



Education and Training Monitor 2015

The fourth edition of DG EAC's annual flagship publication charts the latest evidence available on a number of issues directly related to ET 2020's priority areas, such as the Europe 2020 headline targets, education investment and educational poverty. It also points to policy levers that can actively contribute to inclusiveness, quality and relevance. Where possible, its quantitative analysis is complemented by an assessment of structural and process indicators to reveal barriers in the EU's education and training systems.

The Education and Training Monitor 2015 is a report in two volumes. Volume 1 takes the form of a cross-national, thematic analysis. Volume 2 comprises twenty-eight individual country reports. Highlights of the country analysis are included in the summary in Volume 1, while the country reports themselves can be found online.

The report's webpage also links to contextual indicators – both quantitative and structural – from, respectively, the JRC's Centre for Research on Education and Lifelong Learning (CRELL) and the Eurydice network. Moreover, the webpage contains a visualisation tool to compare country performance vis-à-vis six ET 2020 benchmarks.

The cross-national, thematic analysis (Volume 1) is divided into three parts. Part one directly links education to the Commission's priorities to boost jobs, growth and investment as well as the EU's social agenda. It stresses educational poverty as a key social challenge for Europe and the consecutive budget cuts in some Member States as harmful to both short-term recovery and long-term growth. Part two focuses on education attainment levels of young people across Europe today. The Europe 2020 headline target is the cornerstone of this assessment.

Part three, finally, offers concrete, tangible policy levers by looking directly at issues of inclusiveness, quality and relevance. This includes a focus on the teaching profession; innovative pedagogies and tools in school education and higher education institutions; and aligning education provision more effectively with the needs of the labour market. The policy levers also touch upon high-quality, inclusive ECEC; work-based learning and apprenticeships; and barriers to continued learning after initial education.

ec.europa.eu/education/monitor

EU targets for 2020 in education and training

		Current	Target
Headline target	1	Early leavers from education and training The share of 18 to 24 year-olds having attained ISCED level 0-2 and not receiving any formal or non-formal education or training in the four weeks preceding the survey.	11.1 % Below 10 %
	2	Tertiary education attainment The share of 30 to 34 year-olds having successfully completed ISCED level 5-8.	37.9 % At least 40 %
Other targets	3	Early childhood education and care The share of children aged 4 to the age of compulsory primary education who are participating in education.	93.9 % 95 %
	4	Underachievement in reading, maths and science The share of 15 year-olds failing to reach level 2 in the OECD's PISA for reading, mathematics and science.	Reading: 19.6 % Maths: 22.2 % Science: 17.7 % 15 %
	5	Employment rate of recent graduates The share of employed 20 to 34 year-olds having successfully completed ISCED 3-8 one to three years preceding the survey and who are no longer in education or training.	76.1 % 82 %
	6	Adult participation in learning The share of 25 to 64 year-olds who received formal or non-formal education or training in the four weeks preceding the survey.	10.7 % 15 %

Source: Eurostat (LFS 2014 for 1, 2, 4 and 5; UOE 2013 for 3) & OECD (PISA 2012 for 4).
Note: ISCED 0 = early childhood education; ISCED 1 = primary education; ISCED 2 = lower secondary education; ISCED 3 = upper secondary education; ISCED 4 = post-secondary non-tertiary education; ISCED 5 = short-cycle tertiary education; ISCED 6 = Bachelor's or equivalent level; ISCED 7 = Master's or equivalent level; ISCED 8 = doctoral or equivalent level.

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Education and Training Monitor 2015

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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

Investment in education and inclusion through education. Those are the two major priorities of this year's Education and Training Monitor and my personal vision for our field. How could it be otherwise?

Millions of Europeans are at risk of poverty and social exclusion, inequalities continue to grow and unemployment remains unacceptably high, especially among young people. Moreover, the terrorist attacks in France and Denmark earlier this year raised difficult questions about our ability to maintain open, cohesive societies and about our capacity to instil common values, while the refugee crisis puts new pressure on the role of education as a vector for integration. Today, the challenge to create new jobs, re-build the foundations of sustainable growth and address social exclusion often overshadow broader political objectives.

Jobs, growth and investment are at the core of the new Commission's programme, and the Education and Training Monitor shows clearly that these objectives can only be met if we invest properly in our people and put education at the heart of economic and social policy. Social inclusion and growth are two sides of the same coin. Improving education is urgent and vital, not only because it lifts productivity and prevents structural and long-term unemployment, but because education remains the engine behind social mobility and the safety net against social exclusion. These themes are at the core of the European strategic framework for cooperation in education and training (ET 2020), and are reflected in the new priorities of the Draft 2015 Joint Report, as proposed by the Commission in August.

We must find new ways to encourage Member States to invest more and invest better. For example, the European Fund for Strategic Investment and the European Investment Bank's activities offer real opportunities to attract private capital. Education must be seen as investment rather than spending. And yet, in recent years, the vast majority of Member States have reduced their commitment to education while Europe's competitors are catching up quickly by investing strategically and vigorously.

Social exclusion produces fractured societies. The 2015 *Paris Declaration on promoting citizenship and the common values of freedom, tolerance and non-discrimination through education* calls for a European policy framework to help Member States ensure that inclusion begins in the classroom.

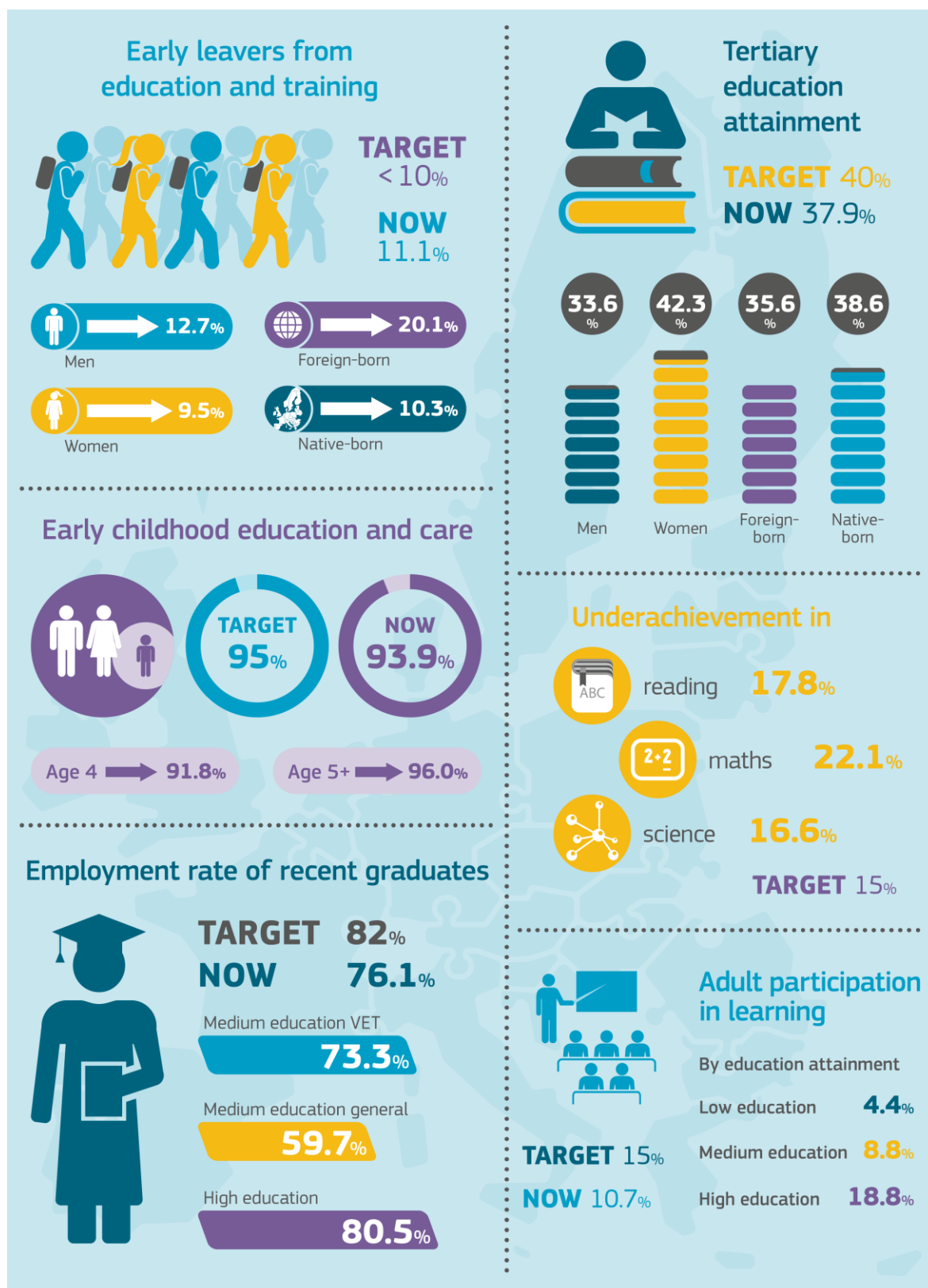
The urgency to invest in education's quality, relevance and inclusiveness in turn demands mutual learning and evidence-based policy making. And this is where the Education and Training Monitor plays a central role. It has grown into an indispensable reference tool for the European education community, strengthening the evidence-base of ET 2020, and contributing to the broader Europe 2020 strategy and its headline target for education.

I trust this year's Education and Training Monitor will enrich the policy debate on education at the national and European level, and support Member States as they modernise their education and training systems in the years to come.

Tibor Navracsics

Commissioner for Education, Culture, Youth and Sport

EU targets for 2020 in education



Note: See front flap for sources and definitions.

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Summary

Highlights of the cross-national analysis
Highlights of the country analysis

Summary

Highlights of the cross-national analysis

This first edition of the Education and Training Monitor developed under the Juncker Commission is published when Europe's need for long-term solutions to a growing social crisis has once more been thrown into sharp relief. Education is the foundation of Europe's future economic vitality, driving the employability, productivity, innovativeness and entrepreneurial spirit of tomorrow's working population.

But equipping people for employment is only part of the picture. Education has an equally important role in creating a better society. Well-educated people are less at risk of marginalisation and social exclusion. Effective education is about inclusiveness, ensuring every citizen has an opportunity to develop their talents and to feel part of a shared future. Building effective education and training systems requires a focus on inclusion as part and parcel of the broader quest for excellence, quality and relevance. These objectives are well reflected in the Europe 2020 education headline target.

Yet the latest available data shows a worrying decrease in education investment for the third consecutive year, jeopardising the EU's progress towards these objectives. Member States that have seen a spending cut for at least three years in a row are NL, FI, PT, IT, ES, IE and UK – the latter four proving the most problematic from a demographic perspective. The Education and Training Monitor 2015 shows that, in view of improving spending effectiveness and efficiency, mutual learning and evidence-based policy making are of vital importance.

Inclusiveness

Educational poverty, or the share of young people failing to reach minimum standards in education, is one of the greatest challenges in Europe today. Although education should level the playing field for all, opportunities and outcomes are still very much determined by people's socio-economic and immigration background. As a result, no EU Member State has managed to bring underachievement amongst 15 year-olds with low socio-economic status below 15%. And in BG, CY, RO, EL, SK and HU, over half of those with low socio-economic status are unable to solve very basic maths problems.

Leaving school without upper secondary education attainment is another indication of educational poverty. Just like underachievement in basic skills, the rate of early leavers from education and training – now at 11.1% in the EU – is influenced strongly by students' parental background. In addition, about 60% of early school leavers are subsequently either inactive or unemployed, illustrating how educational poverty has long-term and serious repercussions.

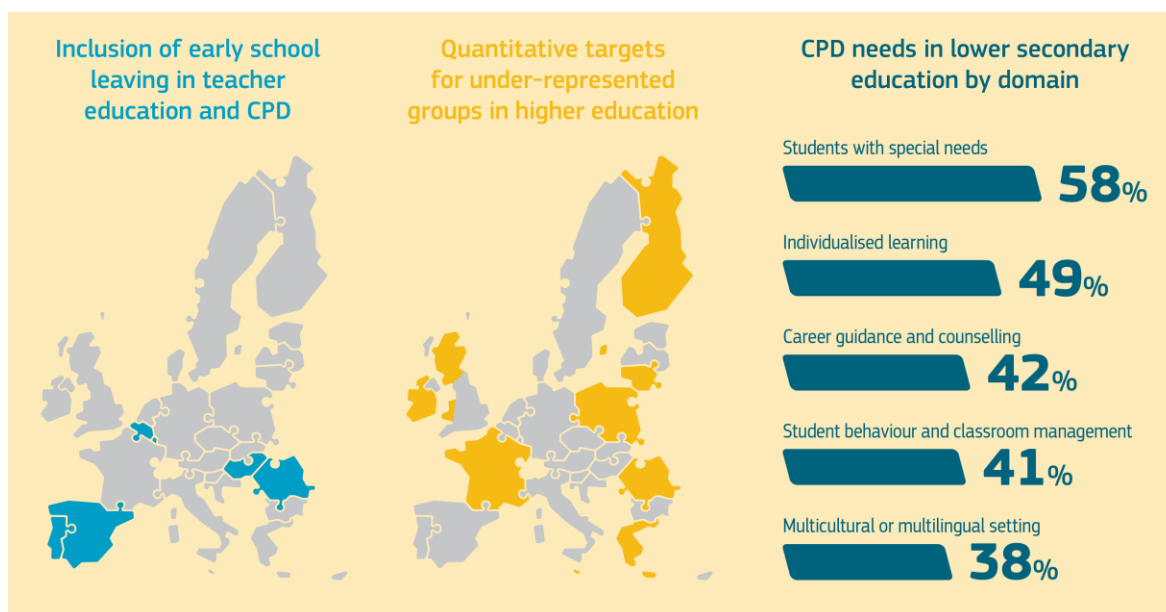
Widening access in higher education is made more difficult by a lack of inclusiveness in the earlier years of schooling. The tertiary education attainment rate in the EU now stands at 37.9%, but the social dimension of higher education remains an issue. A range of factors influence access to tertiary level education among under-represented groups, including their success and engagement in earlier stages of education. At the same time, as the student population does become more diverse, higher education will have to adapt to help prevent more disadvantaged students dropping out of the system before they graduate.

A powerful example of how education can level the playing field concerns progress towards the Europe 2020 headline target amongst students born abroad. Foreign-born young people who arrived in their new country of residence before the beginning of compulsory education show virtually identical rates of early school leaving and tertiary education attainment when compared to native-born individuals. However, foreign-born students arriving during compulsory education perform less well and require targeted support.

Many adults who, after having failed to acquire a sufficient level of knowledge, skills, competences and dispositions during initial education, are stuck in low-quality jobs that offer either little opportunity for career growth, or motivation for undertaking further learning. One in

four adults in Europe is caught in a low-skills trap – one that limits access to the labour market while simultaneously closing avenues to further education or training.

The Education and Training Monitor 2015 identifies three types of policy levers that could help improve the inclusiveness of Europe's education and training systems, thereby tackling educational poverty. It all starts with early childhood education and care (ECEC), which helps reduce the impact of socio-economic status on subsequent education achievement. Outreach and, in some cases, positive discrimination measures are important, for instance through language programmes, targeted support to disadvantaged areas, quantitative targets for disadvantaged groups and home-learning guidance.



Secondly, teachers have a strong role to play in inclusive education. Their need for training in the domains of special education needs, multicultural environments and individualised learning will have to be met with an incentivised, barrier-free offer of continuing professional development (CPD). Initial teacher education should cover issues of educational poverty, including underachievement in basic skills and risk factors associated with early school leaving.

Thirdly, the education and training system needs to allow for more flexible transitions, whether between levels of education, between vocational and general education, or between the labour market and adult learning. Disadvantaged learners in particular benefit from permeable pathways, non-traditional entry routes into higher education and second chance education. Continued learning is essential for the 66 million adults with at best lower secondary education attainment, but only 4.4% of them participate in adult learning.

Quality

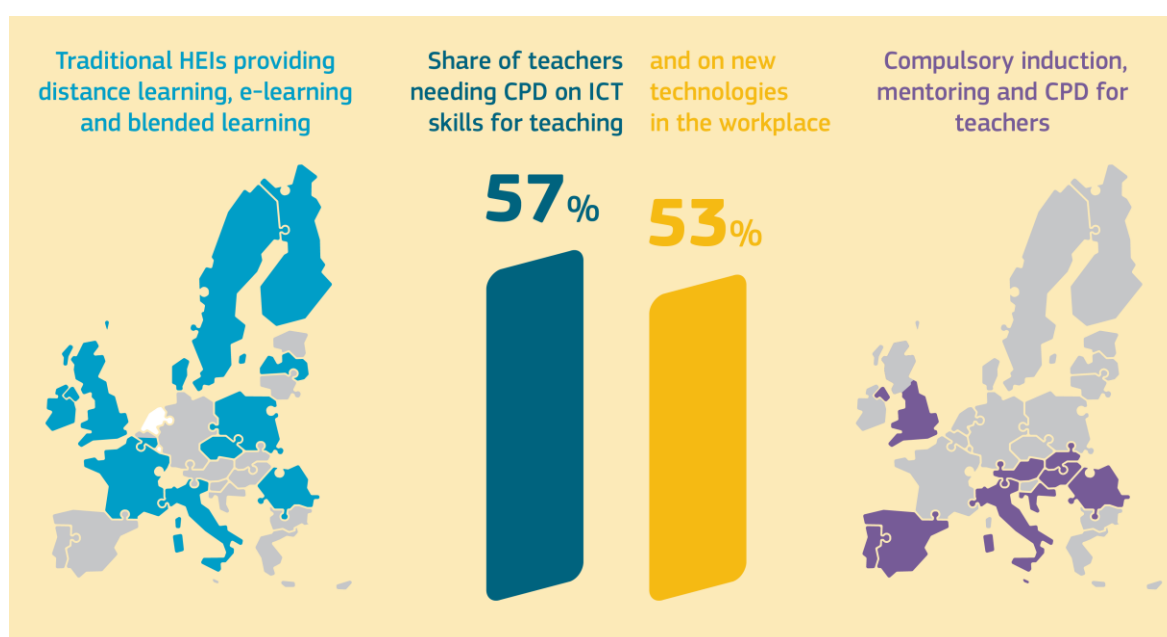
Expanding access to education and training is a crucial aspect of inclusion. But developing effective, efficient and responsive education and training systems means going beyond attainment levels and focusing strongly on the quality of education programmes. Despite the growing use of qualification frameworks and emphasis on learning outcomes, international assessments continue to reveal major disparities in competency levels between countries.

The Education and Training Monitor 2015 highlights four domains of policy levers. Firstly, quality needs to start early. While ECEC participation is near-universal in an increasing number of EU Member States, little is known about the quality of provision or the necessary interactions between children, staff, authorities and parents. Many member states (BE de, BG, CZ, FR, IT,

CY, PL, PT, SK, UK-WLS and UK-NIR) do not provide educational guidelines for the entire ECEC phase. ECEC lacks coherent vision, particularly as regards its governance and funding needs.

Secondly, quality means tackling underachievement in basic skills, and working to help students and students strengthen the competences they need in an increasingly international, competitive labour market. As one of many examples possible, the Education and Training Monitor 2015 looks at foreign language competences and the available infrastructures for language teaching and learning.

An increasing percentage of students who at home speak a language different to the language of instruction demands Member States to develop new approaches to language teaching and learning, capitalising on existing diversity to increase awareness and metalinguistic skills. 18% of students in primary education and 10.3% of general upper secondary education students still do not learn any foreign languages. Such percentages need to be reduced and learning outcomes improved in order to overcome linguistic barriers to learning and working mobility.



Thirdly, quality can be better exploited through innovation and digital technologies. In higher education, for example, this affects the delivery of learning, adoption of better assessment methods and new forms of accreditation. Massive open online courses (MOOCs) and other digital developments are challenging the role and structure of higher education institutions (HEIs). In turn, analysis of big data from digital learning experiences can be used to strengthen both processes and outcomes, and may help combat drop-out rates.

Finally, all of these efforts to raise quality across Europe's education and training systems depend in large part on teachers' competences, and on setting high standards for their initial education, induction and CPD. This is the fourth domain of policy levers to improve quality as identified in the Education and Training Monitor 2015. It also concerns school leaders, who should allocate time and resources to encourage teachers to work together, diversifying their teaching and improving students' individualised learning and guidance throughout the education career.

Relevance

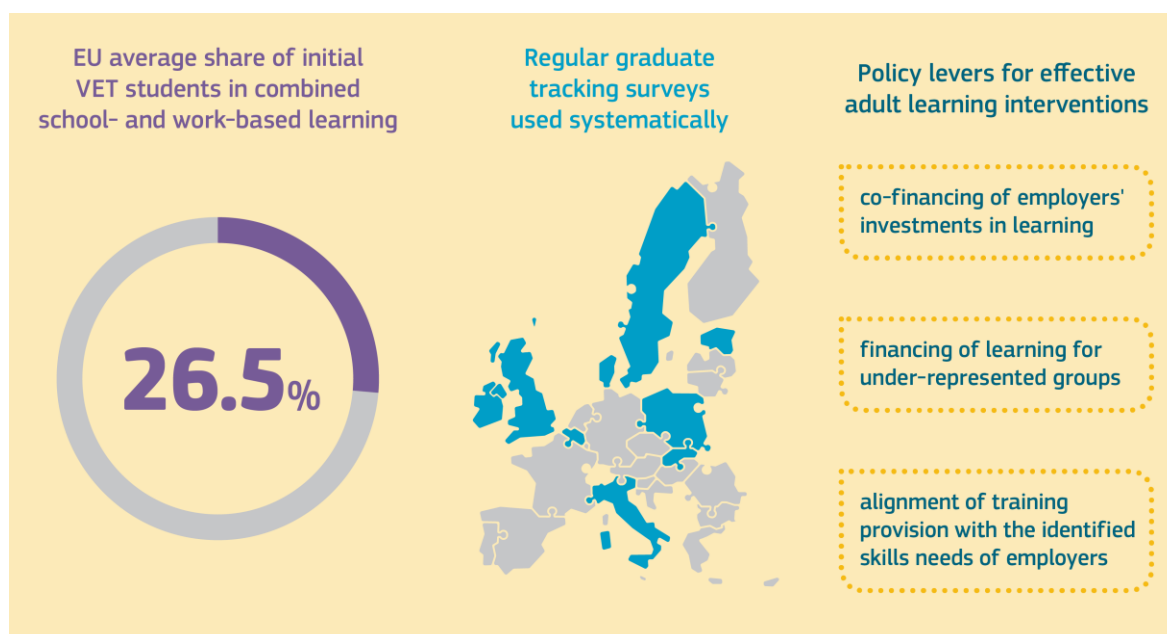
Acknowledging youth unemployment as a perpetuating challenge for Europe, the Education and Training Monitor 2015 identifies three domains of policy levers to improve labour market relevance. Firstly, through combining school- and work-based learning, vocational education

and training (VET) strengthens labour market relevance. It ensures a continued feedback loop between the demands of employers and the design and evaluation of education curricula, professional standards and the examination of students. Apprenticeships are the most well-known example of such combined school- and work-based learning.

The analysis shows, however, that both VET outcomes and access to quality VET vary significantly between Member States. Also, work-based learning is not equally prevalent across VET systems, despite its importance in improving relevance. For VET, quality and relevance are closely linked. But most Member States have significant room for improvement when it comes to VET, and better exploiting this potential is also likely to increase attractiveness.

Secondly, in comparison with VET, graduates from higher education have better employment chances (80.5%) than young people with upper secondary degrees (70.8%). But while employment chances are slowly picking up for those with upper secondary qualifications, employment rates for tertiary graduates are stagnant. In addition, the limited cross-national data available suggests that occupational mismatch still persists for tertiary graduates, with 25% of them having jobs that would traditionally be viewed as not requiring a tertiary qualification. These findings question the labour market relevance of skills and qualifications.

The challenge for Member States is to sensitise their higher education institutions (HEIs) to the needs of the labour market. Several ways of doing this remain underexploited across Europe. Again, mutual learning and evidence-based policy making prove to be of key value. Improvements can be achieved through a better, systematic use of information coming from labour market forecasting or graduate tracking surveys. Another improvement would be to embed work-based learning more firmly across tertiary education, as is the case already in parts of Europe.



Finally, skills and qualifications do not remain relevant forever. The third domain of policy levers acknowledges that up-skilling and re-skilling will be needed to make sure that the skills of the working-age population do not lose touch with a changing labour market. The Education and Training Monitor 2015 clearly shows that Member States will have to re-think their adult learning interventions to improve participation in training after initial education – now at 10.7% across Europe.

Highlights of the country analysis

Volume 2 of the Education and Training Monitor 2015 comprises twenty-eight individual country reports, and can be found online (ec.europa.eu/education/monitor). The country reports follow a structure similar to that of Volume 1, but complement the cross-national analysis with country-specific data and information on policy measures and the latest reforms.

- AT** Austria's early school leaving rate is below the EU average. The country's vocational education and training (VET) system is well adapted to the labour market, a factor that has contributed to it having one of the lowest youth unemployment rates in the EU. Nonetheless, foreign-born students are three times as likely to leave school early as native-born students and educational performance continues to be very dependent on parents' socio-economic status. Higher education lacks consistent strategic orientation and is underfunded. The drop-out rate from higher education remains high, and there is starting to be a lack of maths, science and technology graduates.
- BE** The Belgian education system is still performing well on average. Participation in early childhood education and care (ECEC) is almost universal for children over the age of three and the early school leaving rate is on a downward trend. The rate of public expenditure on education is among the highest in the EU and all three language communities are conducting major school reforms. There is, however, high educational inequality related to socio-economic and immigrant status and wide gaps in performance between schools. There are also marked differences in basic skills performance and in early school leaving rates between the communities and regions. The academic performance of students enrolled in VET is poor. The most disadvantaged schools lack experienced teachers and head teachers, and there are capacity and quality problems in the education infrastructure. The transition from school to work is very difficult for young people leaving education and training with lower secondary education qualifications at most. Implementing the reforms will require major efforts from a wide array of actors.
- BG** Bulgaria has recently improved its performance as regards basic skills and tertiary education attainment. However, it still needs to improve the overall quality and efficiency of its school education system and the capacity of higher education to respond to labour market needs. Access to education for disadvantaged children, in particular Roma, is an ongoing challenge. The quality of VET in Bulgaria is insufficient, including in terms of its integration in the general education system. The rate of adult participation in learning is among the lowest of the EU.
- CY** Early school leaving has declined steadily in Cyprus in recent years and the tertiary education attainment rate is one of the highest in the EU. However, this phenomenon masks a lack of efficiency in public spending and the relatively low quality of education outcomes. Cyprus faces one of the lowest employability rates of recent graduates in the EU and an unsatisfactory performance in basic skills by students and young adults alike. The country also features one of the lowest participation rates in VET in the EU, but recent reforms and new initiatives in this area include a gradually expanding the VET offer.
- CZ** The overall education outcomes and employability of school and higher education graduates in the Czech Republic are good. The early school leaving rate remains low and progress in tertiary education attainment is rapid. A new comprehensive strategy for education was adopted in 2014 and emphasises the need to reduce inequalities, support teachers and improve the governance of the education and training system. Provision of ECEC is being strengthened. Increasing participation in mainstream education among disadvantaged children, in particular Roma, is a challenge. Teachers' salaries are low in comparison to other countries and the teacher population is ageing. Graduates from the VET strands do not always have the skills needed on the labour market. As more and more young people are now entering higher education, further measures will be necessary to ensure quality and labour market relevance.

