameworks* (QF EHEA²⁰⁰ and EQF²⁰¹) based on a learning outcome approach provide a reference point for the comparison of qualifications across countries. European *credit systems* (ECTS²⁰² and ECVET²⁰³) support learners in shaping their own learning pathway through accumulation of credits.

Common European *quality assurance arrangements* (ESG²⁰⁴, EQAR²⁰⁵ and EQAVET²⁰⁶) aim to generate mutual trust in education and qualifications systems, thus facilitating recognition across borders. Europass, including the Europass CV and the European Skills Passport²⁰⁷, provides documentation tools for citizens to describe their acquired knowledge, skills, competences and qualifications in a more transparent and structured way.

However, these existing European tools and initiatives are not fully living up to their potential, as was underlined in recent evaluations of several of these tools and frameworks²⁰⁸ and echoed by the results of a Commission public consultation in 2014, *Towards a European Area for Skills and Qualifications*. Implementation in Member States is uneven and incomplete. The tools and

²⁰⁰ Qualifications Framework for the European Higher Education Area agreed by ministers responsible for higher education within the Bologna Process in 2005.

²⁰¹ European Qualifications Framework for lifelong learning, launched by the Recommendation of the European Parliament and the Council of 23 April 2008.

²⁰² European Credit Transfer and Accumulation System - the credit system for higher education used in the European Higher Education Area, involving all countries engaged in the Bologna Process.

²⁰³ European Credit System for Vocational Education and Training adopted by the Recommendation of the European Parliament and the Council of 19 June 2009.

²⁰⁴ European Standards and Guidelines for Quality Assurance in Higher Education, endorsed by ministers of higher education in the Bologna Process in 2009.

²⁰⁵ European Quality Assurance Register for Higher Education, founded in March 2008.

²⁰⁶ European Quality Assurance for Vocational Education and Training adopted by the Recommendation of the European Parliament and Council of 18 June 2009.

²⁰⁷ Decision no 2241/2004/EC of the European Parliament and of the Council of 15 December 2004 on a single community framework for the transparency of qualifications and competences (Europass).

²⁰⁸ See reports from the Commission to the European Parliament and the Council on the EQF (COM (2013) 897 final), EQAVET (COM (2014) 30 final) and Europass (COM (2013) 899 final).

initiatives also suffer from having been developed in different contexts and at different times; they are not fully complementary and do not facilitate permeability between different education and training sectors.

Increasing awareness of tools

Results from the 2014 Eurobarometer survey on the *European Area of Skills and Qualifications*²⁰⁹ make it very apparent that there is a lack of awareness of the tools and frameworks amongst the potential end users. Only 9% say they know the level of the European Qualifications Framework to which their qualifications correspond, and just 12% have heard of the European Qualifications Framework. There are considerable variations across Member States, with overall awareness of the EQF being highest in LU (34%), HR (30%), MT (29%), CZ (28%) and IT (28%) and lowest in LT (12%), UK (17%) and FR (17%).

Citizens have low awareness of European frameworks and tools for transparency

The awareness of the various tools that can be used to document qualifications and competences is also generally low. Even for Europass CV, which is the most widespread tool (having been used by more than 24 million people since its launch in 2005), the level of awareness was only 15%. This is a reason for concern, as extensive use and awareness of e.g. the tools in the Europass framework is instrumental for them to serve citizens as relevant and recognised documentation tools, especially vis-à-vis potential employers.

There is therefore a need for action to simplify the existing tools and instruments, to make them more coherent and easier to use, and to ensure a stronger focus on the needs of pupils, students, workers and employers. A strengthened emphasis on learning outcomes, i.e. what a person knows, understands and is able to do on completion of a learning process, could provide a red thread to facilitate such coherence, improved relevance and raised awareness.