- DE** Education outcomes of students, including those with a disadvantaged background, continue to improve. Germany reached its national Europe 2020 target for early school leaving and participation in ECEC keeps increasing. An effective dual education and training system ensures provision of the skills needed on the labour market. Nevertheless, there are shortages of highly qualified people in certain sectors and regions, in part due to negative demographic trends. Against this background, improving education outcomes still further and loosening the strong link between education achievement and socio-economic status are crucial for sustaining a skills-intensive and export-oriented economy. This implies more and better quality ECEC, increasing the number and the quality of all-day school places, and promoting access to training for the low-skilled. Finally, integrating the high number of recently arrived migrants into the education system and preparing their transition to the labour market will be important challenges to tackle.
- DK** Denmark is performing well in many education and training areas, including early school leaving, tertiary education attainment, participation in ECEC, participation of adults in learning, as well as employment rates of recent graduates. The level of public funding for education remains one of the highest in the EU. Denmark's main challenges are to decrease the high proportion of underachievement in basic skills among students with an immigrant background and also to reduce the rate of drop-out from VET. The reforms in the school and VET sectors launched in 2014 provide an opportunity to address these issues.
- EE** Basic skills levels and the tertiary education attainment rate in Estonia are very high. The number of graduates in science, technology, engineering and mathematics has been growing considerably and represents over one-fourth of all higher education graduates. The employment rate of recent graduates has recovered quickly after the economic crisis. Funding levels for education remain relatively high and fairly stable. However, there are certain structural challenges related to adapting the Estonian education system to the rapidly declining demographic situation and to the future requirements of a technologically-intensive labour market. The attractiveness of VET and the provision of apprenticeships remain problematic. Stronger links are needed with the economy. Finally, the gender gap in education is an issue, especially for young males.
- EL** Greece performs better than the EU average as regards early school leaving and around the average on tertiary education attainment. In recent years, the education and training sector has undergone strict fiscal consolidation and a number of important structural reforms took place under the economic adjustment programme. Greece has begun significant work to reorganise general education, to upgrade VET and to reform the governance and organisation of higher education. Recent legislation indicates the intention to revert to education policy from the pre-2010 period. The Greek education and training system requires further modernisation in terms of its performance and its ways of working, in particular with regard to providing basic skills, and its capacity to prepare young people for the transition to the labour market.
- ES** Spain has one of the highest tertiary education attainment rates in Europe, and enrolment in VET has also increased with a particular expansion of the *dual model* of work-based training combined with vocational school training. Participation in ECEC is almost universal. Despite a steady fall in early school leaving over the past six years, Spain still has the highest rate in Europe, with significant differences between regions. There are also great disparities in the performance of school students in basic skills between cohorts, schools and regions, mostly linked to socio-economic status. Recent reform of the education and training system is expected to reduce the early school leaving rate still further while improving basic skills levels of low performers. The reform is being implemented at different paths across the autonomous communities. Employability of higher education graduates, particularly in certain disciplines, remains a major challenge, as well as the significant proportion of graduates employed in jobs that do not require a university degree.

- FI** Finland has an equitable education and training systems providing for very good learning outcomes. The early school leaving rate is stable and the level of basic skills remains high, despite somewhat less favourable results in recent international surveys. New challenges are emerging, especially for students with an immigrant background and in the light of a recent trend towards differentiation between schools in densely populated urban areas. While there is a high level of participation in VET and new apprenticeships have been created recently, the overall number of apprenticeship-type placements is comparably low.
- FR** Participation in ECEC is almost universal for children from three years old. Public investment in education remains high and since 2013 the country has been engaged in ambitious reforms in all sectors and at all levels of education and training. However, results are average in comparison to other countries and educational inequalities linked to socio-economic status have been widening consistently. Despite an early school leaving rate below EU average, significant regional disparities remain. Moreover, too many young people, in particular among those with an immigrant background, still leave education with at most a lower secondary level qualification, while the labour market prospects for this group have significantly deteriorated. The number of apprenticeships increased at higher-level VET, but there are still not sufficient apprenticeships for the least qualified. Finally, the level of adult literacy and numeracy is among the lowest in the EU for those with a lower level qualification and for older age groups.
- HR** The main strengths of Croatia's education and training system are a low early school leaving rate and a high proportion of secondary vocational school graduates continuing into higher education. Positive developments in the country include the adoption of a comprehensive strategy for education, science and technology, which will be the main driver of reform in the coming years. On the other hand, the Croatian education and training system faces a significant number of challenges, including improving education outcomes in mathematics in primary and secondary schools, modernising initial VET curricula in line with the needs of the labour market, and increasing access and completion rates in higher education. There are relatively low participation rates in both ECEC and adult learning. Croatia faces significant structural problems in the form of stretched capacities in pre-school centres and an under-regulated and under-funded system of adult learning.
- HU** Hungary has adopted several national strategies in 2014-15 to improve the quality of its education and training system: on early school leaving, public education development, VET, higher education and lifelong learning. Moreover, ECEC is compulsory for all children from the age of three as of September 2015. The education and training system faces a number of issues: the proportion of underachievement in basic skills is increasing and the socio-economic gaps in performance are still among the highest in the EU. Increasing the participation of disadvantaged students, in particular Roma, in mainstream inclusive education and improving support through targeted teacher training is a challenge. Vocational schools are not attractive to young people, show high drop-out and do not provide flexible career opportunities. Many students drop out of higher education and adult participation in learning remains very low. General government expenditure on education as a share of GDP is among the lowest in the EU.
- IE** Ireland's tertiary education attainment rate is one of the highest in the EU. Early school leaving has been falling and is well below the average. There have also been positive developments in basic skills proficiency. At the same time, re-skilling and up-skilling are a challenge for the education and training system. In a very difficult fiscal context with decreasing public spending on education, reforms have been put in place to achieve a system that is more responsive and relevant to labour market needs. Access to full-time childcare remains limited and expensive.
- IT** Italy has made progress in improving its education and training system over the last few years. A school evaluation system is being implemented, basic skills proficiency has improved, the early school leaving rate is on a decreasing trend and participation in ECEC is almost universal for children aged four to six. Moreover, the recent reform of

the school education system can help create the conditions to further improve school outcomes. Nonetheless, the early school leaving rate remains well above the EU average. Regional differences in basic skills proficiency are wide. The tertiary education attainment rate for young people is the lowest in the EU and many students still drop out of tertiary education. Work-based learning is not sufficiently developed and entry into the labour market is difficult for young people, including the high-skilled. General government expenditure on education as a share of GDP is among the lowest in the EU, especially at the tertiary level.

- LT** With low early school leaving and high tertiary education attainment rates, Lithuania is performing well vis-à-vis the Europe 2020 headline target in education. Students' education outcomes may be boosted by recent policy measures, such as making ECEC compulsory for all from the age of five, the development of a nation-wide student competence measurement system, induction and more professional support to teachers. At the same time, skills acquired in secondary and tertiary education often do not meet the needs of the labour market. Underachievement in reading and maths is high and participation in initial VET is relatively low. Only a small percentage of adults participate in learning. Finally, the teaching workforce is ageing and there are difficulties in attracting young people to the profession.
- LU** Luxembourg is a trilingual country and this plurality of languages is well reflected in the education and training system. Luxembourg provides significant resources to the system and has seen very high growth rates as regards tertiary education attainment. However, socio-economic status plays a significant role in influencing education outcomes. Students with an immigrant background generally achieve significantly worse results than non-immigrant students. Similarly, although Luxembourg scores well in early school leaving, the percentage of early school leavers is relatively high among students with an immigrant background. Performance in basic skills, furthermore, remains somewhat below the average in reading, mathematics and science. Luxembourg is also the country with the second highest retention rates in secondary education in the EU. Progress on the planned school reform will be key for further improvement.
- LV** In recent years, Latvia has made remarkable progress in reducing its early school leaving rate, raising its tertiary education attainment rate and improving basic skills proficiency – outperforming the EU average in all these indicators. The provision of labour market relevant skills for the workforce is the main challenge for the VET system. In the higher education sector, there is significant scope to help raise the innovation potential of the Latvian economy. In particular, public funding for higher education has lacked a performance-oriented component. However, promising reforms in this area are on-going. The gender gap in education, finally, is a transversal challenge, with women significantly and persistently outperforming men both in terms of qualifications and basic skills proficiency.
- MT** Malta has invested significantly in its education and training system in recent years. Transition from education to the labour market is easier than in most other EU countries. However, skill levels of the workforce will not improve in the long-term without addressing some bottlenecks of the education and training system. Firstly, despite recent progress, the early school leaving rate remains high. Secondly, basic skills proficiency is poor in international comparison. Lastly, the supply of skills from the VET system has not yet adjusted to labour market requirements.
- NL** The Netherlands has a high tertiary education attainment rate and made good progress in reducing the number of early school leavers, which can in part be attributed to the implementation of a comprehensive early school leaving strategy. The share of secondary level students in VET, the employment rate of recent upper secondary graduates and adult participation in learning are significantly above the EU average. Education performance is good, but it has, in contrast to other countries, not improved in recent years. Action is taken in particular to improve numeracy skills in primary, secondary and vocational schools. Challenges also include the aging teaching population and a shortage of well-qualified teachers, in particular for teaching languages, maths, science and students with special needs.

- PL** Poland has one of the EU's lowest proportions of early school leavers and of students with underachievement in basic skills. There has also been rapid progress in tertiary education attainment and increased participation in ECEC. The Polish education and training system has undergone profound changes in terms of its structure, organisation, management and core curricula in the face of the population's increasingly high educational aspirations. However, a significant number of challenges remain. These include issues relating to access to quality ECEC, particularly for children under the age of three, the teaching of transversal skills, the attractiveness of VET, and the relevance of higher education to the labour market. In addition, the low level of adult participation in learning and poor skills levels among adults, particularly in ICT, remain a source of concern for the future.
- PT** Portugal has significantly reduced its early school leaving rate, and tertiary education attainment has greatly improved. The government has continued to implement major reforms, with the aim of improving the level of basic skills in the population. Enrolment in VET has continued to increase and a first set of new short-cycle higher technical courses (TeSP) were launched. The high proportion of students re-sitting years and the extent to which socio-economic status determines education achievement demonstrate the extent to which ensuring equity in basic education remains a problem, despite the many new programmes and measures introduced over the last decade. Enrolment rates in higher education have shown some fluctuations over the past three years.
- RO** Romania's tertiary education attainment rate has risen consistently in recent years, but remains the second lowest in the EU. The Romanian Government has adopted a strategy on tertiary education, which has two overarching aims: to make higher education more relevant by aligning it more closely with labour market needs; and to improve the accessibility of higher education for disadvantaged groups. It also adopted a strategy for reducing early school leaving in June 2015. The early school leaving rate remains well above the EU average. The availability and access of ECEC services is limited, especially in rural areas and for the Roma community. Adult participation in learning remains far below the EU average and general government expenditure on education as a share of GDP is the lowest in the EU.
- SE** The Swedish education and training system performs well in many areas including ECEC, students' civic knowledge and linguistic competence in English as a foreign language, tertiary education attainment rates and adult participation in learning. Sweden has continued to invest heavily in education and training. However, school outcomes have deteriorated in terms of basic skills proficiency, and equity in schools has declined. The fact that younger age groups perform worse than their predecessors is of concern, as a high-skilled workforce is crucial to sustaining competitiveness, living standards and innovation capacity in the long run. Transition from school to work remains difficult for young people who leave school without having completed upper secondary education. Integrating in the education system the large number of newly arrived immigrant students is an important challenge.
- SI** Slovenia has the second lowest early school leaving rate in the EU and tertiary education attainment is above the EU average. Average basic skills proficiency is satisfactory, especially in mathematics and science. The proportion of upper secondary students in VET remains above the EU average. However, the higher education system is marked by a disproportionately high number of study programmes, a high drop-out rate and problems with fictitious enrolment. In addition, it is under-funded, and as a result, the quality of teaching and resources is unsustainable. In upper secondary education, the reversing demographic trends and the drop in student numbers have caused schools across the country to function below their capacity. Finally, there are very marked regional differences in national examinations, indicating that socio-economic status has a strong effect on education achievement.
- SK** In Slovakia, the early school leaving rate remains low, but a recent increase calls for targeted measures. Capacities for ECEC are being strengthened. A new VET act is set to improve graduates' preparedness for the labour market. However, inequalities remain and education outcomes have deteriorated over the last years. Participation of Roma

children in mainstream education and in high-quality ECEC is an issue. The attractiveness of the teaching profession for talented young people is low and initial teacher education as well as continuing professional development are problematic. The quality of higher education and cooperation with employers remain a challenge and the proportion of tertiary education graduates working in a job below their level of qualification has increased.

UK The education and training systems within the UK perform well in many areas including ECEC for those aged four and above, digital competences acquired at school, teachers' engagement in continuing professional development, tertiary education attainment rates and adult participation in learning. A major reform of the primary and secondary curricula is underway. Pioneering work has been done in the area of introducing computer programming skills (coding) into the primary school curriculum. Main challenges include access to ECEC for children under the age of four; literacy of 18 to 24 year-olds with only lower secondary education, numeracy skills among 15 year-olds and a sustained decrease in the early school leaving rate. In terms of transition to employment, while the employment rates of recent graduates at each level of education attainment in the UK are higher than the EU average, the availability of higher vocational and technical education trails behind other European systems.



Part 1

Educational poverty and spending cuts: challenges for the education sector

Part 1. Educational poverty and spending cuts: challenges for the education sector

Growth is slowly returning to Europe. But youth unemployment, poverty and marginalisation remain high; symptoms of the wider and lasting social impact of the crisis. High quality education and training systems that equip people with the skills to succeed are crucial for tackling the root causes of these social problems¹. However, Europe is not moving in the right direction fast enough. Educational poverty remains stubbornly embedded, with far too many disadvantaged students, and government investment – crucial to quality education – reveals worrying signs of spending cuts.

1.1. The determinants of educational poverty

Educational poverty is one of the greatest societal challenges in Europe

Europe's on-going social crisis cannot meaningfully be tackled without addressing the issue of *educational poverty*². Educational poverty is defined as the share of young people failing to reach minimum standards in education. These minimum standards can be related to their education attainment (Part 2 of this report), but also to education achievement. This section looks at the share of underachievement in reading (17.8% across the EU), maths (22.1%) and science (16.6%) among 15 year-olds, which remains above the ET 2020 benchmark of 15% and strongly connected to socio-economic status, immigration background and gender³.

Effective education and training systems should maximise opportunities for every single student. Education and training systems cannot optimally strengthen productivity, competitiveness or innovation if potential talent is left by the wayside. Moreover, education and training systems can help tackling marginalisation and social exclusion, but only if they are consciously geared to do so. This often requires active policy intervention. In 2015, six Member States received country-specific recommendations concerning the need to scale up efforts aimed at integrating disadvantaged students into mainstream education (AT, BG, CZ, HU, RO, SK)⁴.

Socio-economic status and educational poverty

Differences in educational participation between socio-economic groups can be observed earlier than compulsory education. Children from lower socio-economic backgrounds are less likely to participate in early childhood education and care (ECEC). This initial disadvantage can become cumulative, whereby individuals or groups carry forward those early disadvantages through different stages of their lives⁵.

¹ Education's contribution to long-term growth is much-needed, with the 2015 European Semester concluding that the EU's recovery from the financial and economic crisis is more fragile and short-term than hoped. See the 2015 Annual Growth Survey (COM(2014) 902 final) and the Commission Communication accompanying proposals for the 2015 country-specific recommendations (COM(2015) 250 final).

² European Commission (2015), *An ever closer union among the peoples of Europe? Rising inequalities in the EU and their social, economic and political impacts* (http://ec.europa.eu/research/social-sciences/pdf/policy_reviews/kina26814enc.pdf). See also EENEE (2015), *Reducing inequality in education and skills: Implications for economic growth* (<http://www.eenee.de/>).

³ Following the ET 2020 benchmark, underachievement is measured as the share of 15 year-olds scoring below level 2 out of six proficiency levels in the OECD's PISA. Table A.1 in the annex summarises country performance vis-à-vis the ET 2020 benchmark on underachievement in reading, maths and science. For further information, see the 2014 edition of the Education and Training Monitor at ec.europa.eu/education/monitor.

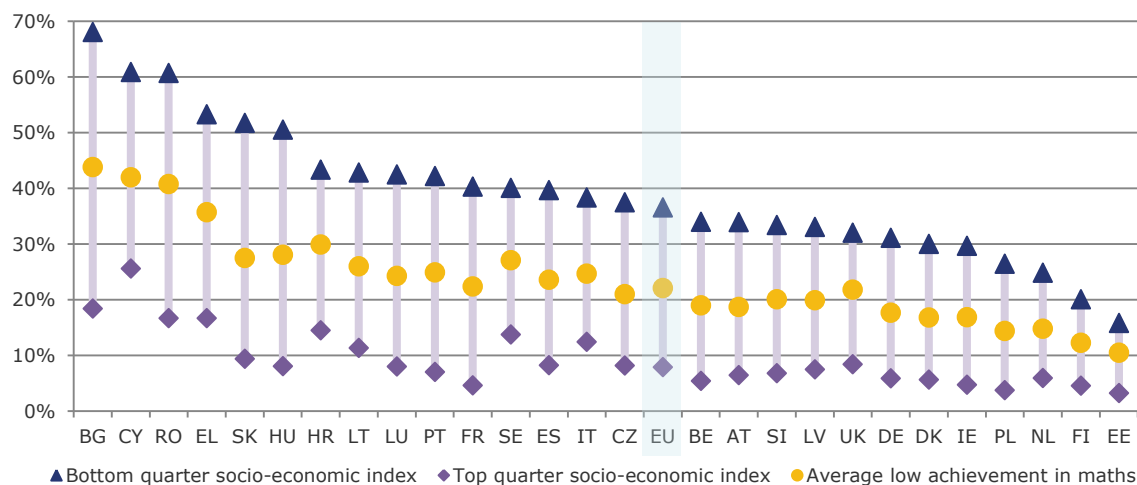
⁴ In July 2015, the Council approved country-specific recommendations for each Member State. See http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm.

⁵ At age 15, PISA results show that across countries, students who attended pre-primary school for more than one year score considerably higher in mathematics than students without pre-primary education. See European Commission (2013), *PISA 2012: EU performance and first inferences regarding education and training policies in Europe* (http://ec.europa.eu/education/policy/strategic-framework/doc/pisa2012_en.pdf).

Already at a young age, a supportive home learning environment proves crucial in shaping children's proficiency in reading, maths and science⁶. The early development of basic skills is strengthened if parents often are often engaged in learning activities with their children, have more home resources for learning and demonstrate high expectations for their children⁷.

Once students reach the age of 15, the effects of socio-economic status have become firmly rooted in Europe's education and training systems. PISA 2012 shows unambiguously that parental background is a key determinant of basic skills⁸. The share of students below the minimum standard of maths proficiency is also clearly related to low socio-economic status: among the bottom quarter of the socio-economic index, the share of underachievement is the highest.

Figure 1.1.1. Share of underachievement in maths by socio-economic status



Source: OECD (PISA, 2012). Note: Countries are ranked in descending order of the average share of underachievement amongst the bottom quarter of the PISA index for socio-economic status.

In fact, looking only at the bottom socio-economic quarter of the population as measured by the OECD's index of socio-economic status, no Member State shows an underachievement rate in maths below 15% (Figure 1.1.1). Low maths skills are measured amongst more than half of the 15 year-olds at the bottom socio-economic quarter in BG, CY, RO, EL, SK and HU. The gap between the performance at the bottom socio-economic quarter and the average national performance is 15 percentage points or more in half of the Member States (BG, SK, HU, RO, CY, LU, FR, EL, PT, LT, CZ, ES, AT, BE).

In Bulgaria, Cyprus, Romania, Greece, Slovak Republic and Hungary, over half of all 15 year-olds with low socio-economic status underperform in maths

The persisting influence of socio-economic status, family background and the home learning environment means that education attainment levels are often transmitted from one generation to the next. This influence can be indirect, for instance by providing additional learning opportunities, setting expectations or putting pressure on schools. A strong inter-generational transmission of education attainment can be seen as a failure of the education and training system to effectively maximise students' opportunities across the board.

⁶ An interesting example of comparative data comes from the IEA Progress in International Reading Literacy Study (PIRLS) 2011 and Trends in International Mathematics and Science Study (TIMSS) 2011. New data have been collected in the spring of 2015 for TIMSS 2015. The international reports are scheduled for release in December 2016. PIRLS 2016 will be released one year later. For further information, see <http://www.iea.nl>.

⁷ For further analysis on home learning environment and its impact on reading proficiency, see JRC-CRELL (2013), *Reading literacy in EU countries: Evidence from PIRLS* (<https://crell.jrc.ec.europa.eu/>).

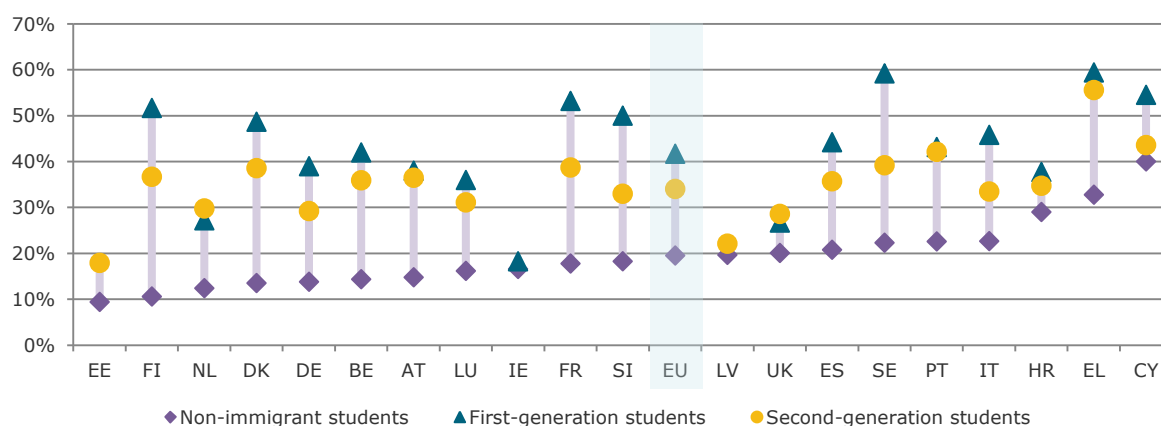
⁸ See OECD (2013), *PISA 2012 Results Volume II: Excellence through Equity. Giving every student the chance to succeed* (www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-II.pdf).

Immigration and educational poverty

As a result of the refugee crisis, issues of educational provision for students with an immigrant background have come more strongly to the fore this year. Numerous studies point towards gaps between native-born and foreign-born students when it comes to educational poverty. In the EU, the share of underachievement amongst foreign-born students is almost twice as high as it is amongst the native-born, whether measuring reading skills (30.7% versus 16.2%), maths (36.3% versus 20.5%) or science (29.9% versus 15.1%)⁹.

A second distinction is the difference in underachievement between first- and second-generation immigrant students¹⁰, which, for maths, is 7.7 percentage points across the EU on average (Figure 1.1.2). Of all first-generation students, 41.7% are underachievers, while this share is considerably lower (34.0%) amongst second-generation students. Unfortunately, the gap between second-generation students and non-immigrant students (i.e. native-born students with native-born parents) remains significant as well, with the share of underachievement amongst the latter only 19.5%.

Figure 1.1.2. Underachievement in maths by migration status



Source: OECD (PISA, 2012). Note: Second-generation students are those born in the country of assessment with both parents foreign-born; first-generation students are foreign-born students whose parents are also foreign-born. Only those countries are included for which all data are available; ordered by the performance of non-immigrant students.

Member States vary significantly in reducing achievement gaps between first- and second-generation immigrants

While first-generation students show very high rates of underachievement in almost all countries, there are some Member States where second-generation students have much lower shares of underachievement. This suggests that in these countries, the integration of students with an immigrant background is fairly successful, whereas in other countries there is little progress between first- and second-generation students.

A similar observation can be made when looking at the students' age of arrival in the country of assessment. Years since arrival play an important role in immigrant achievement – newly or recently arrived 15 year-old immigrant students show poorer performance in all domains including maths skills than immigrant students who arrived in the receiving country at a younger age and had their full compulsory education in the receiving country¹¹.

⁹ The difference between native-born and foreign-born 15 year-olds was documented in the Education and Training Monitor 2014. An online visualisation tool enables country comparisons as regards underachievement in reading, maths and science amongst native-born and foreign-born (<http://ec.europa.eu/education/monitor>).

¹⁰ A third distinction is to differentiate between EU foreign-born and non-EU foreign-born, as is done in Part 2 of the Education and Training Monitor. See also chapter 14 of OECD/European Commission (2015), *Indicators of immigrant integration 2015: Settling in* (<http://www.oecd-ilibrary.org/>).

¹¹ Part 2 of the Education and Training Monitor for the first time reveals the rates of early school leaving and tertiary education attainment amongst foreign-born students by years since arrival in the country of assessment.