Speeding up implementation of Qualification Frameworks

Among the thirty-five countries²¹⁰ that participate in the EQF, twenty-two have already related their national qualification levels to the EQF, six countries are planning to follow them by the end of 2014 and three by the end of 2015 (Table 3.7.1). By the end of 2015, it is foreseen that thirty-one countries will have referenced to the EQF. More than half of the twenty-two countries that have already referenced the EQF have also self-certified to the QF EHEA in a single process relating their qualifications levels to both the EQF and the QF EHEA²¹¹.

There are important subsequent steps required to make the EQF function in practice. Once EQF levels are being indicated in new certificates and diplomas it would be reasonable to expect that it becomes more concrete and tangible for citizens as a useful point of reference. This change is however not realised overnight. It is, for instance, revealing that amongst the six countries that have started to indicate EQF levels in new certificates and diplomas, there are both countries with some of the highest awareness of the EQF (28% in CZ and 29% in MT) and the lowest awareness (LT 12%).

As documented in Section 2.3, the OECD's Survey of Adult Skills (PIAAC) has shown that, in the seventeen participating Member States, people having acquired European qualifications that are related to the same level of the EQF do not necessarily demonstrate the level of key basic competences that their qualifications suggest. For example, the learning outcomes on literacy and numeracy of adults with an upper secondary qualification are in some countries higher than those of adults with tertiary qualifications (i.e. higher EQF level) in certain other countries, even if referencing to the EQF does not show this difference.

²⁰⁹ Special Eurobarometer 417 (http://ec.europa.eu/public_opinion/archives/ebs/ebs_417_en.pdf).

²¹⁰ 28 Member States, 5 candidate countries, LI and NO.

²¹¹ See also page 45-46 of the 2012 Bologna Process Implementation Report at: [http://www.ehea.info/Uploads/\(1\)/Bologna%20Process%20Implementation%20Report.pdf](http://www.ehea.info/Uploads/(1)/Bologna%20Process%20Implementation%20Report.pdf).

Table 3.7.1 Status of the implementation of the EQF

National Qualification Frameworks referenced to the EQF?	Countries
Completed	Twenty-two countries: AT, BE nl, BE fr, BG, CZ, DE, DK, EE, FR, HR, IE, IT, LT, LU, LV, MT, NL, PL, PT, SI, UK + IS, NO
To be completed by end 2014	Six countries: CY, EL, ES, HU, RO + ME
To be completed in 2015	Three countries: FI, SK, SE
Implementation of EQF in documents and national qualifications databases	Countries
EQF level in new certificates, diplomas	Six countries: CZ, DE, DK, LT, MT, PT
EQF level in Europass supplements: Certificate Supplements (cs) and Diploma Supplements (ds)	Eight countries: CZ (cs), DE (ds), DK (cs, ds), EE (ds), FR (cs), IE (ds, cs), LT (ds), MT (ds)
EQF level in national qualifications databases	Six countries: CZ, DE, DK, FR, LT, UK

Source: Information provided to DG EAC by the EQF Advisory Group. Note: Status as of early October 2014.

While the current learning outcomes descriptors of the EQF can be a good basis to generate trust, the above highlights a need to gain further understanding of the desired learning outcomes of individual qualifications and to achieve a common understanding of quality that is transparent across sectors of education and across countries. The evaluation of the implementation of EQAVET points to such a challenge when highlighting a need for a closer relationship between the quality assurance mechanisms and qualification frameworks at national and European levels²¹².

The recognition of non-formal and informal learning

The Council Recommendation on the validation of non-formal and informal learning²¹³ invites Member States to have in place, by 2018, arrangements for such validation and to allow citizens to obtain qualifications on the basis of validated learning outcomes. Since the adoption of the Recommendation, there has been progress, with some countries confirming their already strong performance and several others advancing with a steady pace. There are also cases in which further efforts and a stronger commitment at national level are needed. In particular, there is a challenge of moving from policy to practice and to increase the awareness around possibilities and benefits of validation. The state-of-play of validation practices in Europe will continue to be mapped through regular reviews and updates of the *European Inventory on validation of non-formal and informal learning*²¹⁴, in cooperation with the Member States.