The disadvantage faced by students with an immigrant background can be accounted for by many factors. First and foremost is socio-economic status, which often overlaps with immigrant background: immigrants to EU countries tend to have lower education and occupational status than the non-immigrant population and underachievement is found disproportionately amongst students with lower socio-economic backgrounds. Indeed, controlling for socio-economic status reduces the achievement gap between migrant and non-migrant students¹².

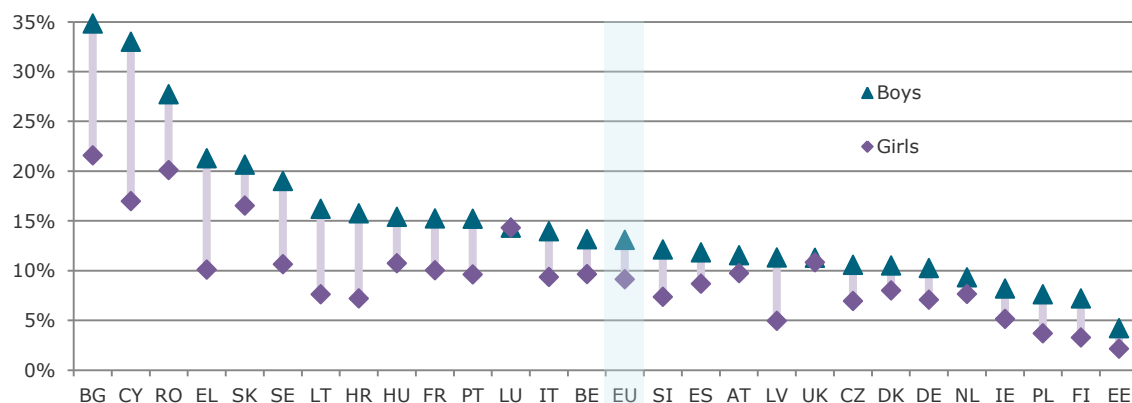
What remains of the disadvantage faced by immigrant students when accounting for socio-economic status can be explained by a number of other factors, such as language difficulties, cultural factors and issues of prejudice and perception that exist in the host country and its education and training system. All these factors require different policy actions, whether continuing professional development (CPD) for teachers, positive discrimination measures, language support for students or parental guidance.

Gender and educational poverty

Looking at gender differences in educational performance reveals that in reading literacy, girls greatly outperform boys in all Member States. Moreover, when it comes to educational poverty at age 15, boys are overrepresented: the share of boys across the EU who show underachievement in *all three domains* tested in PISA – reading, mathematics and science – is 61.1% higher than that of girls (Figure 1.1.3)¹³.

Educational poverty is 61.1% more prevalent amongst boys than it is amongst girls

Figure 1.1.3. Underachievement in reading, maths and science combined, by sex



Source: OECD (PISA, 2012). Countries are ordered according to the share of underachievement amongst boys.

Within the EU, there are considerable variations regarding the share of low achievement in all three domains combined, and the gender gap varies considerably. In line with overall high shares of low achievement, the share of boys who are low achievers in all three domains is a quarter or more in BG (34.8%), CY (33.0%) and RO (27.7%). Particularly low rates of boys who do not reach PISA level 2 in any of the three domains can be found in EE (4.2%), FI (7.2%) and PL (7.6%).

¹² European Commission (2013), *PISA 2012: EU performance and first inferences regarding education and training policies in Europe* (http://ec.europa.eu/education/policy/strategic-framework/doc/pisa2012_en.pdf). Further evidence shows, however, that children with an immigrant background tend to be more affected by low socioeconomic status than children with a non-immigrant background, the latter being more "resilient" to low socioeconomic status than the former. In other words, low socioeconomic status might be a bigger problem for first- and second-generation immigrant students than for non-immigrant students. See chapter 13 of OECD/European Commission (2015), *Indicators of immigrant integration 2015: Settling in* (<http://www.oecd-ilibrary.org/>).

¹³ Taken separately, there are no significant average differences in the share of underachievement in maths and science between boys and girls, with minor advantages of boys in most countries. The gender gap was documented in the Education and Training Monitor 2014. An online visualisation tool enables country comparisons as regards underachievement in reading, maths and science amongst boys and girls (<http://ec.europa.eu/education/monitor>).

In only two Member States are more than 20% of girls underachieving in all three domains: RO (20.1%) and BG (21.6%). On average in the EU, 59.2% of the low achievers are boys. This proportion is higher than two-thirds in four Member States (FI, HR, LT, EL)¹⁴.

There are many reasons for the higher educational poverty among 15 year-old boys. Research suggests that boys are more strongly affected by low socio-economic status than girls, and that the gender gap is much smaller amongst those with high socio-economic status¹⁵. Evidence also shows that, compared to girls, boys spend less time doing homework and reading and more time playing video games, all of which show correlations with proficiency in the different domains tested in PISA 2012¹⁶.

Part 2 of the Education and Training Monitor shows that these gender gaps echo into upper secondary and tertiary education. In 2014, women have reached both Europe 2020 headline targets in the field of education: an early school leaving rate below 10% and a tertiary education attainment rate above 40%. But women continue to be under-represented in the STEM fields of study and over-represented in teacher education, resulting in gender imbalances in the teaching profession as well (Section 3.2).

Structural and institutional factors¹⁷

This section has provided only a brief overview of how multidimensional educational poverty is, adding some context to the inequalities in education attainment levels that will be illustrated in Part 2 of the Education and Training Monitor. In order to gain a full picture of educational poverty, structural and institutional factors need to be considered as well. Out of the multitude of structural and institutional factors at play, the Education and Training Monitor singles out those that are most commonly associated with educational disadvantage in general, and those that could tackle underachievement in particular.

Examples of recent policy measures in Member States

As of September 2015, every child in BE nl, including those with special needs, has the right to enrol in a mainstream school, provided reasonable adaptations are possible. In SE, to better integrate recent migrants in the education and training system, a comprehensive reform of the reception and schooling of newly arrived students will enter into force in 2016. In 2015, SK adopted legislation aiming at desegregation, including measures towards eliminating the placement of children in special schools or classes based on socio-economic disadvantage.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Firstly, in terms of access to school education, parents are often constrained in their choice of school by admission policies. Access to schools and school choice are more limited in the case of students from lower socio-economic backgrounds and minority ethnic groups. This is sometimes due to admission policies used in over-subscribed schools that often give preference to families already living in the area.

Widening access and preventing drop-out at all levels of education¹⁸ requires flexible, permeable education pathways, stronger continuity to ease transitions, but also specific outreach strategies or positive discrimination measures in favour of under-represented groups. Monitoring frameworks, complemented by specific targets for under-represented groups, are an essential part of such policy measures.

Secondly, there is abundant evidence on the effects of ability grouping (*tracking*) in schools. The approach taken and the timing of these activities differ between countries. The use of tracking has declined over the years but is now more highly concentrated in schools serving

¹⁴ For detailed analyses about gender differences, see OECD (2015), *The ABC of gender equality in education: Aptitude, behaviour, confidence* (<http://www.oecd-ilibrary.org/>).

¹⁵ See page 42 of European Commission/EACEA/Eurydice (2014), *Tackling early leaving from education and training in Europe: Strategies, policies and measures* (<http://eacea.ec.europa.eu/education/eurydice>).

¹⁶ Ibid. Interestingly, evidence also shows that, across all OECD member countries, the gender gap is smaller for digital reading when compared to print reading. See OECD (2015), *Students, computers and learning: Making the connection* (<http://www.oecd-ilibrary.org/>).

¹⁷ This part has been contributed to by the Network of Experts on Social Aspects of Education and Training (NESSET II). For further information on the network's findings, see <http://www.nesetweb.eu/>.

¹⁸ Structural indicators related to widening access and reducing drop-out in secondary and tertiary education are discussed in Part 2 of the Education and Training Monitor.

disadvantaged populations. Students allocated to lower-track classes experience a climate of low expectations and negative student-teacher interaction, and are much more likely to leave school early.

Table 1.1.1. Underachievement: a selection of structural indicators

	National tests in compulsory education			National reports on achievement			Use of performance data in external school evaluation	Central guidelines on underachievement as a topic in ITE
BE fr	R	M	S	R	M	S	●	R M S
BE de				R	M	S	●	R M S
BE nl	R	M	S	R	M	S	●	R M S
BG	R	M	S					R
CZ			S	R	M	S	●	
DK	R	M	S	R	M	S	●	R M S
DE	R	M					●	M
EE	R	M	S	R	M	S		R M S
IE	R	M	S	R	M	S	●	R M
EL								
ES	R	M		R	M	S	●	R M S
FR	R	M	S	R	M	S	●	R M S
HR	R		S	R	M	S		
IT	R	M		R	M	S		
CY	R	M		R	M	S		
LV	R	M	S	R	M	S	●	
LT	R	M	S	R	M	S	●	R M S
LU	R	M	S	R	M	S	●	
HU	R	M		R	M		●	R M S
MT	R	M	S	R	M	S	●	R M
NL	R	M	S	R	M	S	●	R M
AT	R	M		R	M		●	R M S
PL	R	M	S	R	M	S	●	R M S
PT	R	M		R	M	S	●	
RO	R	M	S	R	M	S	●	
SI	R	M	S	R	M	S		R M S
SK	R	M		R	M	S		R M S
FI	R	M	S	R	M	S		
SE	R	M	S	R	M	S	●	
UK*	R	M	S	R	M	S	●	R M S
UK-SCT	R	M	S	R	M	S	●	R M

Source: European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>). Note: R = reading; M = mathematics; S = science; ITE = initial teacher education; * = UK-ENG, UK-NIR and UK-WLS. The structural indicators pertain to 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

Early tracking increases inequality in achievement. When children are separated into different types of schools at an early age, some may end up in schools that do not enable access to higher education¹⁹. Lower socio-economic status and immigrant youth are more likely to attend a vocational track or a track that does not offer direct access to tertiary education. It has been shown that tracking can lead to self-fulfilling prophecies in which students live up (or down) to teacher and societal expectations²⁰.

Thirdly, some structural characteristics of EU education and training systems pertain specifically to underachievement in basic skills. As can be seen in Table 1.1.1, the majority of Member

¹⁹ Immigrant students, furthermore, tend to be concentrated in schools where there are high proportions of children with poorly educated parents. This results in a significant disadvantage for these immigrant students when compared to their peers in schools with few such children, suggesting that parental education is of greater influence than immigrant background. See OECD (2013), *PISA 2012 Results Volume II: Excellence through Equity. Giving every student the chance to succeed*; and OECD/European Commission (2015), *Indicators of immigrant integration 2015: Settling in* (<http://www.oecd-ilibrary.org/>).

²⁰ Further evidence of the impact of tracking can be found in studies drawing on international surveys of student achievement. Early tracking has been found to have a negative effect on mean performance of students, especially regarding reading and science proficiency. In particular, the practice seems to have a negative effect on the academic performance of underachieving students, possibly due to negative peer and environmental effects.

States conduct national tests (except EL and BE de), have recently produced national reports on achievement (except for BG, DE and EL) and use performance data in external school evaluation (except for BG, EE, EL, HR, IT, CY, SI, SK, FI). Compared to national testing and reporting of the mother tongue and mathematics, somewhat less emphasis is placed on assessing science performance.

Finally, various structural and institutional characteristics of the teaching profession are commonly associated with educational disadvantage in general and underachievement as a specific example. Just over a third of the Member States have central guidelines on underachievement as a topic in initial teacher education (Table 1.1.1) and, as Section 2.1 will show, only BE fr/nl, ES, LU, HU, PT and RO include the issue of early school leaving in initial teacher education and CPD. CPD is particularly underexploited in this regard; the share of teachers expressing the need for CPD is striking in domains such as special needs education (58%), individualised learning (49%) and career guidance (42%)²¹.

Key findings and policy relevance

Educational poverty is one of the greatest societal challenges in Europe. The unequal distribution of underachievement means potential talent amongst young people in Europe is being wasted, thus neglecting the economic growth it could generate, and contributing to persisting marginalisation and inequalities in society. The persisting determinants of underachievement are, inter alia, socio-economic status, immigrant background and gender. But structural and institutional characteristics also play their part, with access to quality education and ability grouping still penalising under-represented groups disproportionately. Subsequent sections of this report elaborate on the key measures to improve the inclusiveness of education and training.

1.2. Spending cuts: the financial commitment to education

Public expenditure on education

Investing in education is crucial to support both short-term recovery and long-term economic growth. In the EU as a whole, public expenditure on education started declining in real terms in 2011. With a third consecutive drop in 2013 (-0.5%), public expenditure on education has now recorded a 3.2% fall since 2010 (Table 1.2.1). A closer look at country performance reveals that the most recent drop of 2013 is due to expenditure decreases in eleven Member States (DK, EE, IE, ES, IT, NL, PL, PT, RO, FI, UK)²².

The persistence of this negative trend is not due to one-off cuts all across Europe, but rather to consecutive reductions in the same group of Member States. In fact, IT has recorded a decrease of its education budget for six consecutive years (since 2008), ES for four years, IE, NL, FI, PT and UK for three and RO for two. On the other hand, positive trends are also persistent over time, as data for BE, LT, LU and MT show.

Italy, Spain, Ireland, the Netherlands, Finland, Portugal and the UK have all decreased education expenditure for at least three consecutive years

When measured as a share of total public expenditure, the 2013 EU average education expenditure stands at 10.3%, a figure that has remained static in most of the Member States. This means that, in nominal terms, the budget for education and the total budget followed

²¹ See Section 3.2 of this report for further information.

²² Four of them (IE, ES, IT, RO) recorded a level of education expenditure below the EU average, when measured as a share of both GDP and total public expenditure, for all four years covered in Table 1.2.1.

similar dynamics, leaving the ratio between the two constant and suggesting that the cuts were not specifically targeted at education²³.

Table 1.2.1. Public expenditure on education

	As a share of GDP				As a share of total public expenditure				Year-on-year real growth *			
	2010	2011	2012	2013	2010	2011	2012	2013	2010	2011	2012	2013
EU	5.3	5.1	5.0	5.0	10.6	10.5	10.3	10.3	2.0	-1.2	-1.5	-0.5
Belgium	6.1	6.3	6.3	6.4	11.7	11.7	11.5	11.8	5.0	2.5	0.7	1.6
Bulgaria	3.7	3.5	3.4	3.8	10.0	10.0	9.7	9.8	-9.1	0.3	-3.1	3.3
Czech Republic	5.1	5.1	5.0	5.2	11.8	12.1	11.5	12.3	2.0	2.3	-1.6	3.6
Denmark	7.2	6.9	7.1	7.0	12.6	12.1	12.0	12.3	6.3	-2.9	2.4	-0.7
Germany	4.4	4.3	4.3	4.3	9.3	9.7	9.6	9.7	4.8	1.7	-1.4	0.2
Estonia	6.6	6.3	6.3	6.0	16.4	16.6	15.9	15.4	-4.2	2.8	4.5	-4.3
Ireland	4.9	4.7	4.4	4.1	(7.5)	10.1	10.4	10.2	2.5	-2.8	-6.4	-4.3
Greece	4.0	4.4	4.4	4.5	7.6	8.2	8.2	7.6	-1.2	5.4	-4.3	0.3
Spain	4.5	4.4	4.1	4.0	9.8	9.6	8.7	9.1	-1.2	-2.1	-6.1	-3.8
France	5.6	5.5	5.5	5.5	10.0	9.8	9.7	9.6	1.2	-0.8	0.6	1.3
Croatia	5.0	5.0	5.0	5.3	10.6	10.5	10.7	11.2	-1.0	1.1	-1.0	5.8
Italy	4.4	4.1	4.1	4.1	8.8	8.3	8.0	8.0	-3.1	-4.5	-1.4	-0.4
Cyprus	6.8	6.6	6.1	6.5	16.0	15.4	14.5	15.7	4.4	-4.3	-6.9	4.7
Latvia	6.2	5.9	5.7	5.7	14.1	15.2	15.5	15.7	-11.7	-2.5	1.9	2.6
Lithuania	6.4	6.1	5.8	5.6	15.2	14.3	16.1	15.7	-8.6	2.6	1.6	0.5
Luxembourg	5.2	5.1	5.4	5.6	11.8	11.8	12.2	12.7	1.2	-0.2	6.6	6.8
Hungary	5.6	5.1	4.7	4.7	11.2	10.3	9.7	9.5	6.0	-4.5	-6.1	4.6
Malta	5.6	5.7	5.8	5.9	13.7	13.9	13.7	13.9	8.3	4.2	4.7	3.5
Netherlands	5.7	5.6	5.6	5.5	11.8	11.8	11.8	11.8	1.4	-0.7	-3.0	-0.4
Austria	5.1	5.0	5.0	5.0	9.7	9.8	9.7	9.8	1.4	0.7	-0.6	1.3
Poland	5.6	5.5	5.4	5.3	12.1	12.5	12.6	12.5	3.5	2.0	-0.7	-1.2
Portugal	7.7	7.3	6.5	6.8	14.9	14.5	13.4	13.5	7.0	-5.9	-6.7	-0.6
Romania	3.3	4.1	3.0	2.8	8.4	10.5	8.3	8.1	-11.3	33.2	-27.0	-5.8
Slovenia	6.6	6.6	6.4	6.5	13.5	13.2	13.3	(10.9)	-0.4	-2.9	-4.1	0.9
Slovakia	4.9	4.6	4.4	5.0	11.7	11.3	11.1	12.2	9.9	-4.7	-2.1	13.3
Finland	6.6	6.5	6.4	6.5	12.0	11.9	11.5	11.2	2.4	-0.7	-3.0	-0.8
Sweden	6.5	6.5	6.5	6.6	12.5	12.6	12.5	12.4	0.5	-0.1	-0.5	0.7
United Kingdom	6.6	6.0	5.8	5.5	13.5	12.9	12.3	12.0	2.4	-4.8	-1.3	-3.0

Source: DG EAC elaboration on Eurostat's general government finance and national accounts statistics. Online data code: gov_10a_exp and nama_10_gdp. Note: "()" = total public expenditure includes one-off significant expenditure in support of the financial sector; * = real growth is computed as the change over the previous year of total expenditure of general government on education, valued at constant prices using the implicit deflator for the final consumption of the general government.

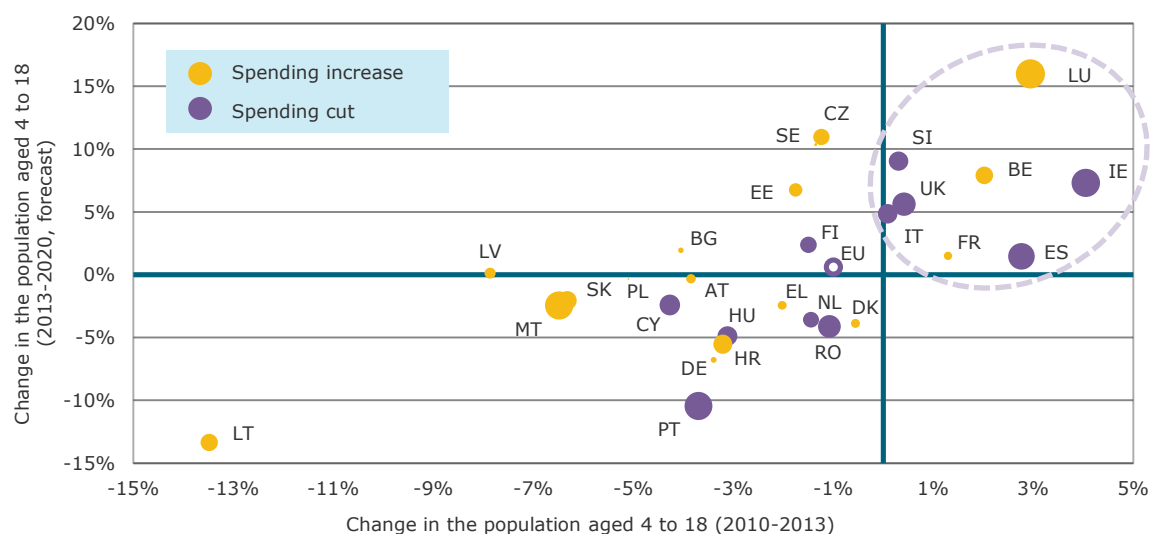
The share of public expenditure devoted to education, as shown in Table 1.2.1, can also be considered as a means to quantify the commitment of governments toward the sector²⁴. Indeed, education expenditure figures indicate the spending choice of public authorities on education in comparison to other policy areas, and, accordingly, the relative importance of education on the policy agenda. Interpreted as such, the commitment toward education varies significantly across the EU: from 7.6% recorded in EL to more than twice as much in CY, LV and LT.

However, two caveats are worth highlighting in this descriptive, cross-national assessment of education spending. Firstly, spending cuts in some Member States reflect attempts at improving the sector's efficiency, aiming to generate the same outcomes while consuming fewer resources²⁵. These kinds of efficiency gains are difficult to determine, as their measurement requires an agreed upon conceptual framework, defining all the multifaceted aspects of, *inter alia*, the outcomes of education, and when they are to manifest themselves.

²³ In 2013, expenditure on education as share of GDP stagnated too, showing a very similar pattern to that of education expenditure as share the total public expenditure (see the first columns of Table 1.1.1). In fact, the two measures show a very high degree of correlation.

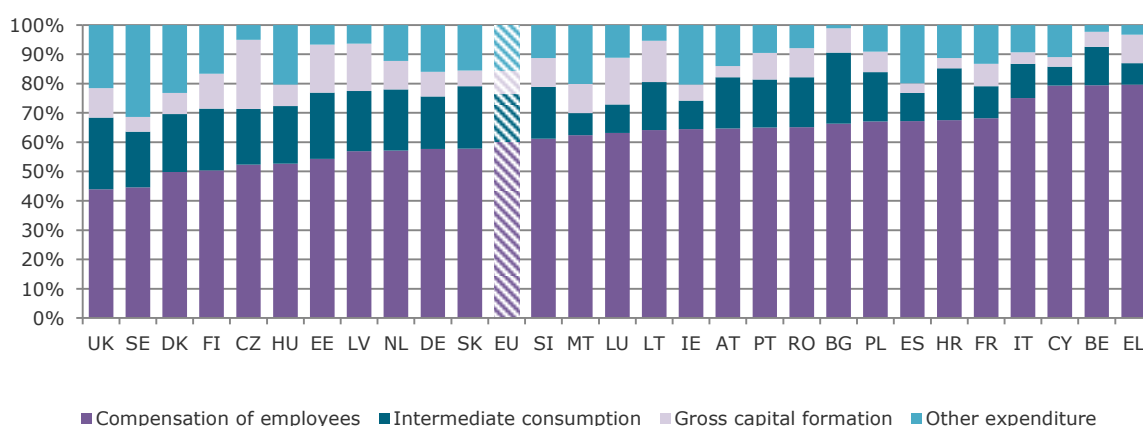
²⁴ See, for instance, JRC-CRELL (2013), *Public financing of education in EU countries: A cross-country systematic analysis* (<https://crell.jrc.ec.europa.eu/>).

²⁵ Possible ways to relate education outcomes to expenditures were investigated by the *Indicator Expert Group on Education Investment*, set up in the framework of the Standing Group on Indicators and Benchmarks (SGIB).

Figure 1.2.1. Recent trends in public education expenditure and demographic change


Source: DG EAC elaboration on Eurostat's general government finance and national accounts statistics, plus demographic data. Online data code: *gov_10a_exp*, *demo_pjan*, *proj_13npms* and *nama_10_gdp*. Note: Real change in public education expenditure on pre-primary, primary and secondary education in the period 2010-2013 (size is relative to magnitude of change).

Secondly, adjustments to education expenditure levels are often a reaction to (or an anticipation of) demographic changes, as a shrinking school-age population requires fewer resources. However, the link between changes in expenditure and changes in the school-age population proves to be very weak (Figures 1.2.1). Whether or not the school-age population has been decreasing or is forecasted to decrease, countries can be found with spending cuts and spending increases.

Figure 1.2.2. Public expenditure on education by type of transaction


Source: DG EAC elaboration on Eurostat's general government finance statistics (2013). Online data code: *gov_10a_exp*.

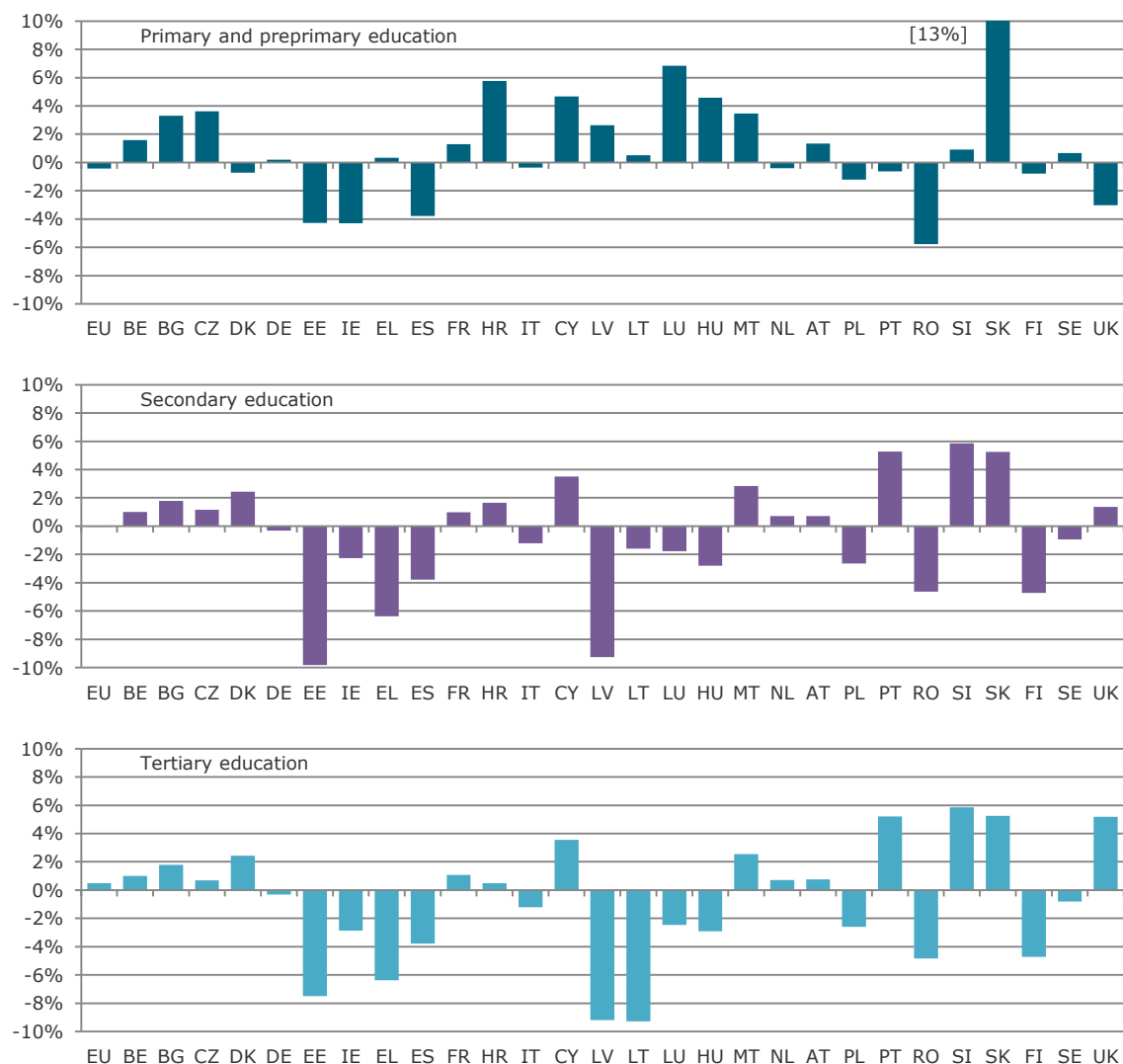
The most problematic case, from a demographic perspective, is represented by those Member States located in the highlighted (upper-right) quadrant of Figure 1.2.1. Positive demographic changes in the school-age population (both past and projected) mean that spending cuts over the 2010-2013 period were unwarranted. SI, IT, IE, UK and ES decreased expenditure on pre-primary, primary and secondary education between 2010 and 2013 despite continuously growing youth cohorts.

From a demographic perspective, spending cuts in Slovenia, Italy, Ireland, the UK and Spain are the most problematic

About 60% of education budgets across Europe is spent on wages of education professionals

Furthermore, education expenditure can be broken down by type of transaction. As shown in Figure 1.2.2, the bulk of the education budget is devoted to wages (*compensation of employees*) and *intermediate consumption*, which includes the purchase of goods and services needed to provide education services, such as electricity, stationary, paper, books, cleaning services, etc. In 2013, wages accounted for about 60% of total public expenditure in the EU and fluctuated between 44% in UK and 80% in EL. Intermediate consumption was the second largest budget item in most of the countries, and accounted for about 17% of the total in the EU.

Figure 1.2.3. Real growth (2012-2013) of public expenditure on education by level



Source: DG EAC elaboration on Eurostat's general government finance and national accounts statistics (2012-2013). Online data code: *gov_10a_exp* and *nama_10_gdp*. Note: The charts consider the public expenditure on education classified by level, whereas the public expenditure on education shown in Table 1.2.1 include also expenditure not directly linked to education levels: i.e. education not definable by level, subsidiary services to education, R&D on education and education not elsewhere classified.

Typically, only a small share of the education budget is allocated to *gross capital formation*: about 8% in the EU, and in just four countries this share exceeds 15% (CZ, EE, LV, LU). *Other expenditure* covers a large variety of transactions, including subsidies, social benefits and transfers. Its importance depends on the way the provision of education is organised in the

country concerned, and it usually increases in accordance with the reliance on the non-profit sector.

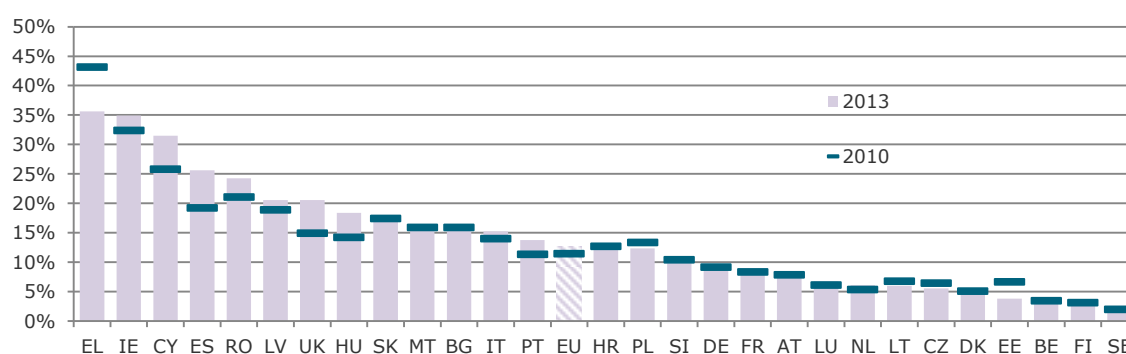
Public education expenditure can, finally, be broken down by level of education. This reveals that the budget trends shown at the beginning of this section are not the same across all education levels (Figure 1.2.3)²⁶. At the EU level, whereas expenditure on primary and pre-primary education decreased in 2013, the secondary education budget barely changed, and expenditure on tertiary education actually increased. Despite these differences across education levels, no less than seven Member States cut their spending *at all three levels* (EE, IE, ES, IT, PL, RO, FI)²⁷.

Estonia, Ireland, Spain, Italy, Poland, Romania and Finland cut their spending across all levels of education

Household expenditure and student expenses

Household expenditure, which also plays a pivotal role in financing the education and training system, has increased in importance in recent years. Figure 1.2.4 shows the aggregate expenditure by households on education, as a proportion of public expenditure on education. This indicator covers spending on all levels of education, as well as expenditure that is not linked to a specific education level. The household share of education expenditure provides a rough measure of the burden borne by households as a whole, as opposed to the burden on the public sector, in financing the education and training system²⁸.

Figure 1.2.4. Household expenditure as share of public expenditure on education



Source: DG EAC elaboration on Eurostat's general government finance and national accounts statistics. Online data code: gov_10a_exp and nama_10_co3_p3.

In 2013, the share of household spending in the EU was about 13% on average, and fluctuated considerably across the Member States: from 36% in EL to no more than 2% in SE. Besides EL, also IE, CY, ES, RO, LV and UK recorded high levels of household contributions (higher than 20%). On the other hand, in EE, BE, FI and SE, household contributions were below 5%.

The change over time (2010-2013) is mostly less than one percentage point, except for a notable decrease in EL, and an increase above 5 percentage points in ES, CY and UK. The relatively stable share does not, however, imply that the consumption of education services remained stable. Not only did the public expenditure on education decrease, as illustrated above, but EU average prices of education services rose significantly over the same period²⁹. This suggests that consumption of education services actually dropped, unless efficiency gains occurred.

²⁶ The comparison between levels of education is complicated by the fact that some levels of education are compulsory (resulting in very high enrolment rates) and some are non-compulsory (with lower enrolment rates).

²⁷ Note, however, that spending in PL and FI remains above the EU average and in EE *significantly* above the EU average (as a share of public expenditure).

²⁸ The indicator is, however, to some extent biased, as data are not consolidated and include transfers between the public and private sectors.

²⁹ See page 17 of the Education and Training Monitor 2014 (<http://ec.europa.eu/education/monitor>).

In higher education, household expenditure generally means costs paid by students and their families. One element of these expenses is tuition and administrative fees, which are widespread in the EU. Only in UK-SCT, SE, FI and EL are no fees charged to domestic students³⁰. But there is a large variation between higher education systems regarding the proportion of students paying fees, as well as the amount of fees they need to pay and the availability of specific loans to pay fees. Living costs are nearly always the main student expense. Countries rely on different combinations of forms of student support to help students cover living costs, and the proportion of students receiving such support varies widely. In general, Bachelor students tend to receive more public support than Master students³¹.

Examples of recent policy measures in Member States

In IT, the 2015 *Stability Law* created a specific fund to finance the ongoing reform of the school system, endowed with EUR 1 billion in 2015 and EUR 3 billion from 2016. In LV, a new quality-targeting financing model of higher education is being developed. It will include three pillars: (1) base funding; (2) performance-oriented funding; and (3) targeted funding for innovation and development. NL foresees an annual investment of EUR 600 million for 2016-2019 to be used in areas such as preventing students from repeating school years, appropriate teaching methods, better quality for technical VET and the internationalisation of higher education.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Investments at the EU level

A first analysis in Section 1.1 has shown that there is room for improving equitable access to and outcomes of education and training systems throughout Europe. To a certain extent, this requires an increase in the amount of resources invested in those systems. However, effective and efficient investment also implies getting the most out of the resources available. This is particularly important in Member States facing budgetary constraints, but it is naturally a crucial consideration in all education and training systems. The widespread reform of higher education funding systems to introduce a greater focus on outputs and performance is one illustration of how governments are increasingly focusing not simply on absolute levels of spending, but also on the efficiency of investment.

Education is among the main objectives of the new European Fund for Strategic Investment

While responsibility for the core funding for education and training systems remains firmly with Member States, the EU seeks to support investments at national level. The *Investment Plan for Europe*, launched by the European Commission in 2014 is a new mechanism for doing this. The mainstay of the plan is the creation of the *European Fund for Strategic Investment*, backed up by an EU guarantee.

The fund aims to attract private capital to invest in projects that are worthwhile but – without the first-loss guarantee offered by the fund – would appear too risky. Education and training are among the main objectives of the fund, as the investment plan recognises its central role in ensuring future productivity growth. Activities that have a potential economic return and can therefore attract private investors stand to benefit from the fund³².

The EU is already supporting the education and training systems of the Member States through the European Structural and Investment Funds and in particular through the European Social Fund and the European Regional Development Fund, which finance a broad range of projects on education. In the programming cycle 2007-2013, these projects aimed at supporting reforms of the education and training systems, increasing participation in education, developing human potential in research and innovation, as well as improving education and childcare

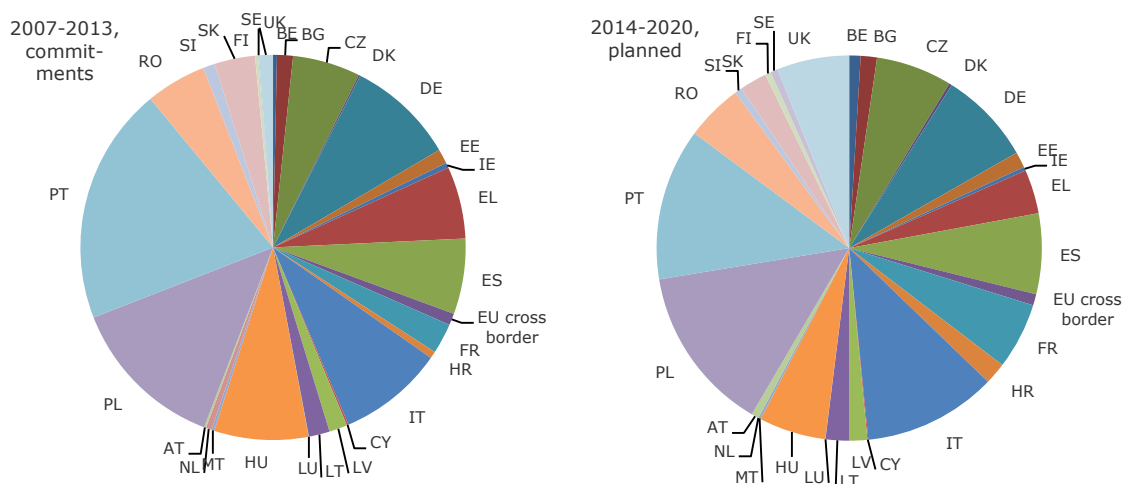
³⁰ See chapter 8 of EUROSTUDENT V (<http://www.eurostudent.eu/results/reports>); and chapter 4 of European Commission/EACEA/Eurydice (2015), *The European Higher Education Area in 2015: Bologna Process Implementation Report* (<http://eacea.ec.europa.eu/eurydice>).

³¹ The design of student support and fee systems has implications for participation and completion of higher education (addressed in Section 2.2).

³² The investment plan includes other initiatives beyond the new fund: it intends to further simplify the business environment, in order to encourage private investors from the EU and outside to place their capital into European ventures; it promotes the preparation, development and financial structuring of projects susceptible to benefit from the new fund as well as from other existing forms of support (structural funds, EU programmes, other credit opportunities); and it allows governments with sound public finance strategies to invest more in growth-friendly policies, including education and training, without infringing the rules of the Stability and Growth Pact.

infrastructures. The total budget committed for these projects amounted to 36.8 billion EUR, and the Member States which benefited more from them (Figure 1.2.5) were PT (20%), PL (13%), DE (9%) and IT (9%).

Figure 1.2.5. EU structural funds on education projects



Source: DG EAC elaboration on infoview data 2015. Note: 2007-2013 commitments include all the objectives under the heading *Improving human capital* and the objective *Education infrastructure and Childcare infrastructure*. 2014-2020 planned funds are provisional (pending the approval of a number of Operational Programmes), and include the intervention fields relevant to education: 115, 116, 117, 118, 049, 050, 051, 052 and (only for HR) 048.

The new programming cycle 2014-2020 has earmarked 33.9 billion EUR for education projects, with the objective to reduce early school leaving and promote equal access to education; enhance equal access to lifelong learning; improve the labour market relevance of the education and training systems; improve education and childcare infrastructure. The Member States that will benefit more from these projects are PL (14%), PT (13%), IT (11%) and DE (8%).

For 2014-2020, 33.9 billion EUR will be available to Member States for education projects through the structural funds

Key findings and policy relevance

Education holds key potential for long-term growth and tackling the root causes of the social crisis. Yet the latest available data (2013) shows an average decrease in education investment for the third consecutive year. Member States that have seen a spending cut for at least three years in a row are IT, ES, IE, NL, FI, PT and UK. Out of these seven Member States, IT, ES, IE and UK are the most problematic cases from a demographic perspective, with their school-age population increasing between 2010 and 2020. Some of these Member States face serious budgetary constraints and cannot readily fulfil the large investment needs. EU value-added manifests, firstly, in financial support, offered through the European Regional Development Fund, the European Social Fund and the new Investment Plan for Europe. Other value-added is found through mutual learning and the strengthening of evidence-based policy making. The Education and Training Monitor 2015 identifies the main challenges and key policy levers that could help improve the inclusiveness, quality and relevance of Europe's education and training systems.

Part 2

Education attainment levels of young people across Europe

Part 2. Education attainment levels of young people across Europe

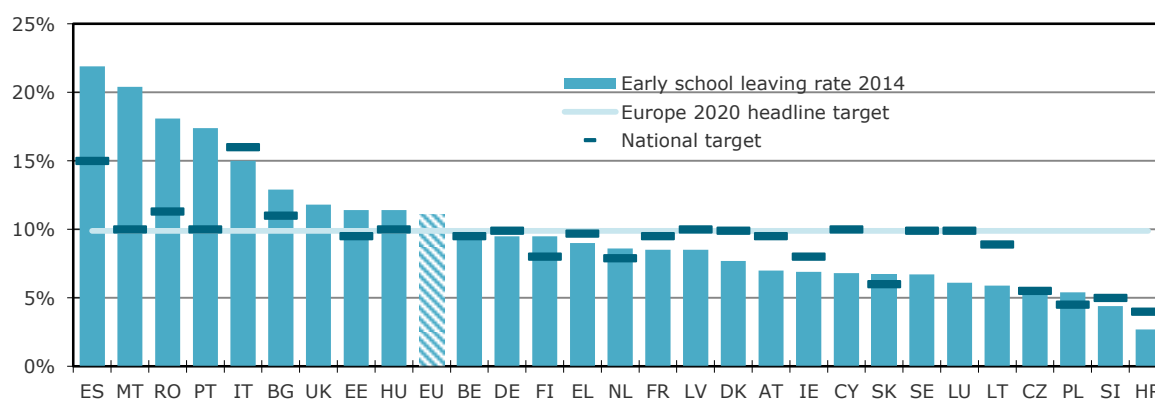
Education is a growth-enhancing investment that nurtures competitiveness and innovation but also promotes social inclusion and engaged citizenship. These dual objectives of education are well reflected in the twofold headline target of the Europe 2020 strategy. One part sets a minimum threshold for education attainment; the other is concerned with expanding higher levels of education. They need to go hand in hand in order to steer forward reforms in the education sector that truly enable Europe to reap the best outcomes from the widest possible range of students.

Part 2 of the Education and Training Monitor is about education attainment levels across Europe. It reveals that, despite an overall progress towards the headline targets, both early school leaving and tertiary education attainment are marked by inequalities and an inability of Member States to tackle these inequalities head-on.

2.1. Early leavers from education and training: raising the bar in school education

The EU regards upper secondary education attainment as a prerequisite for better labour market integration, lowering chances of poverty and social exclusion, and at the same time setting a minimum guarantee for continued personal development and active citizenship. Those 18 to 24 year-olds who fail to reach this threshold are called early leavers from education and training³³. Theirs is a complex, multi-faceted problem that often originated long before they leave the education and training system, and echoes on until long after³⁴.

Figure 2.1.1. Early school leaving and target levels



Source: Eurostat (LFS, 2014). Online data code: *t2020_40*. The indicator covers the share of the population aged 18-24 having attained ISCED level 0 to 2 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). Data for HR have low reliability due to the small sample size.

The latest available data (2014) show that the EU average early school leaving rate stands at 11.1%, down 0.8 percentage points from 2013. Nineteen Member States have reached the Europe 2020 headline target of an early school leaving rate below 10% (HR, SI, PL, CZ, LT, LU, SE, SK, CY, IE, AT, DK, LV, FR, NL, EL, FI, DE, BE), up from eighteen last year. BE joins this group mainly due to methodological changes. EL, furthermore, dropped below 10% for the first

³³

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

³⁴

See the 2013 final report of the Thematic Working Group on early school leaving at: http://ec.europa.eu/education/policy/strategic-framework/doc/esl-group-report_en.pdf.

time, whereas EE saw an *increase* in its early school leaving rate from 9.7% in 2013 to 11.4% in 2014.

The EU average
early school
leaving rate
stands at 11.1%

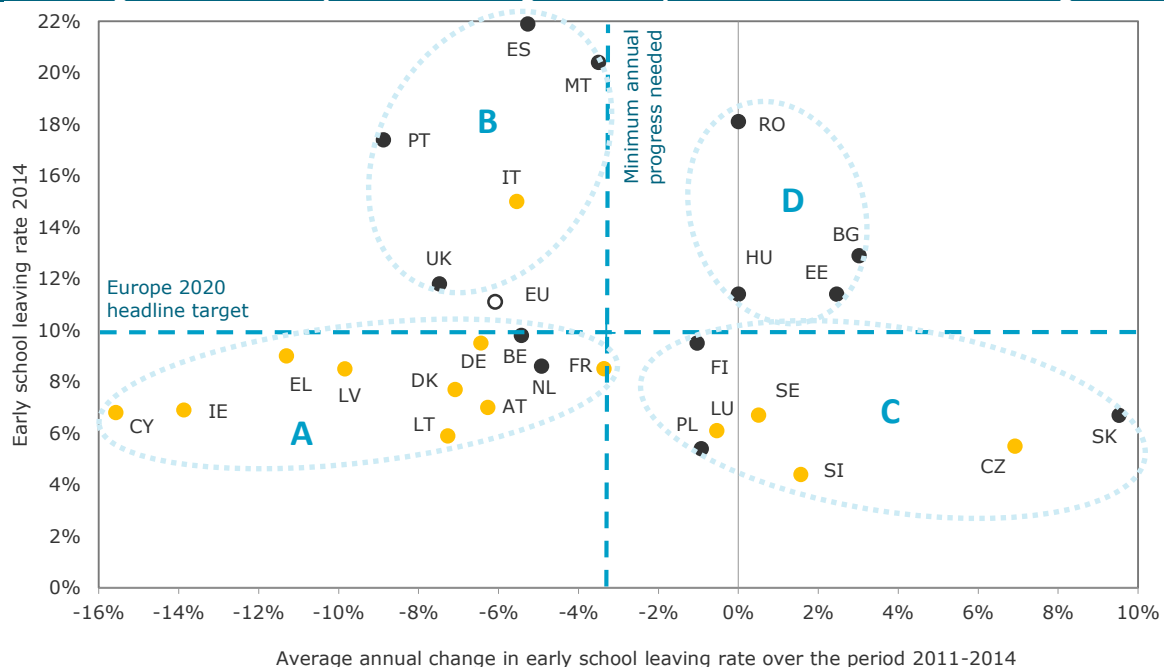
Fifteen Member States have now reached their respective national targets (HR, SI, CZ, LT, LU, SE, CY, IE, AT, DK, LV, FR, EL, DE, IT). New to this group are HR, IE, FR, EL and IT, although methodological breaks in time series account for part of this success, as well as widely different levels of ambition in setting the national targets (see Table 2.1.1).

Country performance vis-à-vis the Europe 2020 headline target

Figure 2.1.2 illustrates how the EU as a whole is on track to reach the Europe 2020 headline target of an early school leaving rate below 10%, nevertheless hiding significant discrepancies between Member States when it comes to the progress made between 2011 and 2014. Four groups of countries can meaningfully be distinguished:

- A.** *Group A* features all the Member States that have reached the headline target while still making significant progress in reducing their early school leaving rates even further. The vast majority of countries in this group have also reached their respective national targets, as listed in the last column of Table 2.1.1.
- B.** *Group B* comprises countries that still have some way to go to reaching the headline target but all of them have made significant progress between 2011 and 2014. IT owes this position to a solid progress during the period assessed, but it reached its national target for the first time in 2014 also because it has the least ambitious national target of all Member States (16%).

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 BE (2013-2014), CZ (2012-2013), ES (2013-2014), FR (2012-2013, 2013-2014), NL (2012-2013) and PL (2012-2013). HR is not included due to unreliable data for 2014.

- C.** The Member States in *Group C* have all reached the headline target despite their very weak progress between 2011 and 2014. They can be divided into two categories: FI, PL, LU, SE

and SI³⁵ show relatively stable rates of early school leaving, whereas SK and CZ have actually seen an average *increase* in recent years. While some of the countries in this group have reached their national target, they risk missing it again if they do not change tack.

- D. Finally, the situation is worst for the four countries in *Group D*, combining early school leaving rates above 10% with a lack of progress between 2011 and 2014. RO and HU reveal no average annual change whatsoever in the period assessed, and BG and EE saw their early school leaving rates increase.

RO, BG, HU and EE will have to strengthen policy efforts to reduce early school leaving rates

Table 2.1.1. Early school leaving by sex and migrant status

	2011	2014							2020
	Total	Total	Men	Women	Native-born	Foreign-born			Target
						EU	Non-EU	Sub-total	
EU	13.4	11.1	12.7	9.5	10.3	18.1	21.0	20.1	< 10.0
Belgium	12.3	9.8b	11.8b	7.7b	8.7b	14.8b	19.6b	17.5b	9.5
Bulgaria	11.8	12.9	12.8	12.9	12.9	:	:	:	11.0
Czech Republic	4.9	5.5	5.8	5.2	5.4	:	(13.2)	(9.9)	5.5
Denmark	9.6	7.7	9.3	6.0	7.7	(6.0)	(8.1)	(7.5)	< 10.0d
Germany	11.6	9.5	10.0	8.9	8.2	:	:	:	< 10.0d
Estonia	10.6	11.4	15.3	7.5	11.5	:	:	:	9.5
Ireland	10.8	6.9	8.0	5.7	7.0	(7.8)	:	6.1	8.0
Greece	12.9	9.0	11.5	6.6	7.3	(25.8)	28.2	27.8	9.7
Spain	26.3	21.9b	25.6b	18.1b	18.9b	36.5b	38.1b	37.8b	15.0d
France	11.9	8.5b	9.5b	7.4b	8.1b	(10.1b)	14.9b	14.0b	9.5
Croatia	5.0	(2.7)	(3.1)	(2.3)	(2.7)	:	:	:	4.0
Italy	17.8	15.0	17.7	12.2	13.0	26.5	34.8	32.6	16.0
Cyprus	11.3	6.8	11.2	(2.9)	4.6	:	(29.0)	19.5	10.0
Latvia	11.6	8.5	11.7	5.1	8.5	:	:	:	10.0
Lithuania	7.4	5.9	7.0	(4.6)	5.9	:	:	:	< 9.0d
Luxembourg	6.2	6.1	8.3	(3.7)	5.6	(7.5)	:	(7.8)	< 10.0d
Hungary	11.4	11.4	12.5	10.3	11.5	:	:	:	10.0
Malta	22.7	20.4	22.3	18.3	20.2	:	:	(23.5)	10.0
Netherlands	9.1	8.6	10.3	6.8	8.3	12.8	9.4	10.4	< 8.0
Austria	8.5	7.0	7.6	6.5	5.7	(11.1)	18.0	14.9	9.5
Poland	5.6	5.4	7.3	3.3	5.4	:	:	:	4.5
Portugal	23.0	17.4	20.7	14.1	17.4	:	18.8	18.3	10.0
Romania	18.1	18.1	19.5	16.7	18.2	:	:	:	11.3
Slovenia	4.2	4.4	6.0	(2.7)	4.0	:	(14.5)	(13.5)	5.0
Slovakia	5.1	6.7	6.9	6.6	6.7	:	:	:	6.0d
Finland	9.8	9.5	11.9	7.2	9.1	:	(19.0)	(19.5)	8.0
Sweden	6.6	6.7	7.3	6.0	5.7	(10.4)	12.9	12.6	< 10.0d
United Kingdom	14.9	11.8	12.8	10.7	12.2	14.5	6.0	9.4	-

Source: Eurostat (LFS, 2011-2014). Online data code: *edat_ifse_02*. Intermediate break in time series (2012-2013) for CZ, FR, NL and PL. 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.

Inequalities within Member States

The strongest determinant of early school leaving rates is the intergenerational transmission of education attainment³⁶. This links back to socio-economic status and the home learning environment, discussed in Section 1.1, affecting education opportunities and outcomes. Not

³⁵ The number of early school leavers in SI is so low that the volatility of its change over time should be interpreted with caution.