Validation can also support the assessment and certification of competences acquired through digital learning, including through open educational resources, such as massive open online courses (MOOCs). The growing importance of online learning highlights the potential this form of learning has for increasing access to education. Individuals profiting from the growing opportunities of online learning should be given the possibilities of having the competences acquired through such learning fully recognised. In order to do so, it is important that EU tools for transparency and recognition are adjusted to adapt to this changing landscape of forms of learning.

**EU tools
need to
adapt to
new forms
of learning**

²¹² COM (2014) 30.

²¹³ OJ 2012/C 398/01.

²¹⁴ See: <http://www.cedefop.europa.eu/en/about-cedefop/projects/validation-of-non-formal-and-informal-learning/european-inventory.aspx>.

Key findings and policy relevance

Education throughout an individual's life and one's learning mobility should be facilitated by better transparency and recognition of learning outcomes. Only by making learning outcomes of students and adults easily understood and quickly recognised can they be effectively used for employability or continued learning. However, the existing European tools and initiatives are not fully living up to their potential and awareness-raising remains a priority. At the same time, as PIAAC shows that education attainment levels do not correspond to the same level of learning outcomes across countries, there is a need to gain further understanding of the desired learning outcomes of individual qualifications and to achieve a common understanding of quality, transparent across countries.

Annex: EEA and candidate countries

Summary statistics for EEA and candidate countries (%)

		EU	IS	LI	NO	AL	ME	MK	RS	TR
The case for education										
Education investment	As a percentage of GDP	5.3	8.0	:	5.5	:	:	:	:	:
	Year on year change at constant prices	-1.1	-2.1	:	1.1	:	:	:	:	:
Employment rate of recent graduates	ISCED 3-4	69.5	84.1	:	:	:	:	39.0	:	48.0
	ISCED 5-6	80.9	90.2	:	:	:	:	45.7	:	66.2
	ISCED 3-6	75.5	87.2	:	:	:	:	43.3	:	61.7
Qualifications and competences: a key outcome of education										
Share of adults with lower secondary education at most		24.8	27.8	:	17.6	:	:	34.4	:	68.1
Early leavers from education and training		12.0	20.5	:	13.7	:	:	11.4	:	37.5
Tertiary education attainment		36.9	43.9	:	48.8	:	:	23.1	:	19.5
Students' low achievement in basic competences	Reading	17.8	21.0	12.4	16.2	52.3	43.3	:	33.1	21.6
	Maths	22.1	21.5	14.1	22.3	60.7	56.6	:	38.9	42.0
	Science	16.6	24.0	10.4	19.6	53.1	50.7	:	35.0	26.4
Adults' low achievement in basic competences	Literacy	19.9	:	:	12.3	:	:	:	:	:
	Numeracy	23.6	:	:	14.6	:	:	:	:	:
Digital competences	Share of adults with low ability to solve problems in a technology-rich environment	26.9	:	:	18.3	:	:	:	:	:
Entrepreneurship competences	Share of adults feeling capable to start a business	42.3	:	:	34.0	:	:	50.0	:	52.0
	Share of 15-year-olds with low achievement in problem solving	20.6	:	:	21.3	:	56.8	:	28.5	35.8
Language competences	Share of ISCED 2 students learning 2 or more foreign languages	64.8	97.9	97.4	68.7	:	:	98.2	:	:
Education policy levers for building growth										
Early childhood education and care (ECEC)		93.9	97.2	87.5	97.3	:	:	31.3	:	44.1
Teaching profession	Perception of the profession being valued	18.5	17.5	:	30.6	:	:	:	20.4	:
	Share of teachers in continued professional development	84.6	91.1	:	87.0	:	:	:	92.9	:
	Share of teachers aged 50 and over	:	:	:	41.2	:	:	31.0	:	:
New technologies	Use of ICT for projects or class work	33.6	31.8	:	73.8	:	:	:	:	:
	Teachers' participation in ICT training	25.0	:	:	39.0	:	:	:	:	38.0
Share of ISCED 3 students in vocational education and training (VET)		50.4	33.6	77.5	59.8	43.9	:	:	52.0	:
Lifelong learning	Early leavers from formal education currently in non-formal learning	0.9	2.5	:	2.0	:	:	0.0	:	0.3
	Adult participation in lifelong learning	10.5	25.8	:	20.4	:	:	3.5	:	4.0

Sources: Eurostat (LFS, UOE); OECD (PISA, PIAAC, TALIS).