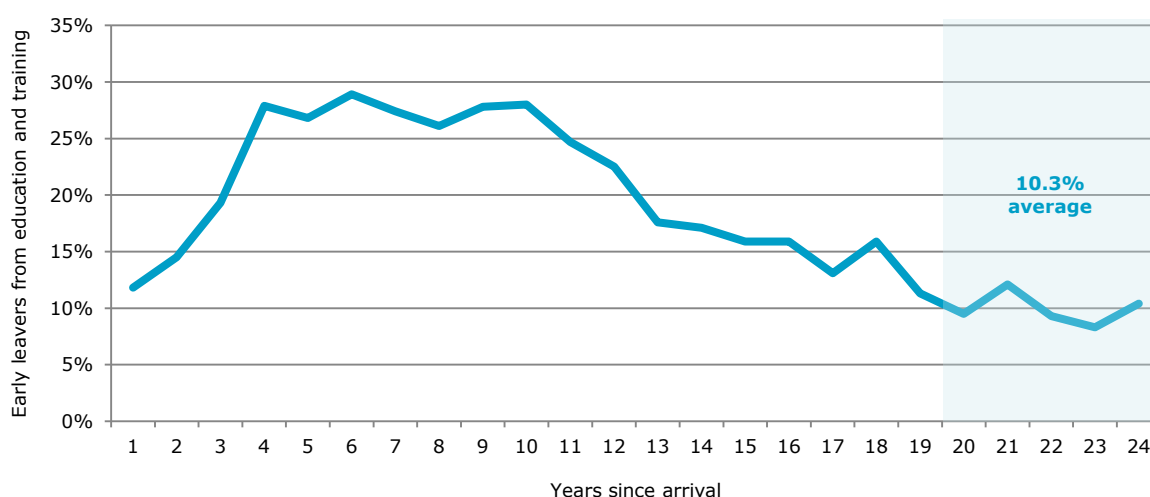
³⁶ For a more comprehensive, up to date overview of the determinants of early school leaving, see European Commission/EACEA/Eurydice and Cedefop (2014), *Tackling early leaving from education and training in Europe: Strategies, policies and measures* (<http://eacea.ec.europa.eu/education/eurydice/>).

surprisingly, early school leaving rates correlate strongly with equivalent education attainment rates of the parental cohort of these early school leavers³⁷.

Early school leaving rates are, furthermore, significantly higher amongst men than amongst women (Table 2.1.1). In fact, on average, women have already reached the Europe 2020 headline target of an early school leaving rate below 10%. Male early school leaving rates are at least twice as high as those of women in CY, LV, LU, SI, PL and EE. The average gender gap has narrowed slightly in recent years, although EE, FI, LU, BG, CY, RO, HU and PL all show increasing gender gaps to various extents.

Data for foreign-born individuals have to be interpreted with some caution, as they are only available for a number of Member States, with many of them yielding sample sizes too small to be fully reliable. Nonetheless, those born abroad are on average twice as likely to leave the education and training system early when compared to native-born individuals³⁸. Socio-economic status underlies a large part of this disadvantage, but issues associated specifically with immigration are at play too, such as language barriers and settling into a new context³⁹.

Figure 2.1.3. Foreign-born early school leaving by years since arrival in the country



Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: the indicator shows the EU average rate of early school leaving (18 to 24 year-olds).

Improvement is to be made in integrating foreign-born students arriving during or towards the end of their school education

The first-generation migrant 18 to 24 year-olds are a diverse group of individuals. Some reached the compulsory schooling age before arriving in the country where they currently live, whereas others migrated before compulsory schooling even started. Figure 2.1.3 confirms that early school leaving rates amongst those who arrived in the country before the start of compulsory education are no different than the average early school leaving rate of the native-born population shown in Table 2.1.1. Having just arrived in the country of current residence only has a relatively small effect, as many of these 18 to 24 year-olds were able to finish their upper secondary education in the origin country.

³⁷ Eurostat (LFS), online data code *edat_lfs_9903*. For more on this contextual indicator, see <https://crell.jrc.ec.europa.eu/ET2020Indicators/>. Moreover, the social context of the school has an additional effect on student outcomes, over and above a student's background. Early school leaving rates tend to be higher in schools with a concentration of students from disadvantaged backgrounds.

³⁸ The difference in early school leaving rates between those born in another EU country and those in a non-EU country (2.9 percentage points on average, see Table 2.1.1) is particularly significant for women: 3.8 percentage points compared to only 0.5 percentage points for men.

³⁹ See Section 1.1, as well as a 2015 policy brief from the SIRIUS network: <http://www.sirius-migrationeducation.org/wp-content/uploads/2015/02/SIRIUS-EarlySchoolLeaving-FINAL.pdf>.

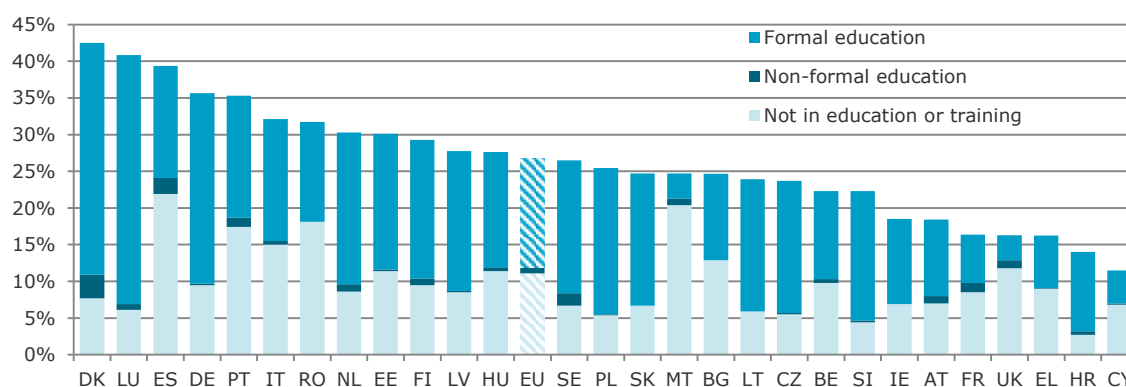
The foreign-born students requiring most attention are those who arrived towards the end of their compulsory schooling age or in the middle of their school education. Specific support is to be intensified for foreign-born students at risk of leaving an education and training system they have not been able to find their way in. This illustrates the heterogeneity of the foreign-born population, but also hints at education's role in immigrant integration, put under pressure by the recent refugee crisis⁴⁰.

Finally, although comparative data is scarce, the available evidence states unambiguously that students hampered by a disability⁴¹ and students belonging to a minority ethnic group⁴² are more likely to leave school before finishing upper secondary education.

A closer look at participation, completion and work

At 18, all young people across Europe have reached the end of their compulsory schooling age⁴³. An average of 80.4% still participates in education and training, but this participation rate drops to 29.2% for 24 year-olds⁴⁴. Moreover, despite the different structures of education and training systems across Europe⁴⁵, 60.5% of 18 to 24 year-olds have attained upper secondary education or post-secondary education, and 12.7% have already attained a degree at the tertiary level. Still, as much as 26.8% of this age group has attained no more than lower secondary education.

Figure 2.1.4. 18 to 24 year-olds with at most lower secondary education attainment



Source: Eurostat (LFS, 2014). Online data codes: *edat_lfs_9903*, *edat_lfse_14* and *edat_lfse_15*.

Figure 2.1.4 shows the country-specific rates of at most lower secondary education attainment amongst 18 to 24 year-olds. In most Member States, a large share of these young people is in formal upper secondary education. This may be due to different phenomena, whether the structure of the education and training system, the prevalence of grade retention or the availability of second chance education as a compensation measure. It is nevertheless clear that non-formal learning is rarely used as such compensation measure, with an average of only 0.8% of 18 to 24 year-olds in non-formal learning after having left formal education without upper secondary education attainment.

Figure 2.1.4 also raises the broader question of how efficiently students flow through upper secondary education. The OECD's *Education at a Glance 2014* measures the share of students

⁴⁰ See also OECD/European Commission (2015), *Indicators of immigrant integration 2015: Settling in* (www.oecd-ilibrary.org). In 2016, the JRC's Centre for Research on Education and Lifelong Learning (CRELL) will look further into the effect of years since arrival and age of arrival.

⁴¹ See Section 2.1 of the Education and Training Monitor 2014 at <http://ec.europa.eu/education/monitor>.

⁴² For instance, see the findings on Roma students from the EU Agency for Fundamental Rights (FRA) at <http://fra.europa.eu/en/survey/2012/roma-pilot-survey>.

⁴³ European Commission/EACEA/Eurydice (2014), *Compulsory education in Europe 2014/15 – Eurydice Facts and Figures* (<http://eacea.ec.europa.eu/education/eurydice/>).

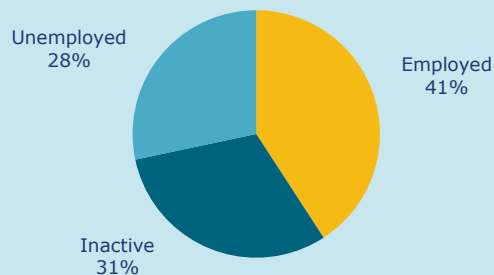
⁴⁴ Eurostat (UOE, 2013), online data code *educ_uoe_enra05*.

⁴⁵ European Commission/EACEA/Eurydice (2014), *The structure of the European education systems 2014/15: Schematic diagrams – Eurydice Facts and Figures* (<http://eacea.ec.europa.eu/education/eurydice/>).

entering upper secondary education for the first time and completing this level successfully after the theoretical duration of the programme⁴⁶. The indicator can be regarded as a proxy for the capacity of upper secondary education to engage students to complete a programme within its theoretical duration. Of the eighteen Member States covered by the data, seven reveal completion rates below 70% (LU, FR, DK, ES, NL, IT, UK) and only four above 80% (HU, EL, SK, IE).

The 18 to 24 year-olds that have left formal and non-formal education before obtaining an upper secondary degree are the early leavers from education and training. Their current labour market status is a telling illustration of the causes and consequences of early leaving. On the one hand, the unemployment rate amongst early school leavers was 40.8% in 2014⁴⁷, compared to an overall youth unemployment rate of 20.9%⁴⁸. On the other, the large share of inactivity suggests individual background characteristics that might have contributed to an early exit from the education and training system in the first place⁴⁹.

About 60% of early school leavers are either inactive or unemployed



Examples of measures to tackle early school leaving

Examples of recent policy measures in Member States

FR adopted an action plan to fight early school leaving entering into force in 2015. The plan is organised along three lines: the mobilisation of all actors inside and outside the schools, increased prevention, and acquisition of qualifications for early school leavers. Based on the November 2014 early school leaving strategy, HU has started developing an early warning system to signal potential drop-outs. The June 2015 national strategy on early school leaving in RO provides for prevention and inclusions measures, the setting up of monitoring and evaluation mechanisms and a specific focus on children from groups at risk, in particular the Roma community.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

The 2011 Council Recommendation on policies to reduce early school leaving features a detailed policy framework for evidence-based, comprehensive national strategies to tackle the issue⁵⁰. Comprehensive strategies comprise a mix of policies, coordination across different policy sectors and the integration of measures supporting the reduction of early school leaving into all relevant policies aimed at children and young people. Crucially, these strategies should cover prevention, intervention and compensation elements, tailored to the contexts in each Member State.

According to the latest country-specific analysis, the majority of Member States has implemented the Council Recommendation either through adopting explicit comprehensive strategies (BE nl, BG, FR, HU, MT, NL, AT, RO) or other national policies (CY, DE, DK, EE, ES, IE, IT, LT, LU, PL, FI, SE, UK). Other countries have only partly or not yet implemented comprehensive strategies or national policies.

Table 2.1.2 illustrates a selection of the latest available structural indicators; the result of a 2013/14 data collection on Member States' specific efforts to tackle early school leaving. The

⁴⁶ See Chart A2.4 (page 60) of OECD (2014), *Education at a Glance 2014: OECD Indicators* (<http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf>).

⁴⁷ Eurostat (LFS), based on a May 2015 extraction. While the unemployed early leavers are arguably the most disadvantaged group, it should be noted that all early leavers face higher risks of unemployment spells and precarious employment throughout their working life.

⁴⁸ Eurostat (LFS), EU average unemployment rate amongst 15 to 24 year-olds for 2014 Q1 (seasonally adjusted quarterly data). Online data code: *une_rt_q*.

⁴⁹ Inactive early school leavers mainly include those providing domestic care or suffering physical difficulties, preventing them from working or looking for work. See JRC-CRELL (2015), *School-to-work transition of young individuals: what can the ELET and NEET indicators tell us?* (<https://crell.jrc.ec.europa.eu/>).

⁵⁰ OJ 2011/C 191/01. See also European Commission (2013), *Final Report of the Thematic Working Group on Early School Leaving* (http://ec.europa.eu/education/policy/strategic-framework/doc/esl-group-report_en.pdf).

first column refers to the 2011 Council Recommendation's invitation to strengthen the knowledge base on early school leaving. This can be done by gathering a significant amount of additional detail on the scope and nature of the phenomenon on top of the data collected for the early school leaving indicator used throughout this section.

Table 2.1.2. Early school leaving: a selection of structural indicators

	Use of student register/database for producing national statistics on early leavers	Flexibility and permeability of education pathways	Education and career guidance in schools, ISCED 2 and 3 **	Inclusion of early school leaving in ITE and CPD	Language support for students with a different mother tongue	Positive discrimination 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*	● (ENG+WLS)	●				
UK-SCT	●		●			

Source: European Commission/EACEA/Eurydice and Cedefop (2014), *Tackling Early Leaving from Education and Training in Europe: Strategies, Policies and Measures* (<http://eacea.ec.europa.eu/education/eurydice>). Note: * = UK-ENG, UK-NIR and UK-WLS; ** = both compulsory in the curriculum and provided by school guidance services in lower and upper secondary education. The structural indicators pertain to 2013/14; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

Data based on student registers, with the potential of mapping even the most marginalised issues, are used in seventeen Member States for producing national statistics on early leavers, whereas six Member States (CZ, HR, CY, HU, RO, SK) plus BE de and UK-NIR collect no other data than those for the EU Labour Force Survey (LFS)⁵¹. The remaining countries (DE, ES, FR, SI, SE) use national surveys or other statistics for the better understanding of early school leavers.

⁵¹ For more recent information on policy measures and reforms in HU and RO, see the box on the previous page, plus the corresponding country reports at <http://ec.europa.eu/education/monitor>.

Table 2.1.2 also mentions other possible elements of a comprehensive strategy. All Member States have developed some policies to combat early leaving, especially in the area of flexible and permeable education pathways. But well-managed, flexible transitions between levels and types of education, and from school to work, require high-quality, up-to-date, and personalised guidance and counselling services. Only in about half of the EU is education and career guidance provided by in-school guidance services and part of the compulsory curriculum in both lower and upper secondary education.

One of the crucial policy areas that needs further development across virtually all Member States is raising awareness among teachers of the problem of early leaving and encouraging the development of skills needed to prevent it. Covering the phenomenon in initial teacher education (ITE) and continuing professional development (CPD) also contributes to the quality of the education and career guidance that is so crucial to tackling early school leaving. Indeed, teachers report a need for professional development in the area, particularly in dealing with students at high risk of early school leaving⁵².

A contributing factor to the high risk of early school leaving amongst students with an immigrant background is the fact that the language spoken at home does not correspond to the language of instruction. Apart from BG, IE, HR, HU, NL and UK, all countries have language support measures in place for students with a different mother tongue. But broader positive discrimination measures, which provide targeted support to students and schools in disadvantaged areas⁵³, are less common across the EU, with little over half of the Member States having such active policy measures in place.

Key findings and policy relevance

Upper secondary education attainment sets the minimum standard for further learning or labour market integration, and helps individuals to become active citizens. Yet 11.1% of 18 to 24 year-olds have left education and training without completing an upper secondary programme. About 60% of these early school leavers now face either unemployment or inactivity. Further progress cannot go without a profound policy effort to tackle education inequalities and an active focus on those most at risk of early leaving. A qualitative assessment reveals that such targeted measures are often still missing in teachers' education and training, students' guidance and governments' support to disadvantaged areas. Additional efforts are also needed to enhance collaboration and the coordination of policies to raise the bar in school education.

2.2. Tertiary education attainment: widening access and reducing dropout

The EU average tertiary education attainment rate stands at 37.9%

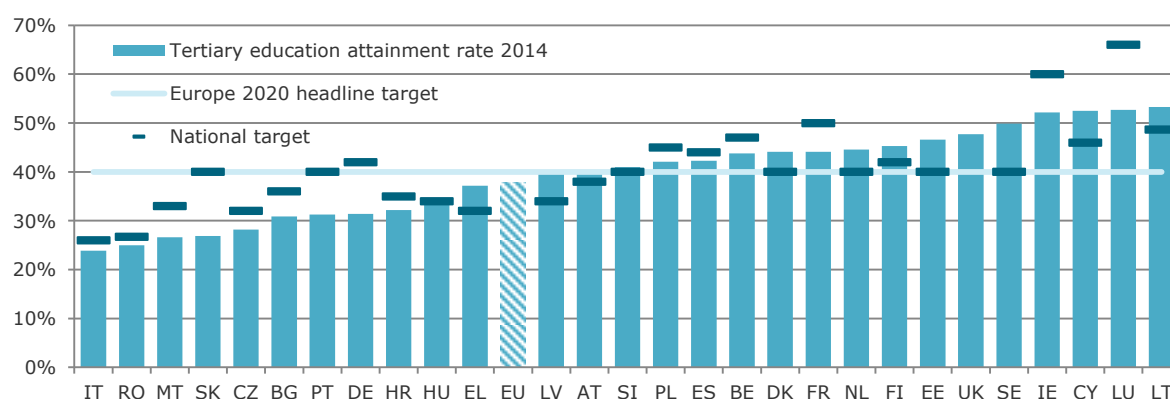
The EU has seen a massive expansion of higher education in the last decade or so. The rate of tertiary education attainment amongst 30 to 34 year-olds stood at 23.6% in 2002 and, in twelve years' time, increased by no less than 14.3 percentage points to 37.9%. Across Europe, higher education policy increasingly focusses on the question of how to enhance quality and relevance (Section 3.3). But the expansion of higher education has not benefitted all, and the issue of widening access (bringing more people in) and reducing drop-out rates (ensuring people complete their studies) are still very much priorities.

⁵² European Commission/EACEA/Eurydice (2015), *Eurydice Brief: Tackling Early Leaving from Education and Training in Europe* (<http://eacea.ec.europa.eu/education/eurydice/>).

⁵³ Early school leaving has a strong geographical dimension, with rates varying significantly between regions (Eurostat online data code: *edat_ifse_16*) and between cities and rural areas (Eurostat online data code: *edat_ifse_30*).

Looking at the latest data (Figure 2.2.1), sixteen Member States have tertiary education attainment rates above the Europe 2020 headline target of 40% (LT, LU, CY, IE, SE, UK, EE⁵⁴, FI, NL, FR, DK, BE, ES, PL, SI, AT)⁵⁵. Twelve Member States have reached their respective national target (LT, CY, SE, EE, FI, NL, DK, SI, AT, LV, EL, HU). AT has joined both groups for the first time formally, due to an improvement of the international classification of education attainment⁵⁶.

Figure 2.2.1. Tertiary education attainment and target levels



Source: Eurostat (LFS, 2014). Online data code: *t2020_41*. Note: The indicator covers the share of the population aged 30-34 years having successfully completed ISCED level 5 to 8. National targets follow different definitions of the indicator in some countries (see Table 2.2.1).

Country performance vis-à-vis the Europe 2020 headline target

To better gauge progress in across the Member States, Figure 2.2.2 plots the average annual change in tertiary education attainment rates against the data shown in the bar chart above. Three groups of countries can be distinguished to facilitate the interpretation of the scatterplot:

- A.** *Group A* features all the Member States that have reached the Europe 2020 headline target (or are very close to reaching it, in the case of LV), and have, moreover, still been making additional progress between 2011 and 2014⁵⁷. The vast majority of these countries have also reached their national targets, or have national targets that are by far the most ambitious of the EU (LU, IE).
- B.** The four countries in *Group B* have also reached the Europe 2020 headline target, but have not been making significant progress in recent years. BE, ES and FR improved only minimally, whereas FI saw a small average decrease in its tertiary education attainment rate between 2011 and 2014. FI is the only Member State of the four that has reached its national target of 42%.
- C.** *Group C* comprises countries that are well below the headline target, but all of which have been making significant progress throughout the period assessed. HR records by far the biggest improvement, likely due to structural reforms carried out since its participation in

⁵⁴ EE figures shown in this section will be readjusted as part of Eurostat's October 2015 revision of LFS data. For the latest data, please use the online data code *edat_lfs_9912*.

⁵⁵ In addition, LV had reached the headline target the previous year (2013), but fell back to 39.9% in 2014, still well beyond its national target of 34-36%.

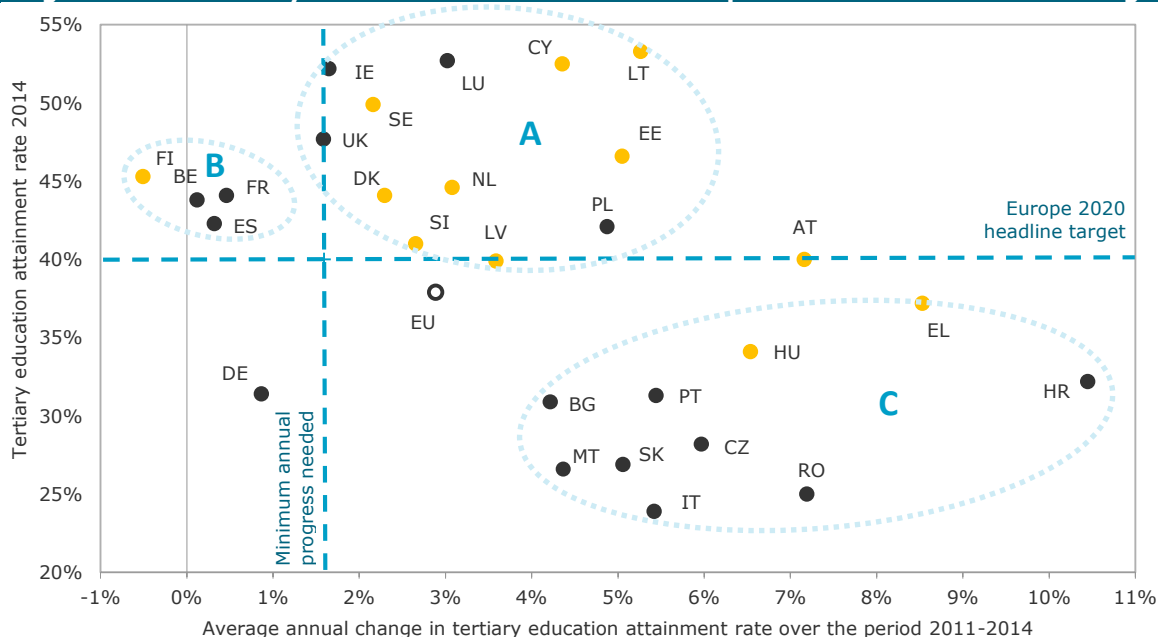
⁵⁶ The new International Standard Classification of Education (ISCED 2011), implemented in the EU Labour Force Survey for the first time in its 2014 annual data, causes a break in series for the AT data on tertiary education attainment (ISCED 2011 levels 5 through 8). The qualification acquired upon successful completion of higher technical and vocational colleges is now allocated to ISCED level 5. Under ISCED 1997 the same qualification was reported as ISCED level 4, but earmarked as "equivalent to" tertiary education. For further information about ISCED 2011, see <http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf>.

⁵⁷ AT is an outlier in *Group C* that should now be included in *Group A*, but its average annual change (2011-2013) in percentage terms is more difficult to compare to its current performance (2014), because of methodological changes (see previous footnote).

the Bologna Process⁵⁸. AT has broken away from this group of Member States by redefining degrees obtained from its higher technical and vocational colleges.

DE is the only Member State that combines a weak progress between 2011 and 2014 with a fairly low tertiary education attainment rate. The DE education and training system is also one of the few in the EU that provides dual vocational education and training (VET), well-attuned to labour market needs⁵⁹. Therefore, DE also incorporates into the measurement of its performance and national target attainment of post-secondary non-tertiary education, which is not included in the data shown here.

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 to 8. 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 involving a break in times series is not taken into account. This applies to BE (2013-2014), FR (2012-2013, 2013-2014), NL (2012-2013) and AT (2013-2014).

Inequalities within Member States

Although expansion of higher education has meant that many individuals now attain higher levels of education than their parents, parental background still has a major influence on participation in higher education. The OECD's *Education at a Glance 2014* reveals that only in ES, IE and NL, the proportion of 20 to 34 year-olds in tertiary education whose parents have an education attainment below the level of upper secondary exceeds 10%, but these are also the only countries included in the assessment where the proportion of parents with at most lower secondary education is more than 25%⁶⁰.

In more than half of the Member States that have yet to reach their national targets, women have already done so

⁵⁸ See the HR country report in Volume 2 (ec.europa.eu/education/monitor).

⁵⁹ See the DE country report in Volume 2 (ec.europa.eu/education/monitor).

⁶⁰ See Chart A4.2 (page 87) of OECD (2014), *Education at a Glance 2014: OECD Indicators* (<http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf>). Only fifteen Member States are included in this assessment. Moreover, tertiary education attainment rates among 30 to 34 year-olds correlate strongly with equivalent education attainment rates of the parental cohort. For more on this contextual indicator, see <https://crell.jrc.ec.europa.eu/ET2020Indicators>, as well as JRC-CRELL (2014), *Monitoring the evolution of education and training systems: A guide to the Joint Assessment Framework* (<https://crell.jrc.ec.europa.eu>).

Tertiary education attainment rates are, furthermore, significantly higher amongst women. In fact, when assessed separately, women already reached the Europe 2020 headline target back in 2012, and now have an average attainment rate no less than 8.7 percentage points higher than men (Table 2.2.1). Of the fifteen Member States that have not yet reached their overall national target, eight have reached it for women (BE, BG, CZ, ES, HR, IT, PL, RO). Focussing on increasing male participation could be a meaningful strategy in these countries.

Table 2.2.1. Tertiary education attainment by sex and migrant status

	2011	2014							2020
	Total	Total	Men	Women	Native-born	Foreign-born			Target
						EU	Non-EU	Sub-total	
EU	34.8	37.9	33.6	42.3	38.6	40.7	33.0	35.6	40
Belgium	42.6	43.8b	37.4b	50.2b	46.2b	47.0b	28.4b	35.2b	47
Bulgaria	27.3	30.9	23.4	39.0	30.9	:	:	:	36
Czech Republic	23.7	28.2	24.2	32.5	27.9	33.8	34.2	34.0	32
Denmark	41.2	44.1	38.4	50.0	44.5	72.9	32.7	41.5	40
Germany	30.6	31.4	32.0	30.8	32.0	:	:	:	42d
Estonia	40.2	46.6	35.6	58.2	46.0	:	(52.0)	56.7	40
Ireland	49.7	52.2	45.1	58.6	51.6	48.3	63.3	53.5	60
Greece	29.1	37.2	32.9	41.6	41.3	(9.5)	8.1	8.4	32
Spain	41.9	42.3	36.8	47.8	46.5	43.0	20.8	26.9	44
France	43.3	44.1b	39.6b	48.4b	44.8b	45.0b	38.2b	39.5b	50d
Croatia	23.9	32.2	25.6	39.0	33.3	(58.8)	(15.9)	(19.6)	35
Italy	20.4	23.9	18.8	29.1	26.7	15.0	11.6	12.8	26d
Cyprus	46.2	52.5	46.0	58.2	58.3	43.4	36.7	39.4	46
Latvia	35.9	39.9	27.8	52.3	39.9	:	(42.2)	(40.3)	34-36
Lithuania	45.7	53.3	44.0	62.7	53.5	:	:	:	48.7
Luxembourg	48.2	52.7	49.8	55.4	42.5	60.1	58.2	59.7	66
Hungary	28.2	34.1	28.0	40.3	33.9	(43.5)	:	44.7	34
Malta	23.4	26.6	22.9	30.5	25.4	:	(39.2)	42.4	33
Netherlands	41.1	44.6	41.3	47.9	47.3	41.8	27.1	30.9	40d
Austria	23.6	40.0b	38.3b	41.6b	41.8b	45.3b	26.7b	35.0b	38
Poland	36.5	42.1	34.2	50.2	42.0	:	(60.1)	(61.6)	45
Portugal	26.7	31.3	23.2	38.9	31.0	42.5	28.4	34.2	40
Romania	20.3	25.0	22.9	27.2	25.0	:	:	:	26.7
Slovenia	37.9	41.0	30.0	53.7	43.4	(44.8)	(11.6)	(17.0)	40
Slovakia	23.2	26.9	22.5	31.5	26.7	:	:	:	40
Finland	46.0	45.3	38.2	52.6	46.9	(26.2)	33.2	31.0	42d
Sweden	46.8	49.9	42.4	57.9	51.6	64.0	40.7	45.6	40d
United Kingdom	45.5	47.7	44.2	51.1	45.5	48.6	57.9	53.9	:

Source: Eurostat (LFS, 2011-2014). Online data code: *edat_lfs_9912*. Notes: The indicator covers the share of the population aged 30-34 years having successfully completed ISCED 1997 level 5 or 6 (until 2013) or ISCED 2011 level 5 to 8 (from 2014). Intermediate break in time series (2012-2013) for FR and NL. "(" = 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 only Member State where women show lower tertiary education attainment rates than men is DE (a rate of 32.0% for men versus 30.8% for women)⁶¹. In LV, SI, PT, BG, EE, IT and HR, the female tertiary education attainment rate is more than 50% higher than the male rate. On average between 2011 and 2014, the gender gap has increased, due to women progressing more quickly than men. Only in FI, DK and NL did the gender gap narrow somewhat.

The effect of an immigrant background on tertiary education attainment is not straightforward. This is due to differences in historical migration patterns between countries, combined with professional migration trends in some Member States. For example, in BE, CZ, DK, FR, LU, AT, PT, SE and UK⁶², those born in another EU country have higher tertiary education attainment

⁶¹ The average female disadvantage in DE is only visible amongst the 30 to 34 year-olds with a Bachelor's degree (13.4% of women versus 17.1% of men). When it comes to 30 to 34 year-olds with a Master's degree, also DE shows a female advantage (16.0% of women versus 13.3% of men).

⁶² HR and SI could be added to this list as well, but data lacks reliability due to small sample sizes.

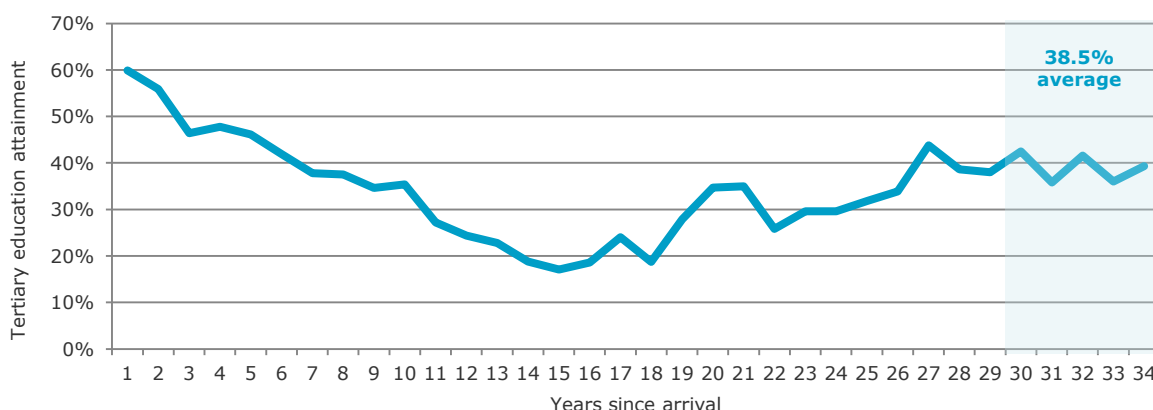
rates than the native-born⁶³. Tertiary education attainment rates amongst foreign-born 30 to 34 year-olds do not necessarily reflect the output of the education and training systems of the countries in which they are living and working.

Figure 2.2.3 gives extra insight into tertiary education attainment rates among migrants, illustrating how diverse the group of foreign-born 30 to 34 year-olds really is. Professional migration is likely at play for those who left their country of birth only recently, with an average tertiary education attainment rate that is well beyond the Europe 2020 headline target. Moreover, the average attainment rate of those who arrived in the country well before the start of compulsory schooling is no different than the native-born attainment rate shown in Table 2.2.1.

Foreign-born individuals having arrived during compulsory schooling should be given a fair chance to enter higher education

Those most in need of extra support are the ones who immigrated in the middle or towards the end of their compulsory schooling age. These individuals require non-traditional entry routes into higher education, recognising the skills they may have acquired outside of the type of upper secondary education that grants direct access to tertiary education. It illustrates the heterogeneity of the foreign-born population, but also hints at education's role in immigrant integration – all the more pertinent since the recent refugee crisis⁶⁴.

Figure 2.2.3. Foreign-born tertiary attainment by years since arrival in the country



Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: the indicator shows the EU average rate of tertiary education attainment (30 to 34 year-olds).

Yet tackling inequalities in higher education goes beyond the issue of equitable access. In order for higher education not to reproduce existing patterns of disadvantage, governments and institutions need to acknowledge the growing diversity in their student populations. Any policy measure should be designed with this diversity in mind, so that particular groups are not disproportionately under-represented amongst those who *complete* higher education. Illustrating this diversity of the student population, recent evidence shows that countries differ quite significantly in e.g. the median age of students, the share of students with children, and the share of students perceiving health impairments as a big obstacle to their studies⁶⁵.

⁶³ The difference between EU foreign-born and non-EU foreign-born is most striking amongst women. Women born in another EU country show an average tertiary education attainment rate of 45.3%, 1.8 percentage points higher than native-born women and 10.5 percentage points higher than women born outside the EU. The latter difference between EU and non-EU foreign-born is only 4.4 percentage points for men. Men born outside the EU are, however, lagging behind most with an average tertiary education attainment rate of only 30.8%.

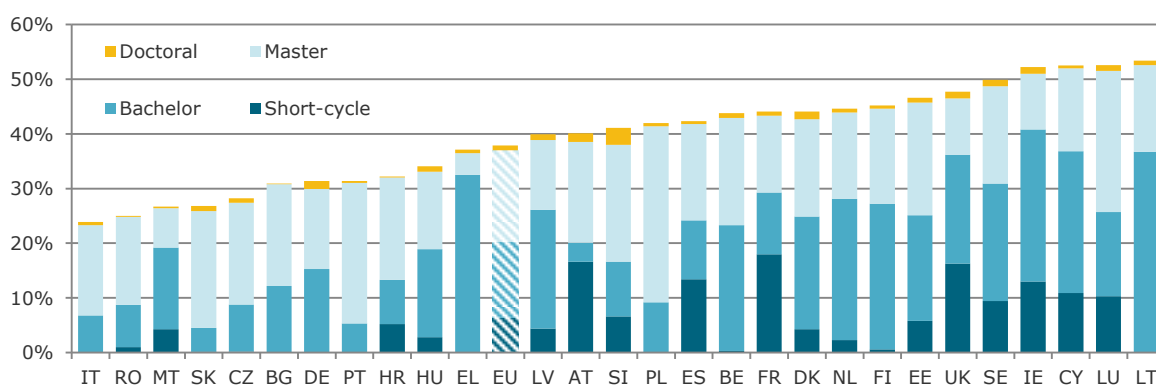
⁶⁴ See also OECD/European Commission (2015), *Indicators of immigrant integration 2015: Settling in* (www.oecd-ilibrary.org). In 2016, the JRC's Centre for Research on Education and Lifelong Learning (CRELL) will look further into the effect of years since arrival and age of arrival.

⁶⁵ EUROSTUDENT V (<http://www.eurostudent.eu/results/reports>).

A closer look at level and field of study

The new international classification of education allows for a closer look at the current share (37.9%) of 30 to 34 year-olds with tertiary education attainment. Tertiary education attainment includes Bachelor's and Master's degrees, as well as short-cycle tertiary education and doctoral degrees. Figure 2.2.4 shows that the ratio between Bachelor's and Master's degrees varies considerably between Member States. In some countries, in the 30 to 34 year-old cohort, Master's graduates are much more prevalent than Bachelor's graduates (PL, PT, AT, SK), while in others it is the other way around (EL, LT, IE).

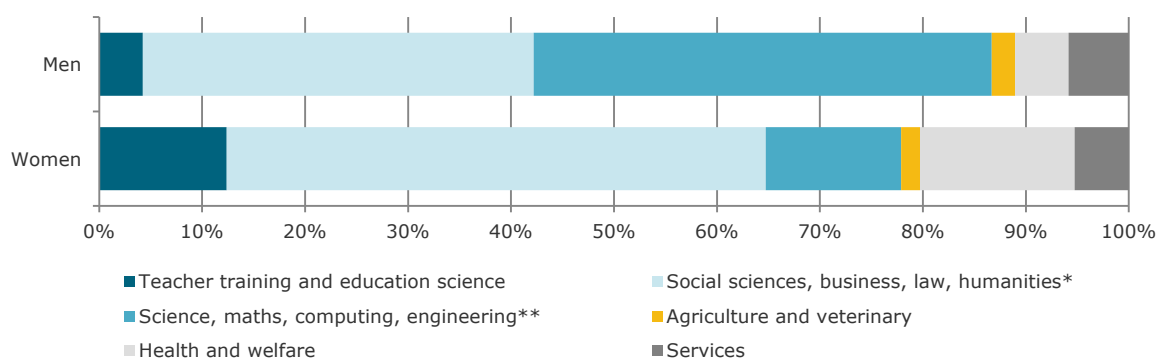
Figure 2.2.4. Tertiary education attainment by higher education degree



Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: the indicator shows the highest degree attained amongst 30 to 34 year-olds. Sample size is too small for BG, DE, EL, IT, LT and PT to show reliable results for short-cycle tertiary education attainment.

More women have short-cycle, Bachelor's and Master's degrees than men in virtually all Member States. This means the average female advantage is not due to an over-representation of women in just one category of higher education. Women are, however, under-represented in some *fields* of study. Figure 2.2.5 looks at all the male and female 30 to 34 year-olds with tertiary education attainment by the field they obtained their degree in⁶⁶. Degrees in STEM fields are much more prevalent amongst men, whereas social sciences and humanities are much more common amongst women. Equally striking is the low share of men having attained a higher education degree in teaching.

Figure 2.2.5. Distribution of study field for men and women



Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: the indicator shows tertiary education attainment amongst 30 to 34 year-olds by field of study; general programmes and unknown field of study are excluded from this assessment; * = also including languages and arts; ** = also including manufacturing and construction.

⁶⁶ See also chapter 4.1 of European Commission/EACEA/Eurydice (2015), *The European Higher Education Area in 2015: Bologna Process Implementation Report* (<http://ec.europa.eu/eurydice>).

This is a first step in shedding more light on the issues of quality, relevance and employability. The employment rate of recent graduates from tertiary education is considerably higher than the employment rate of recent upper secondary graduates. But as will be discussed in Section 3.4, the tertiary graduate employment rate has not picked up from its drop since 2008 as quickly as the upper secondary graduate employment rate. Although a complex set of factors are at play, this suggests there is room for aligning higher education provision more effectively with the needs of the labour market.

Examples of measures to widen access and reduce drop-out

Monitoring access and retention is the starting point for a solid understanding of the supply of highly educated individuals. Access and retention are not only a question of increasing numbers, but are also determinants of the social composition of the higher education population. Active policy measures could help millions to break from a cycle of disadvantage that was often set in motion at a much earlier age. Taking into account the results of EU-level research and policy exchange among Member States, Table 2.2.2 summarises some of the key policy levers Member States can use to widen participation and reduce drop-out.

Table 2.2.2. Tertiary attainment: a selection of structural indicators

	Recognition of informal or non-formal learning	Quantitative targets for under-represented groups	Monitoring of socio-economic background of students	Completion rates as a required criterion in external quality assurance (QA)	Performance-based funding mechanisms with a social dimension focus
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*	•	• (WLS)	•		•
UK-SCT	•	•	•		

Source: European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>). Note: quantitative targets can concern participation and/or attainment; * = UK-ENG, UK-NIR and UK-WLS; ":" = not available. The structural indicators pertain to 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

The recognition of prior informal or non-formal learning for entry into higher education is important for individuals who have not completed, for whatever reason, the form of upper secondary education that gives direct access to higher education. In other words, the

recognition of prior learning can defy a path-dependence that would otherwise prevent individuals from further learning. However, this is possible in less than half of the Member States, and only BE fr/nl, DK, LU, NL, PT, FI and SE recognise prior learning in *all* their higher education institutions.

Other ways to improve the social dimension of higher education are to set quantitative targets and to monitor progress towards reaching specific objectives. Whereas a systematic monitoring amongst the student population is nowadays very common across Europe, this monitoring captures individual socioeconomic characteristics only in about half of the Member States. Despite the persisting inequalities found across the EU, less than a third of the Member States (IE, EL, FR, LT, MT, PL, RO, FI, UK-SCT/WLS) has set quantitative targets specifically for under-represented groups⁶⁷.

In addition, there is the issue of preventing drop-out and dealing with completion rates. In turn, this means monitoring how efficiently students flow through higher education, and how capable higher education is in engaging students to complete a degree. Covering completion rates in external quality assurance enables an effective policy response. Yet only twelve Member States regard completion rates as a required criterion (BE fr/de, BG, EE, IE, ES, FR, IT, LT, HU, PL, PT, SI).

Finally, Member States can incentivise the performance of higher education institutions with a particular social dimension focus. This means funding is triggered when certain objectives are reached pertaining to under-represented groups. The focus of this extra funding can be disability (BE nl, IE, ES, UK-ENG, UK-NIR, UK-WLS, PL, IT, HR), socioeconomic status (BE nl, IE, PL, RO, IT, LU, HR, UK-ENG, UK-NIR, UK-WLS), gender (IE, ES, AT), geographical location (LU, UK-ENG/WLS/NIR) or age (IE, HR). Still, only about a third of the Member States have these types of performance-based funding in place.

Examples of recent policy measures in Member States

IE presented a package of measures to support a better transition from upper secondary to higher education in April 2015. A reform of the financial support system for university students in LU, giving more attention to students with disadvantaged backgrounds, became effective mid-2014. To widen participation in higher education, in November 2014, UK-ENG unveiled plans for new degree apprenticeships, which will allow young people to gain a full Bachelor's or Master's degree from a university whilst earning a salary, and without paying any tuition fees.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Key findings and policy relevance

With tertiary education attainment amongst 30 to 34 year-olds now at 37.9%, the focus of policy in many parts of Europe has shifted firmly away from further large-scale expansion and towards enhancing quality and relevance of higher education. But understanding the supply of higher education graduates means monitoring patterns of access and retention as they vary across age, gender, socioeconomic status, etc. Active policy measures to strengthen the social dimension of higher education are not prevalent across Europe. Areas that require most urgent attention are the non-traditional entry ways into higher education, the setting of targets for under-represented groups and the allocation of extra funding whenever these targets are being reached by higher education institutions.

⁶⁷ These targets try to tackle gender imbalances or disadvantages for those with an immigrant background or low socioeconomic status. Other examples of under-represented groups might include people with disabilities and minority ethnic groups.

Part 3

Policy levers for inclusiveness, quality and relevance

Part 3. Policy levers for inclusiveness, quality and relevance

Especially in times of budgetary constraints, mutual learning and evidence-based policy making become crucial to detect areas most in need of investment. This goes beyond education attainment levels of young people across Europe. A focus on quality, relevance and inclusiveness is key to making education and training more effective and indeed efficient. This ranges from inclusive, high-quality pre-primary education to continued learning for the low-skilled in particular. Quality and relevance also means aligning education provision with current and future needs of the labour market, and taking full advantage of the potential of digital technologies.

3.1. Early childhood education and care

Early childhood education and care (ECEC), which concerns children from birth to the start of compulsory primary schooling, is increasingly recognised as a constitutive part of the education and training system. ECEC not only adds to children's well-being now and in the long term, but also to the foundation of skills and competences that are essential to achieving high learning outcomes later in life⁶⁸. Indeed, participation in ECEC has been associated with higher education outcomes, a reduced risk of early school leaving, the better integration of children of immigrants and the early development of transversal skills such as literacy competences, creative and critical thinking, social behaviour and emotional development⁶⁹.

ECEC is particularly beneficial to children from disadvantaged backgrounds, and contributes to tackling educational poverty as set out in Section 1.1. However, several Member States record great regional disparities in terms of ECEC participation, often reflecting socio-economic divides, or gaps between Roma and non-Roma children⁷⁰. RO and SK received a 2015 country-specific recommendation on ECEC provision, both with the objective of targeting participation of disadvantaged groups in education and more specifically increasing participation rates of Roma children in ECEC⁷¹.

Examples of recent policy measures in Member States

At the end of 2014, CZ adopted legislation to enable employers to provide childcare services for their employees' children from the age of 1. In 2014, BE nl for the first time adopted a pedagogical framework for working with children under 2 ½ years. As of August 2015, FI introduces compulsory ECEC for one year prior to starting school.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Participation in ECEC

The ET 2020 benchmark on ECEC focuses on children between the age of 4 and the starting age of compulsory primary education⁷². Although the EU as a whole is close to meeting the 95% target, with several Member States having already exceeded it (BE, DK, DE, IE, ES, FR, IT, LU, MT, NL, SE, UK), the latest data (2013) shows no significant change in ECEC participation across the EU (93.9% in both 2012 and 2013).

Overall stagnation in ECEC progress hints at the difficulty of further improving near-universal participation rates in some of the (larger) Member States. But it is mainly due to the fact that,

⁶⁸ OECD (2015), *Skills for Social Progress: The Power of Social and Emotional Skills*.

⁶⁹ See OJ 2011/C 175/03; OJ 2013/112/EU; European Commission (2014), *Study on the effective use of early childhood education and care in preventing early school leaving* (http://ec.europa.eu/education/policy/school/early-childhood_en.htm); and OECD (2014), *International Migration Outlook 2014* (<http://www.oecd-ilibrary.org/>).

⁷⁰ See the contextual indicators at <https://crell.jrc.ec.europa.eu/ET2020Indicators>; European Commission (2014), *Inequality in the use of childcare: Research note no 8/2014*; and FRA/UNDP (2012), *The Situation on Roma in 11 EU Member States: Survey results at a glance* (<http://fra.europa.eu/>).

⁷¹ In July 2015, the Council approved country-specific recommendations for each Member State. See http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm.

⁷² The starting age for primary education varies across Member States, as can be seen in the last column of Table 3.1.1.

between 2012 and 2013, ten Member States saw a decrease in ECEC participation, out of which four are still well below the ET 2020 benchmark of 95% (CZ, HR, PL, SI). Looking at the longer 2010-2013 time period, CZ, CY and RO combine their subpar current performance with a downward trend, whereas FI and PL combine a comparable current performance with an average positive trend. HR (71.4%), EL (76.4%) and SK (77.5%) are the bottom performers of 2013, but show a slight average improvement between 2010 and 2013.

Table 3.1.1. Participation in and organisation of early childhood education and care

	Participation in early education by age (2013)				Organisation of ECEC (2014/15)		
	3 year-olds	4 year-olds	5 and older	ET 2020 benchmark *	Starting age of legal entitlement to ECEC	Starting age compulsory ECEC	Age of compulsory primary education (ISCED level 1)
EU	85.3	91.8	96.0	93.9	-	-	-
Belgium	97.7	98.0	98.1	98.1	2 ½**		6
Bulgaria	72.7	79.6	92.1	87.8		5	7
Czech Republic	58.9	82.7	88.9	85.7	5		6
Denmark	96.3	97.5	99.1	98.3	½		6
Germany	91.6	96.3	97.7	97.0	1		6
Estonia	87.4	91.0	90.0	90.4	1 ½		7
Ireland	45.6	94.5	100.0	97.2			6
Greece	15.9	58.0	95.7	76.4		5	6
Spain	95.8	96.7	97.5	97.1	3		6
France	99.5	100.0	100.0	100.0	3		6
Croatia	56.7	57.8	78.6	71.4		6	7
Italy	94.4	98.5	98.9	98.7			6
Cyprus	41.4	72.2	97.2	84.3		4 2/3	5 2/3
Latvia	82.6	89.3	96.6	94.1	1 ½	5	7
Lithuania	74.8	80.7	89.6	86.5			7
Luxembourg	70.9	99.3	99.6	99.4	3	4	6
Hungary	75.3	93.1	96.2	94.7	3	5	6
Malta	97.0	100.0	-	100.0	2 ¾		5
Netherlands	83.2	99.7	99.3	99.5	(+)	(+)	6
Austria	71.3	91.4	96.5	93.9		5	6
Poland	52.3	66.4	93.4	83.8***		5	6-7
Portugal	77.8	90.4	97.5	93.9	3		6
Romania	79.5	83.3	89.5	86.4			6
Slovenia	84.3	89.0	90.7	89.8	11 mths		6
Slovakia	62.6	73.8	81.4	77.5			6
Finland	68.2	74.7	88.7	84.0	9 mths		7
Sweden	92.9	94.5	96.4	95.7	1		7
United Kingdom	96.9	96.1	-	96.1	3		5****

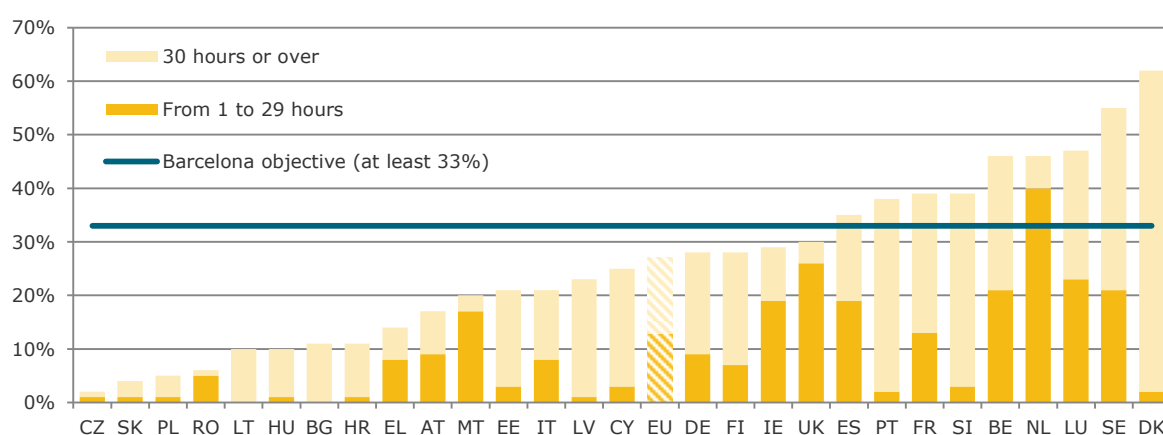
Source: Eurostat (UOE, 2013) for participation rates (online data code: *educ_uoe_enra10* and *educ_uoe_enrp07*); European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>) for legal entitlement and compulsory ECEC. Notes: early childhood educational development data is missing for BE, IE, IT, HU, PT and RO; *The ET 2020 benchmark captures ECEC participation of children between 4 years old and the starting age of compulsory primary education; **3 for BE de; ***calculated on a 4-6 age range with the starting age for compulsory education at 7; ****4 for UK-NIR; (+) In NL, the ECEC system combines a demand-driven structure for children aged 0-4 and supply-side arrangements for all children aged 4+ and for children aged 2 ½ to 4 from disadvantaged backgrounds.

Table 3.1.1 shows ECEC participation rates broken down by age. It also adds participation rates of 3 year-olds, not covered by the ET 2020 benchmark. This data suggests that in some Member States underperformance vis-à-vis the benchmark is, in fact, due to low participation amongst 4 year-olds. The difference in participation rates between 3 and 4 year-olds is similarly striking in a number of countries. In CZ, IE, EL, CY, LU, HU, NL and AT, participation rates drop at least 15 percentage points for 3 year-olds when compared to 4 year-olds. Amongst these

eight Member States, IE and EL are the most significant outliers with a participation gap between 3 and 4 year-olds of 48.9 and 42.1 percentage points respectively. In sum, starting ECEC provision shortly before compulsory schooling does not translate into high performance vis-à-vis the ET 2020 benchmark. A focus on the younger children, even those outside the benchmark's age bracket, would be a meaningful priority for underperforming Member States.