AT	Austria	LV	Latvia
BE	Belgium	MT	Malta
BE fr	Belgium – French speaking community	NL	Netherlands
BE nl	Belgium – Dutch speaking community	PL	Poland
BE de	Belgium – German speaking community	PT	Portugal
BG	Bulgaria	RO	Romania
CY	Cyprus	SE	Sweden
CZ	Czech Republic	SI	Slovenia
DE	Germany	SK	Slovakia
DK	Denmark	UK	United Kingdom
EE	Estonia	UK-ENG	England
EL	Greece	UK-NIR	Northern Ireland
ES	Spain	UK-SCT	Scotland
EU	European Union	UK-WLS	Wales
FI	Finland	IS	Iceland
FR	France	LI	Liechtenstein
HR	Croatia	NO	Norway
HU	Hungary	AL	Albania
IE	Ireland	ME	Montenegro
IT	Italy	MK	The former Yugoslav Republic of Macedonia
LT	Lithuania	RS	Serbia
LU	Luxembourg	TR	Turkey

The Education and Training Monitor 2014
is accompanied by
28 individual country reports
and an
online visualisation tool
ec.europa.eu/education/monitor

AES	Adult Education Survey (Eurostat)
CEDEFOP	European Centre for the Development of Vocational Training
CRELL	Centre for Research on Education and Lifelong Learning (JRC)
CSR	Country-specific recommendation
CVTS	Continuing Vocational Training Survey (Eurostat)
DG EAC	Directorate-General for Education and Culture, European Commission
EACEA	Education, Audiovisual and Culture Executive Agency, European Commission
ECEC	Early Childhood Education and Care
ECTS	European Credit Transfer and Accumulation System
ECVET	European Credit System for Vocational Education and Training
EEA	European Economic Area (EU, NO, IS, LI)
EENEE	European Expert Network on Economics of Education
EQAR	European Quality Assurance Register for Higher Education
EQAVET	European Quality Assurance for Vocational Education and Training
EQF	European Qualifications Framework for lifelong learning
ERDF	European Regional Development Fund
ESF	European Social Fund
ESG	European Standards and Guidelines for Quality Assurance in Higher Education
ET 2020	Strategic framework for European cooperation in education and training
EUROPE 2020	The EU's ten-year strategy for smart, sustainable and inclusive growth
EUROSTAT	Statistical office of the European Union
EURYDICE	Education Information Network in the European Community
GDP	Gross Domestic Product
HEI	Higher education institution
ICILS	International Computer and Information Literacy Study (IEA)
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
IPTS	Institute for Prospective Technological Studies
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
JAF	Joint Assessment Framework
JRC	Joint Research Centre (European Commission)
LFS	European Union Labour Force Survey (Eurostat)
MOOCs	Massive Online Open Courses
NEET	Not in employment, education or training
NESET	Network of Experts on Social Aspects of Education and Training
NESSE	Network of Experts in Social Sciences of Education and training
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
OJ	Official Journal of the European Union
PIAAC	Programme for the International Assessment of Adult Competencies (OECD)
PIRLS	Progress in International Reading Literacy Survey (IEA)
PISA	Programme for International Student Assessment (OECD)
PPS	Purchasing Power Standards
QF EHEA	Qualifications Framework for the European Higher Education Area
STEM	Science, technology, engineering and mathematics
TALIS	Teaching and Learning International Survey (OECD)
TIMSS	Trends in International Mathematics and Science Study (IEA)
UOE	Common data collection of United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics, OECD and Eurostat
VET	Vocational education and training
YEI	Youth Employment Initiative