For younger children, aged 0-2 years, the Commission aims to reach the Barcelona objective of an ECEC participation rate of at least 33%⁷³. In 2013, the EU average was still below the target, with 28% of children aged 0-2 attending formal childcare (Figure 3.1.1). Nine Member States reached the Barcelona objective (DK, SE, LU, NL, BE, SI, FR, PT, ES). By contrast, the rate of attendance in childcare services for children aged below 3 years is very low in CZ (3%), SK (5%) and PL (6%).

Figure 3.1.1. Participation in formal childcare of 0 to 2 year-olds



Source: Eurostat (SILC, 2013), online data code: *ilc_caindformal*.

In the 0-2 age group, about 50% of European children are cared for only by their parents⁷⁴. This not only shows the disparity of approaches, affordability and availability in the early years; it also captures well the implications for parental labour market participation. Five EU countries (AT, CZ, EE, IE, UK) received a country-specific recommendation in 2015 on the need to improve childcare provision as a way to increase labour market participation.

In the 0-2 age group, about 50% of European children are cared for only by their parents

Quality provision of ECEC

Two types of ECEC systems are found in the EU. In countries applying a *split* system of ECEC provision, the responsibility for ECEC governance, regulation and funding is divided between different authorities. The two parts of a split system often differ in terms of educational guidelines and staff qualifications. Conversely, in a *unitary* system, ECEC provision is organised in a single phase – most commonly under the responsibility of the Ministry for Education. A unitary system is now applied in thirteen Member States, pointing to a growing understanding of ECEC as an integral part of the education continuum (BG, DK, DE, EE, ES, HR, LT, LV, AT, SI, FI, SE, UK)⁷⁵. This, in turn, influences policies concerning access, participation, workforce education and curriculum design.

⁷³ Data on 0-2 year-olds comes from Eurostat (SILC), online data code *ilc_caindformal* (2013). It is used as a contextual indicator for the ET 2020 benchmark on ECEC (<https://crell.jrc.ec.europa.eu/ET2020Indicators/>). See also Eurostat (2015), *Being in Young in Europe Today*; and for further information on the Barcelona objectives, see: http://ec.europa.eu/justice/gender-equality/files/documents/130531_barcelona_en.pdf.

⁷⁴ Eurostat (SILC), online data code *ilc_caparents* (2013).

⁷⁵ See Figure B.1 (page 34) of European Commission/EACEA/Eurydice (2014), *Key data on early childhood education and care in Europe* (<http://eacea.ec.europa.eu/education/eurydice>).

Table 3.1.2. ECEC provision: a selection of structural indicators

	At least one staff member with a tertiary qualification in education sciences**	CPD professional duty or necessary for promotion	Educational guidelines	Language programmes as targeted support measure	Home-learning guidance or parenting programmes
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: European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>). Note: ■ = only children aged 3 years or more; ● = the entire ECEC phase; * = UK-ENG, UK-NIR and UK-WLS, apart from educational guidelines, which apply to UK-ENG only for children aged 3 years or more; ** = a minimum of three years at ISCED 6 (not including managers). The structural indicators pertain to 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

The benefits of ECEC are dependent on its *structural*, *process* and *outcome* quality⁷⁶. While structural quality is often monitored and evaluated, Member States' monitoring of process and outcome quality is considerably less systematic. In 2014, the ET 2020 Working Group on ECEC delivered a *Proposal for key principles of a Quality Framework for Early Childhood Education and Care*. The document focused on the implementation and monitoring of process quality, namely on the relations that are established in and around ECEC – between children, staff, authorities and parents⁷⁷.

Table 3.1.2 shows recent Member States performance with regard to some of the principal structural dimensions of ECEC quality. Minimal education qualifications and continuing professional development (CPD) requirements may apply to the entire ECEC phase, or only staff engaged with the 3+ age group, generally depending on whether the country adopts a split or unitary ECEC system. CZ, IE, LV, MT, AT, SK and UK-SCT stand out for not setting tertiary

⁷⁶ Structural quality looks at how the ECEC system is designed and organised; process quality looks at relations within and around ECEC settings; outcome quality looks at the benefits for children, families, communities and society.

⁷⁷ European Commission (2014), *Proposal for key principles of a quality framework for early childhood education and care* (http://ec.europa.eu/education/policy/strategic-framework/archive/documents/ecec-quality-framework_en.pdf).

qualification requirements for non-managerial staff entering either ECEC phase. In BG, DK, IE, NL and SE, CPD is neither a professional duty nor necessary for promotion⁷⁸.

Appropriate pedagogies, learning activities based on well-defined objectives, good communication between children and staff and follow-up of progress towards the desired learning outcomes all contribute to high quality ECEC provision. Member States can influence the quality of teaching and learning by issuing detailed ECEC educational guidelines and outlining the pedagogic principles underpinning them. Although all Member states have curricula in place for 3+ ECEC, only about three fourths have devised such frameworks for the entire ECEC phase.

Finally, measures tailored to the needs of disadvantaged children and families can dramatically strengthen the role of ECEC in reducing educational poverty (see Section 1.1). Whereas the majority of Member States run targeted schemes of linguistic support for children in ECEC whose home language differs from that of the ECEC centre's instruction (as well as children suffering language difficulties), national regulations and guidelines in most of these countries often do not include out-reach strategies such as home-learning guidance and parenting programmes. Only thirteen Member States recommend such support throughout the ECEC phase.

Key findings and policy relevance

Although early childhood education and care (ECEC) is organised very differently across the EU, participation rates above age 4 are higher than 80% in all Member States except from HR (71.4%), EL (76.4%) and SK (77.5%). But 50% of 0 to 2 year-olds are cared for only by their parents, raising questions about the availability of affordable, high-quality childcare. Research shows that participation rates amongst the most disadvantaged are generally low, which means the potential of ECEC to tackle inequalities early remains underexploited. In this context, parental support measures can particularly be strengthened across Europe, with almost half of the Member States not offering home learning guidance or parenting programmes. Finally, due to its fragmented nature, a coherent vision on the entire ECEC phase, particularly on its governance and funding, needs to come to the fore so as to deliver high-quality ECEC for all children.

3.2. The modernisation of school education

Raising the bar in school education goes beyond underachievement, funding and early school leaving. The debate on the modernisation of school education includes a comprehensive policy discourse on teaching and learning, focused in large part on the education, selection and continuous development of teachers. Quality and relevance in school education can also be pursued by exploring the potential of digital technologies, which have been bringing about profound changes to pedagogical practices, subject contents, and learning processes. Finally, the modernisation of school education is also about teaching and learning transversal skills such as language proficiency.

The teaching profession

Previous sections have stated unambiguously that tangible policy levers for Member States cannot overlook the teaching profession. After all, over 60% of education expenditure across the EU is devoted to salaries of education professionals, and teachers are at the core of individualised learning and career guidance. At the same time, the European teaching force is

⁷⁸ See also Eurofound (2015), *Working conditions, training of early childhood care workers and quality of services: A systematic review* (<http://www.eurofound.europa.eu/>).

characterised by a striking gender gap⁷⁹, and shows significant demographic ageing in many countries⁸⁰.

Forward planning of teaching staff requirements is not the norm across Europe

School systems in several European countries face, or will soon be facing, massive retirement waves and problems of teacher shortages. In order to anticipate and manage shortages, fifteen European countries⁸¹ have introduced forward planning of teaching staff requirements (Table 3.2.1). The remaining Member States rely on general labour market monitoring for an insight into general workforce trends, apart from HR and CY, which have none of these monitoring measures in place.

Current and expected shortages call for comprehensive and coherent strategies to raise the attractiveness of the teaching profession⁸², a challenge addressed in two 2015 country-specific recommendations (CZ, SK)⁸³. Careers in teaching should be based on clear and attractive career prospects, good working conditions, high-quality initial teacher education, early career support (induction) and professional development opportunities.

Selecting and educating new teachers

In order to be effective, competence frameworks should be based on a shared vision, developed through broad consultation and dialogue, and should prove flexible enough to be updated whenever needed. They can be used as tools to guide selection, recruitment, development of initial teacher education (ITE) programmes, provision of continuing professional development (CPD) activities, and also for teachers' continuous self-evaluation. A large majority of European countries have some sort of competence framework for teachers in place (Table 3.2.1).

In fifteen countries (CZ, DE, EE, ES, FR, HR, IT, LU, HU, PL, PT, SI, SK, FI, SE), the minimum qualification of ITE to teach in lower secondary education is at Master's level. Education at Bachelor's level or equivalent is considered sufficient in another eleven (BE, BG, DK, IE, EL, CY, LV, LT, MT, RO, UK). As of 2013, 91.2% of European teachers have completed pre-service ITE preparation programmes⁸⁴.

The main purpose of ITE is to offer future teachers high quality preparation for the job. According to the OECD's Teaching and Learning International Survey (TALIS) 2013, teachers who went through ITE combining subject knowledge, pedagogical skills and teaching practice for all the subjects they teach feel, on average, better prepared than their colleagues who did not. Through a balance of all three elements, ITE should equip novice teachers with a wide range of teaching and assessment practices.

ITE is only the first (pre-service) stage of teacher education. Qualitative assessments⁸⁵ have confirmed that one of its key functions is to lay the foundations for teachers to work as reflective practitioners, to collaborate with colleagues and other educational partners and to update their competences throughout their career.

When entering the profession, a structured induction programme and a mentoring system are meant to offer every qualified beginning teacher early career support during the first, crucial years, ideally involving trained specialists. However, many countries do not have central

⁷⁹ Eurostat (UOE, 2013), online data code *educ_uoe_perp02*. See also Section 2.2, Figure 2.2.5.

⁸⁰ Eurostat (UOE, 2013), online data code *educ_uoe_perp01*.

⁸¹ With BE excluding BE fr.

⁸² Low remuneration, excessive workload, stress, and unnecessary administrative burden are factors that are typically seen to lower the attractiveness of the teaching profession. See European Commission/EACEA/Eurydice (2015), *The Teaching Profession in Europe: Practices, Perceptions and Policies* (<http://eacea.ec.europa.eu/education/eurydice>).

⁸³ In July 2015, the Council approved country-specific recommendations for each Member State. See http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm.

⁸⁴ OECD (TALIS 2013). Whether based on *concurrent* or *consecutive* models. Under concurrent models, candidate teachers take professional training at the same time as general education. Under consecutive models, the theoretical and practical professional training follows general education.

⁸⁵ See the forthcoming *Guide to Initial Teacher Education* from the ET 2020 Working Group on School Policy (http://ec.europa.eu/education/policy/school/teacher-training_en.htm).

regulations for structured induction (BE, BG, CZ, DK, CY, LV, LT, NL, FI), or only of non-compulsory nature (DE, EE, SI). Mentoring support is non-compulsory in BE, BG, CZ, DK, DE, EE, IE, CY, LV, LT, NL, FI and UK-SCT. In FR and LU induction and mentoring are compulsory during the final phase of ITE.

Table 3.2.1. The teaching profession: a selection of structural indicators

	Forward planning of teaching staff requirements	Competence framework for teachers	Master's degree as minimum qualification to become a teacher	Compulsory induction schemes for fully qualified first-time teachers	Compulsory mentoring support for fully qualified first-time teachers	CPD as a professional duty for all teachers
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: European Commission/EACEA/Eurydice (2015), *The Teaching Profession in Europe: Practices, Perceptions and Policies*; and European Commission/EACEA/Eurydice (2013), *Key Data on Teachers and School Leaders in Europe* (<http://eacea.ec.europa.eu/education/eurydice>). Note: * = UK-ENG, UK-NIR and UK-WLS. The structural indicators pertain to lower secondary education (ISCED 2) for 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

Continuing professional development (CPD)

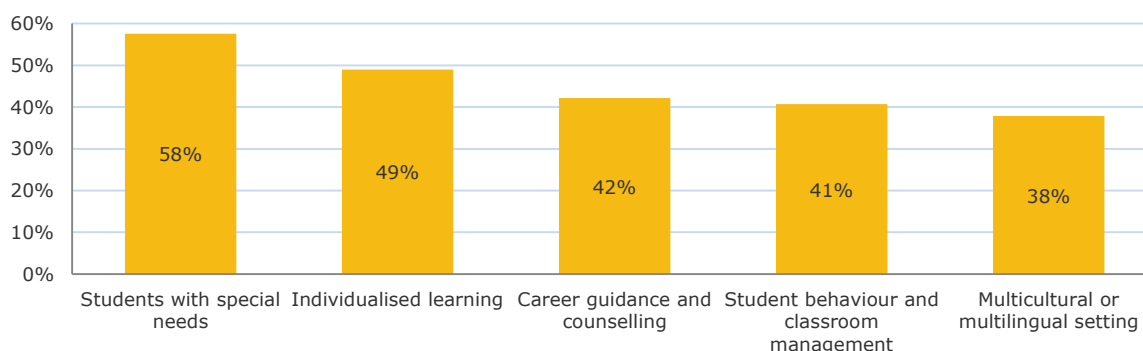
In order to update their theoretical and practical knowledge, teachers should participate in continuing professional development (CPD) activities throughout their entire careers. In over two thirds of European education and training systems, having a CPD plan is compulsory for lower secondary schools. Yet, to truly maximise effectiveness, incentives should be introduced to encourage CPD uptake and CPD schemes should respond to the real needs of teachers.

Only in ten Member States are induction, mentoring and CPD compulsory for teachers

Preceding sections have emphasised that, in order for education and training systems not to reproduce existing patterns of disadvantage, governments and institutions need to acknowledge the growing diversity in their student populations. *Individualised learning* and *career guidance and counselling* are pedagogical domains in which at least 40% of lower secondary teachers

across the EU express a moderate or high need for professional training (Figure 3.2.1). At the top of the list stands CPD in the field of *special education needs*, required by no less than 58% of teachers. Finally, *classroom management* and *multicultural settings* require CPD according to 41% and 38% of teachers respectively.

Figure 3.2.1. The share of teachers expressing the need for CPD by domain



Source: Eurydice analysis based on OECD's TALIS 2013 data in European Commission/EACEA/Eurydice (2015), *The Teaching Profession in Europe: Practices, Perceptions and Policies* (<http://eacea.ec.europa.eu/education/eurydice>). Note: the indicator combines *moderate* and *high* needs as indicated by teachers in lower secondary education. The domains are a thematic selection from a total of fourteen areas rated by teachers.

Countries can do more to ensure teachers have access to relevant professional development opportunities

Teachers have an important role to play in countering marginalisation⁸⁶; a role that seems acknowledged by the teachers themselves when looking at the domains identified as most in need of CPD. This holds an important message in particular for the six Member States having received 2015 country-specific recommendations concerning the need to step up efforts aimed at integrating disadvantaged students into mainstream education (AT, BG, CZ, HU, RO, SK).

Teaching practices

Education and training systems across Europe show a great variety of instructional practices, both between and within Member States⁸⁷. In primary education, over 70% of students have teachers using an assortment of different teaching activities to engage them in learning on a daily basis. However, country variations exist, with RO and LT having more than 90% of the students exposed to a diversity of practices in all lessons, versus less than half of the students in FI, DE and SE.

Effective teaching goes beyond the individual teacher; it needs to be collaborative and collegial. Collaborative didactic practices have emerged as effective tools to increase teachers' sense of self-efficacy and job satisfaction. Yet, across Europe, only about 36% of primary school teachers report frequent collaborative engagement with peers on the improvement of instructional practices. Again, countries vary in this respect, with teachers in HR, HU, PT, SK, RO and SI engaged more often in collaborative practices; and teachers in IE, MT, and CZ less so.

Examples of recent policy measures in Member States

With the support of EU funds, CZ is developing a new career system for teachers aimed at enhancing participation in CPD and establishing a link between performance and remuneration. Taking into account the changing nature of school leadership, UK-ENG introduced new *National Standards of Excellence for Head Teachers* in January 2015. MT is setting up in 2015 a dedicated institute for CPD of teachers.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

⁸⁶ See OECD (2014), *Equity, excellence and inclusiveness in education: Policy lessons from around the world* (<http://www.oecd-ilibrary.org/>).

⁸⁷ JRC-CRELL (2015), *Teaching practices in primary and secondary schools in Europe: Insights from large-scale assessments in education* (<https://crell.jrc.ec.europa.eu/>).

One further relevant feature is the capacity of education institutions to make the adequate provision for staff to quickly upgrade and innovate their teaching methods. Systems that rely on collegiality and peer interaction stand out for their effectiveness in ensuring exchanges of theoretical and practical knowledge between teachers. The development of new organisational frameworks that facilitate such collaborative practices has now become imperative for European education and training systems⁸⁸.

Key findings and policy relevance

Looming teacher shortages and the knowledge that educators are key to inclusiveness, quality and relevance have put the spotlight on the teaching profession. Countries are taking measures to raise the quality of teaching by introducing competence frameworks and enhancing initial teacher education. However, improvements can be made when it comes to forward planning of staff requirements; the availability of early career support (induction) and mentoring; and the uptake of continuing professional development (CPD). Only in ten Member States are induction, mentoring and CPD compulsory: ES, HR, IT, HU, MT, AT, PT, RO, SK and UK (except UK-SCT). CPD relevance can be improved by responding to teachers' needs, particularly in domains of inclusive education. Finally, introducing more collaboration and collegiality can address both quality and the attractiveness of the profession.

Innovation and the use of digital technologies in school education

The integration of digital technology in formal education has been a major theme throughout the last decades, and has become increasingly recognised as one of the foremost directions for reform in European education and training systems. The use of digital technology in education, however, does not automatically trigger innovation. New analysis based on PISA 2012⁸⁹ underlines that merely increasing access to digital technologies in schools does not yield higher learning outcomes, although specific and targeted use with clear pedagogical aims might.

In pedagogical terms, digital technologies should ideally yield profound changes in learning contents and pedagogical practices, and lead to more immersive, connected and natural learning processes. Digital technologies also hold the potential for raising efficiency, data consistency and inter-institutional connectedness.

A system-wide approach to integrating digital technologies into formal education is crucial to enable innovation to take root across an entire education and training system. Such an approach would have to incorporate developments in a number of different educational domains: from subject content, teacher training and curriculum design, to organisational and administrative structures⁹⁰.

In some instances, national or regional policies concerning initial teacher education (ITE), teachers' continuing professional development (CPD) and curricula will have to be revisited. At the local/school level, factors as different as school ownership and leadership, investment priorities, staff allocation procedures, existence of technical and pedagogical support, can be crucial in determining whether a digital upgrade project is successful and sustainable.

**A coherent,
integrated
approach to digital
technology in
school education is
needed**

⁸⁸ A recent EENEE report underscores the role of competition and incentives for increasing the innovative capacity in education systems. See EENEE (2015), *Innovations in education for better skills and higher employability* (<http://www.eenee.de>).

⁸⁹ OECD (2015), *Students, computers and learning: Making the connection* (<http://www.oecd-ilibrary.org/>).

⁹⁰ See also JRC-IPTS (2012), *Innovating learning: Key elements for developing creative classrooms in Europe* (<http://ftp.jrc.es/EURdoc/JRC72278.pdf>). The holistic model proposed by JRC-IPTS is based on eight key dimensions and a set of twenty-eight reference parameters ('building blocks'). For further information, see: <http://is.jrc.ec.europa.eu/pages/EAP/SCALECCR.html>.

Such drivers should be aligned in order to allow individual teachers to incorporate digital technology into their daily instructional practice. Indeed, the main issues for innovation and digital technology in schools are coherence, system-wide integration, sustainability and scalability⁹¹. However, in many cases, one or more of the above-mentioned drivers are missing, or not aligned with the goal of digital upgrade – causing innovation to remain confined to the pedagogical activities of a minority of particularly devoted teachers.

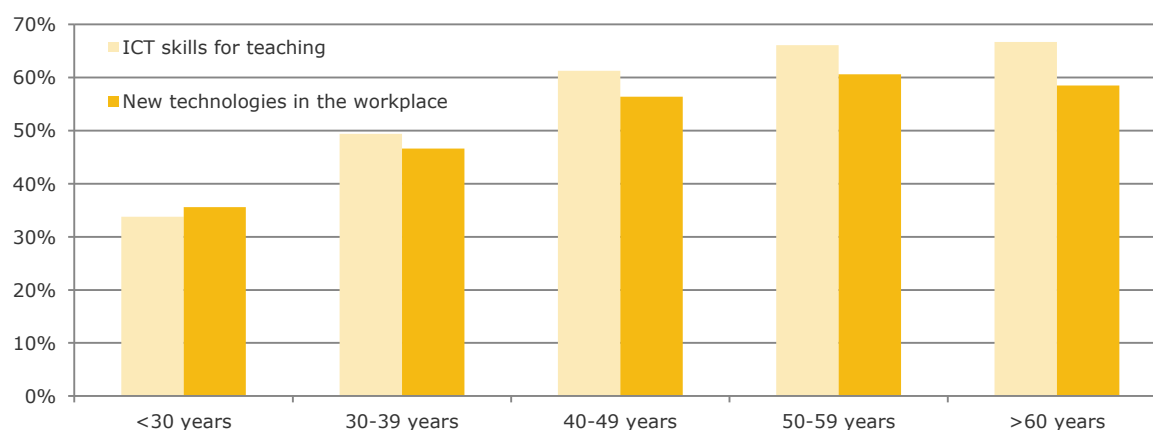
School organisation

The IEA's International Computer and Information Literacy Study (ICILS) 2013 reveals that, across the nine participating Member States⁹², most school leaders prioritise the implementation of measures aimed at facilitating the use of ICT in teaching and learning. The largest discrepancies between countries are recorded in respect to the allocation of time for teachers to plan and prepare to use ICT to deliver lessons. In SI, SK, LT and HR, around 90% of the school leaders had given medium or high priority to allocating time for such preparatory work, compared to only 26% and 28% in NL and DK respectively.

These findings are mirrored in the *Survey of Schools: ICT in Education*, which finds that 59% of grade 8 students attend schools that promote collaboration amongst teachers on the use of ICT, and 49% go to schools that schedule time for teachers to collaborate on ICT related issues⁹³. 35% of the students attend schools where both strategies were implemented. Differences are striking between countries: in RO, around 59% of students go to a school where there is a specific strategy to support teachers' collaboration as well as time allocated to it, but in AT, only 13% of students are in a similar situation.

A different matter altogether is the actual time that teachers are allowed to allocate to CPD activities on how to use ICT pedagogically. Adopting the number of relevant school-based initiatives as an indicator, school leaders from LT, SI, and HR emerge as the most proactive in organising ICT-related CPD courses. Conversely, low levels of engagement are recorded in both DK and NL. A number of Member States are taking measures to include the *European Digital Competence Framework*⁹⁴ in teacher CPD; this is the case, for example, in ES, EE, LT and HR, while other Member States implement their own digital competence frameworks.

Figure 3.2.2. The share of teachers expressing the need for CPD by age



Source: Eurydice analysis based on OECD's TALIS 2013 data in European Commission/EACEA/Eurydice (2015), *The Teaching Profession in Europe: Practices, Perceptions and Policies* (<http://eacea.ec.europa.eu/education/eurydice>). Note: the indicator combines *moderate* and *high* needs as indicated by teachers.

⁹¹ JRC-IPTS (2014), *Mainstreaming ICT-enabled Innovation in Education and Training in Europe: Policy actions for sustainability, scalability and impact at system level* (<https://ec.europa.eu/jrc/en/institutes/ipts>).

⁹² CZ, DK, DE, HR, LT, NL, PL, SK, SI. See: http://www.iea.nl/icils_2013.html.

⁹³ See <http://essie.eun.org/>.

⁹⁴ The *European Digital Competence Framework* was produced by JRC-IPTS in 2013 as part of a multi-year scientific project by DG EAC and DG EMPL (<http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6359>).

However, an analysis of TALIS data showed that the share of teachers in need of CPD on *ICT skills for teaching* and on *new technologies in the workplace* is as high as 57% and 53% respectively. These particular CPD demands strongly increase with age (Figure 3.2.2), adding a different dimension to the issue of demographic ageing mentioned at the beginning of the section.

Digital infrastructure

The provision of digital infrastructure in schools comprises hardware (e.g. PCs, interactive whiteboards, digital projectors, tablet computers, digital sensors, backend servers and other network infrastructure) and, of increasing importance, software, digital content and apps. In order to spur teaching innovation in classrooms, attention should be paid to understanding which digital tools best serve the pedagogical purposes of different instructional contexts. Table 3.2.2 summarises available digital resources in lower secondary schools in the nine Member States that participated in ICILS.

Table 3.2.2. Share of students at schools with digital resources available

	Interactive digital Learning resources	Email accounts for teachers	Email accounts for students	Digital learning games	Multimedia production tools	Data logging and monitoring tools	Simulation and modelling software	Internet-based applications for collaborative work	Tablet devices	National student-computer ratio
ICILS average	84	83	59	76	80	54	41	46	19	18
Croatia	84	99	95	80	74	56	16	40	3	26
Czech Republic	94	99	95	72	75	15	15	33	6	10
Denmark	98	98	94	94	96	60	48	74	45	4
Germany	75	67	29	62	71	57	41	14	6	11
Lithuania	91	87	76	93	85	86	54	60	13	13
Netherlands	100	100	72	85	78	90	79	60	35	5
Poland	78	79	61	83	92	42	53	26	9	10
Slovakia	98	79	66	89	75	58	33	57	15	9
Slovenia	90	91	65	93	98	45	50	78	11	15

Source: IEA (ICILS, 2014), http://www.iea.nl/icils_2013.html. Note: the indicators show the percentage of students at schools with available internet-, software- and computer-related resources for teacher and/or learning.

Most schools in the Member States participating in ICILS provide interactive digital learning and email resources to teachers. High availability of digital learning games (reflecting a new trend of game-based learning) is also visible⁹⁵. Discrepancies are found between Member States in the degree of the STEM-related monitoring tools and simulation software availability, with NL and LT providing high to almost universal access, whereas CZ does not seem to prioritise such tools. There are also large differences in the provision of tablet devices and in the student-computer ratio.

There are quite a number of initiatives in Europe equipping students of a given school, class or age group with portable, *one-to-one* devices (e.g. laptops, netbooks, tablets or smartphones) for learning purposes. A study by JRC-IPTS in collaboration with *European Schoolnet* has identified which factors affect the successful implementation of one-to-one devices in the school environment. The analysis, however, also uncovered a range of major challenges related to the sustainability, impact, costs, renewal and mainstreaming of such initiatives, in a context of budgetary constraints⁹⁶.

⁹⁵ The EUN iTEC project (2010-2014) highlighted the following technologies as most promising for school education: (1) game-based learning and gamification; (2) augmented reality; (3) learning analytics; (4) cloud computing; (5) programming and apps; and (6) neuroscience. See: <http://itec.eun.org/>.

⁹⁶ JRC-IPTS/European Schoolnet (2013), *Overview and analysis of 1:1 learning initiatives in Europe* (<http://ftp.jrc.es/EURdoc/JRC81903.pdf>).

Learning content and subject matter

ICT is taught as an independent subject in compulsory education in many Member States. Some of them have prescribed a minimum number of hours either to be taught during a year (BG, DE, EL, CY, LV, HU, MT, PT, and RO), or to be allocated over the course of multiple years (CZ, IE, LI, PL and SK). In other EU countries (BE de, NL, UK), schools and teachers have the flexibility to allocate total instruction time across curriculum subjects (including ICT) as they deem fit. A final group of countries incorporates ICT in other subjects' instruction time (IE, ES, FR, IT, AT, SI and UK-NIR)⁹⁷.

Secondly, technology is taught as an independent subject in nineteen Member States (BE fr/nl, BG, CZ, DE, EE, EL, ES, FR, HR, IT, CY, LT, HU, NL, PL, PT, RO, SI and UK). The most curricular hours spent on technology are found in SI. BE de, IE, MT, AT and SE have all integrated technology into other parts of the curriculum. Some countries (BE nl, BG, FR and LT) offer a mix of the two models. In DK and SK, technology is an optional subject for students or schools.

Thirdly, coding⁹⁸ can either be delivered as an independent subject (as in UK-ENG) or integrated into other subject domains. A recent survey by EUN⁹⁹ reveals that in twelve out of twenty participating education and training systems (BG, CY, CZ, DK, EE, EL, IE, IT, LT, PL, PT, UK-ENG), computer programming and coding are already part of the curriculum, while six others (BE nl, ES, FI, FR, LU, NL) are planning to integrate it.

Coding in school curricula boosts transversal competences and supports subsequent STEM fields of study

In general, multiple rationales are given for the integration of coding, amongst them the fostering of logical thinking and problem-solving skills. Improvement of the ICT sector and increasing the number of students in computer science is also a priority for ten of the surveyed countries. Furthermore, in the *European Digital Competence Framework*, programming is one of the twenty-one competences considered¹⁰⁰.

Teaching practices and use of social media

Teachers can use digital tools to innovate instructional practices. Yet Table 3.2.3 shows that, in ICILS participating countries, ICT is mostly used as a remedial tool and as a means for the enrichment of existing learning content, presentations and discussions in the classroom. Few teachers report using ICT for communication in which students are involved, leaving untapped the potential for ICT to connect students together within the frame of subject learning¹⁰¹.

Social media, finally, is quite commonly used for private and leisure activities by both children and adults. Across the EU, 38% of 9 to 12 year-olds and 77% of 13 to 16 year-olds keep a personal profile on a social network¹⁰². Although ICILS shows that only a small fraction of teachers use social media for teaching purposes, these tools hold the potential to become a new, relevant channel for collaborative learning practices¹⁰³.

Teachers are more likely to use technology to supplement traditional instruction than to let students collaborate or to put them in touch with others during lessons

⁹⁷ In DK and EE, ICT is an optional subject for students or schools, and a non-compulsory subject in HR. For further information, see European Commission/EACEA/Eurydice (2015), *Recommended annual instruction time in full-time compulsory education in Europe 2014/15* (<http://eacea.ec.europa.eu/education/eurydice>).

⁹⁸ "Coding" in the school context is a common term for all subject matters that integrate some sort of programming or similar activities (i.e. computational thinking) during instructional time.

⁹⁹ European Schoolnet (2014), *Computing our future: Computer programming and coding - priorities, school curricula and initiatives across Europe* (<http://www.eun.org/>).

¹⁰⁰ See <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6359>.

¹⁰¹ An existing framework and integrated solution for such exchanges is offered through the e-twinning portal (see <http://www.etwinning.net/>).

¹⁰² By June 2014. See EU Kids online (<http://lsedesignunit.com/EUKidsOnline/>).

¹⁰³ SI is the one notable exception, where 18% of the teachers reported to use social media in most lessons.

Table 3.2.3. Share of teachers often using ICT for teaching practices in classrooms

	Practices supporting life-long learning thinking and collaborative skills				Connected practices		
	Providing remedial or enrichment support to individual students or small groups of students	Enabling student-led whole-class discussions and presentations	Supporting inquiry learning	Supporting collaboration among students	Mediating communication between students and experts or external mentors	Enabling students to collaborate with other students (within or outside school)	Collaborating with parents in supporting students' learning
ICILS 2013	15	15	14	16	4	7	10
Croatia	10	14	12	9	3	3	2
Czech Republic	4	7	2	8	1	3	6
Denmark	22	23	15	16	4	4	23
Germany	4	5	4	4	1	2	3
Lithuania	15	15	6	12	3	5	22
Netherlands	14	11	8	11	1	3	8
Poland	19	10	18	24	3	5	16
Slovak Republic	10	13	7	10	3	3	6
Slovenia	15	19	8	12	3	5	5

Source: IEA (ICILS, 2014), http://www.iea.nl/icils_2013.html.

The EU average of grade 8 teachers' confidence in their own social media skills is only around 2.37 on a scale from 1 to 4, reflecting a score between "a little" and "somewhat"¹⁰⁴. EE (2.75) and SE (2.66) record the most confident teachers, while BE (1.93) and LV (1.79) are placed at the opposite end of the spectrum. Results are similar for teachers in grades 4 and 11. On the other hand, the evidence also shows that most teachers are quite confident in their operational digital skills.

Key findings and policy relevance

School education should help students gain the knowledge, skills and competences to use digital technologies in a critical, collaborative and creative way. Properly trained teachers have in many cases the opportunity to innovate their practice through new pedagogical methods supported by digital technologies, including the use of social media for collaborative learning. Strong CPD in this domain is a crucial requirement for the successful implementation of digital technologies in formal education, together with the readiness on the side of school leaders to encourage the development of collaborative peer-learning practices amongst teachers. Strengthening the prerequisites for innovative use of digital tools in school is an important part of the general modernisation of school education, promoting both differentiation of pedagogies and excellence in teaching and learning.

Languages in school education

The EU hosts a wealth of languages¹⁰⁵. Language competences are important for social cohesion and prosperity, for developing understanding and openness in a multicultural society, for improving employability and ensuring competitiveness for European businesses. Generally, language competences contribute to the mobility, employability and personal development of European citizens at all ages¹⁰⁶. Communication skills are crucial on the labour market and poor

¹⁰⁴ The *Survey of Schools: ICT in Education*, published in 2013 (<http://essie.eun.org/>).

¹⁰⁵ In addition to the twenty-four official languages of the EU, there are some sixty autochthonous languages (regional or minority languages, or even national languages, as in the case of Luxembourgish), plus the many languages spoken by migrants coming from outside the EU.

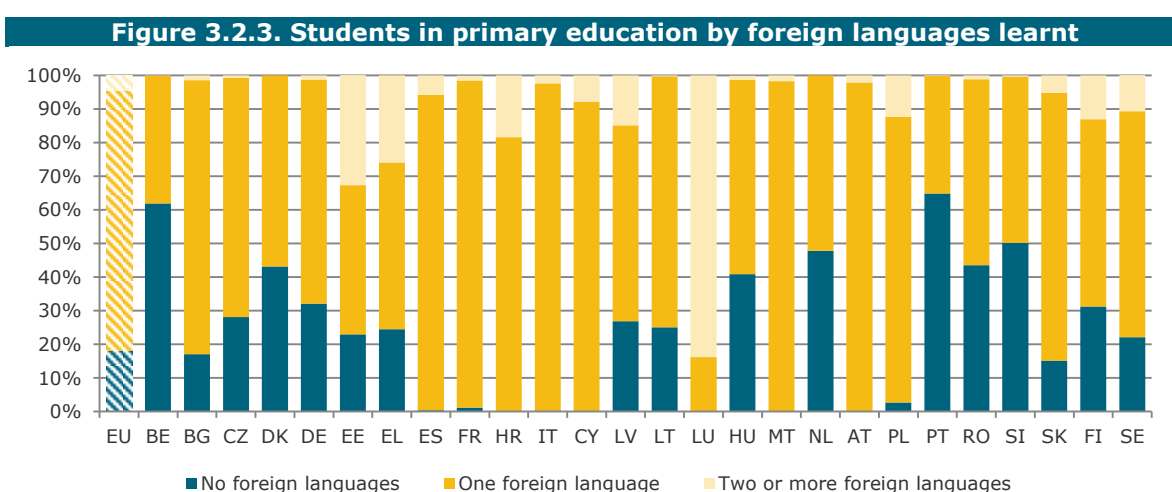
¹⁰⁶ JRC-CRELL (2015), *Languages and Employability* (<https://crell.jrc.ec.europa.eu/>).

language skills are a major obstacle to free movement of workers as well as the social and economic integration of migrants¹⁰⁷.

The role of primary and secondary education: language learning at school

The foundation for foreign language learning is laid in school. In all Member States, schools teach foreign languages, so that language learning has become a central element of every child's school experience across Europe. In recent years, the introduction of foreign language learning has moved to earlier years¹⁰⁸, when students are younger. Still, as can be seen in Figure 3.2.3, on average, 18% of students across the EU are not engaged in foreign language learning during their primary education (down from 23.1% in 2010). This includes students starting foreign language learning later than during their first grade.

In primary education, 18% of students do not learn any foreign languages



Source: Eurostat (UOE, 2013), online data code: *educ_uoe_lang02* (ISCED 1). Note: No data for IE and UK. Data presented here are for BE as a whole; however, there are striking differences between the Dutch and French speaking regions, with the Dutch speaking regions having much higher levels of students learning two or more foreign languages.

In lower secondary education, the share of students learning no foreign language is only 1.7% across the EU (Figure 3.2.4) and almost two thirds of students are learning two or more foreign languages. In some cases (AT, HU, IE), the percentage of students learning two or more foreign languages in lower secondary education remains below 10%, partly due to specific linguistic situations.

The percentage of students learning two or more foreign languages is increasing in lower secondary education and stable in general upper secondary education

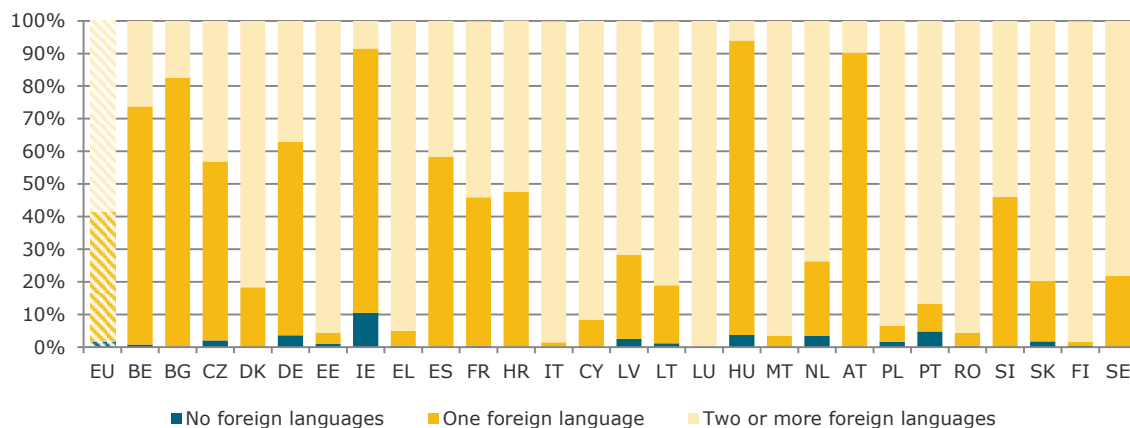
About one in ten students in general upper secondary education (10.3%) does not learn any foreign languages. The share of students learning two or more foreign languages in general upper secondary education is stable (50.8% in 2013 compared to 50.1% in 2010). The dominance of English as a foreign language is evident in general upper secondary education, where more than 78% of students study English, versus 20.6% studying

¹⁰⁷ Several Member States have introduced reforms to improve language teaching in education and training. See European Commission (2014), *Languages in education and training: Final country comparative analysis* (http://ec.europa.eu/languages/library/studies/lang-eat_en.pdf). Some Member States are reinforcing *Content and Language Integrated Learning* (CLIL) and bilingual approaches. Computer-assisted language learning is also gaining momentum. For further information, see European Commission (2014), *Improving the effectiveness of language learning: CLIL and computer assisted language learning* (http://ec.europa.eu/languages/library/studies/clil-call_en.pdf).

¹⁰⁸ A majority of Member States mention early foreign/second language learning in steering documents on Early Childhood Education and Care (Eurydice and Eurostat, Key data on Early Childhood Education and Care in Europe, 2014, http://eacea.ec.europa.eu/education/Eurydice/documents/key_data_series/166EN.pdf).

French and 16.7% studying German¹⁰⁹.

Figure 3.2.4. Students in lower secondary education by foreign languages learnt



Source: Eurostat (UOE, 2013), online data code: *educ_uoe_lang02* (ISCED 2). Note: no data for UK. Data presented here are for BE as a whole; however, there are striking differences between the Dutch and French speaking regions, with the Dutch speaking regions having much higher levels of students learning two or more foreign languages.

Language competences

Actual proficiency levels in foreign languages are not easy to capture. Not only school systems, but also curricular development, approaches to teacher education and language teaching vary significantly between Member States, and within them. As such, a comparison of what students actually learn cannot easily be achieved. Unlike the domains regularly tested in international assessments such as the OECD's PISA, there is no regular internationally comparative testing for foreign language proficiency.

This is why the Commission set up an extensive evaluation of foreign language competences in Europe, the *European Survey on Language Competences*, which was carried out in 2011 and in which sixteen education and training systems participated. The tests of proficiency in listening, reading and writing in first and second foreign languages were linked to the *Common European Framework of Reference for Languages* (CEFR) and the results were published in 2012¹¹⁰.

Following the publication of the results, the Council concluded that Member States are to improve measures aimed at promoting multilingualism, enhancing the quality and efficiency of language learning and teaching and developing measures for assessing language proficiency of secondary school students¹¹¹.

Subsequent activities by the Commission included an inventory of existing national tests of language competences in lower and upper secondary education¹¹² and a study on the comparability of existing national tests¹¹³, which were both conducted with support of the members of an Indicator Expert Group on Multilingualism. In addition, the JRC-CRELL published a report on the relationship between languages and employability¹¹⁴.

Linguistic confidence could tackle overall underachievement and reduce the risk of early school leaving and social exclusion

¹⁰⁹ These data do not take into account the education systems where the language is used as the main language of instruction (UK and IE for English, FR and BE fr for French, AT and DE for German).

¹¹⁰ See http://ec.europa.eu/languages/library/studies/executive-summary-eslc_en.pdf.

¹¹¹ OJ 2014/C 183/06.

¹¹² Eurydice (2015), *National tests in languages in Europe 2014/2015* (https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Publications:Languages_in_Secondary_Education:_A_n_Overview_of_National_Tests_in_Europe_%E2%80%93_2014/15).

¹¹³ Cambridge English Language Assessment: Study on comparability of language testing in Europe. (http://ec.europa.eu/languages/library/documents/edl-report_en.pdf)

¹¹⁴ JRC-CRELL (2015), *Languages and Employability* (<https://crell.jrc.ec.europa.eu/>).

It is clear from these activities that a modern and holistic approach to language teaching should aim at exploiting the resources in the classroom and in the larger societal environment, developing metalinguistic skills along with concrete language competences and building on these skills and competences for further learning. Such an approach will help strengthening the linguistic confidence of every learner and thereby combat underachievement and even reduce the risk of early school leaving and social exclusion.

Key findings and policy relevance

The increasing number of students speaking languages at home that differ from the main language of instruction, as well as the globalisation of the economy, are radically changing some key factors of language acquisition. As a consequence, the growing awareness of the importance of language competences is pushing Member States to bring forward the start of language learning. Still, Member States vary widely when it comes to the share of students learning foreign languages in primary and secondary education. Strengthening the modernisation efforts in language teaching and learning contributes to broader aims, such as tackling underachievement and early school leaving, but also employability and learning mobility.

3.3. The modernisation of vocational education and training

The demand for more and higher quality vocational education and training (VET)¹¹⁵ in the EU is reiterated in the Draft Joint Report on the implementation of ET 2020¹¹⁶. The modernisation of VET is a key measure to address high youth unemployment, improve basic skills of adults, up-skill the workforce, react to technological changes and ensure a better skills match for economic growth and job creation.

Closer ties between VET and enterprises are recognised as a prime way to ensure that VET provides skills that are relevant for the labour market. Work-based learning and apprenticeship schemes ensure the closest links between education and the world of work. The Commission, particularly through the *Youth Employment Initiative*¹¹⁷ and the *European Alliance for Apprenticeships*¹¹⁸, has been encouraging and supporting Member States in their efforts to increase the quality, supply and attractiveness of work-based learning, thereby improving the labour market relevance of VET.

Outcomes from initial vocational education and training

The employment rate of young adults whose highest education qualification is at the upper secondary and post-secondary level is slowly improving after a consecutive decline since 2008. Figure 3.3.1 distinguishes between general and vocational degrees within the group of young adults with their highest qualifications at the upper secondary and post-secondary levels. This confirms that vocational programmes lead to better employment chances than general programmes in most of the Member States, except for CY, EL, PT and UK¹¹⁹.

The available evidence suggests initial VET programmes allow for an easier transition to the labour market

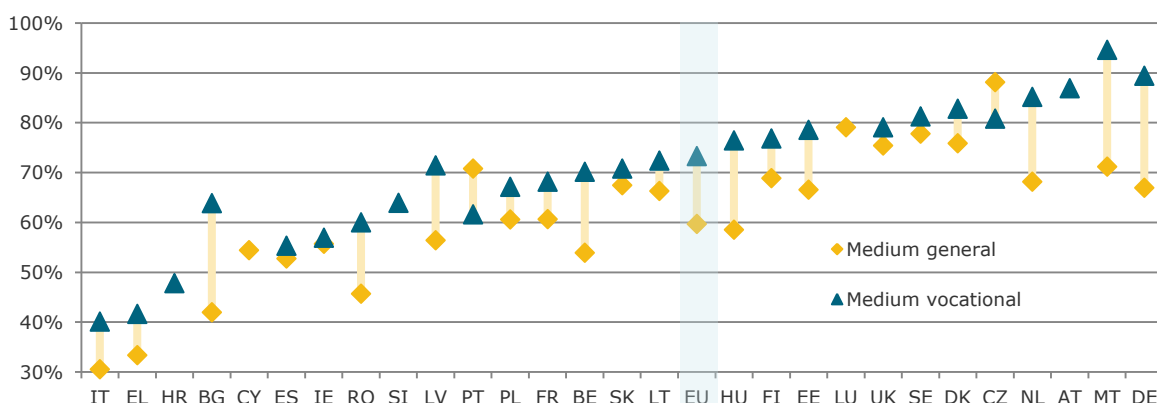
¹¹⁵ VET is defined as education and training that aims to equip people with knowledge, know-how, skills and/or competencies required in particular occupations or more broadly on the labour market. Many aspects of school and tertiary education have a vocational or professionally oriented dimension. However, the focus in Section 3.3 is on initial VET at the upper secondary and non-tertiary levels. Continuing VET is also covered in Section 3.5.

¹¹⁶ COM(2015) 408 final and SWD(2015) 161 final.

¹¹⁷ See <http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=1829>.

¹¹⁸ See http://ec.europa.eu/education/policy/vocational-policy/alliance_en.htm.

¹¹⁹ JRC-CRELL (2015), *Education and youth labour market outcomes: the added value of VET* (<https://crell.jrc.ec.europa.eu/>).

Figure 3.3.1. Employment rates by orientation of education qualification


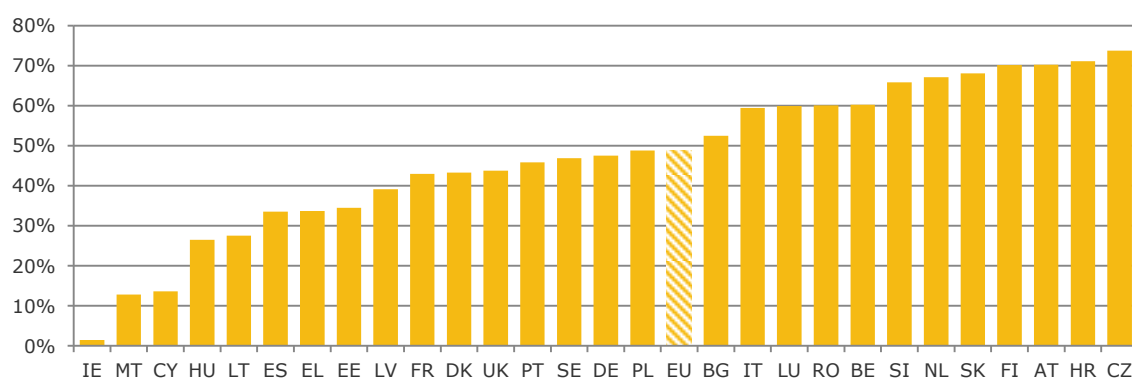
Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: The indicator captures the employment rate of 20 to 34 year-old persons with ISCED 3 or ISCED 4 education attainment and no longer in formal or non-formal education or training. Countries are ranked in ascending order by the total employment rate (ISCED 3 and ISCED 4).

Overall, this evidence indicates that VET is, in general, a good choice for those young people who do not intend to continue into higher education programmes. Still, average outcomes hide some disparity between different countries, leaving scope to improve VET quality in those countries where VET outcomes lag behind the EU average.

Participation in initial vocational education and training

An important aspect when assessing the attractiveness of vocational pathways is the share of upper secondary students who participate in initial VET. As shown in Figure 3.3.2, there is a high degree of variation between countries in terms of the size of their upper secondary VET systems. In MT and CY, just over 10% of students are in VET programmes, compared to more than 70% in HR, CZ, BE and AT¹²⁰.

When comparing the data on enrolment in initial VET with employment outcomes, clear tendencies can be identified for several countries. For example, in MT, there are indications of under-provision of initial VET, as very few students take initial VET courses while the employment premium is the largest across the EU. Conversely, in CZ, initial VET enrolment is one of the highest, while the premium in terms of labour market outcomes is negative¹²¹.

Figure 3.3.2. Share of upper secondary students in VET


Source: Eurostat (UOE, 2013). Online data code: *educ_uoe_enrs05*. Note: The indicator captures the share of upper secondary students participating in vocationally oriented educational programmes.

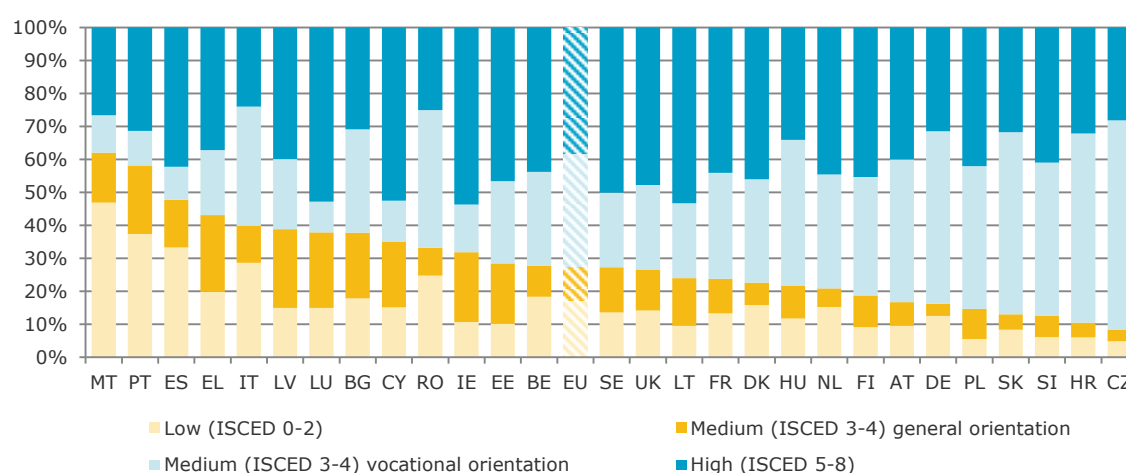
¹²⁰ While data show that the uptake of initial VET has been slowly decreasing, this in many cases can be attributed to methodological changes rather than a genuine decline.

¹²¹ However, this could reflect also a high permeability in CZ from upper secondary VET into tertiary education.

At the same time, to assess whether initial VET provision is sufficient, it is worth monitoring the number of young people choosing a general upper secondary educational pathway but not continuing into higher education. A large proportion of such young people would suggest that there is room for providing them with opportunities for a vocational qualification – either at secondary, post-secondary or tertiary level. As shown in Figure 3.3.3, in a number of countries there is a large proportion of young adults who do not have a *labour market relevant qualification* (i.e. a qualification below the level of upper secondary or an upper secondary qualification of general orientation).

Given that the overall employment prospects of young people who do not complete secondary education or obtain only a general upper secondary education diploma are likely to be more challenging, there is scope for increasing the provision of *labour market relevant* secondary, post-secondary non-tertiary or tertiary education and training. Such arguments would be stronger for those countries, where there is (1) a higher employment premium of VET qualifications over general secondary qualifications; and (2) a relatively low share of enrolment in VET (whether upper secondary, post-secondary or tertiary).

Figure 3.3.3. Highest level of education attained amongst 30 to 34 year-olds



Source: Eurostat (LFS, 2014), based on a May 2015 extraction. Note: countries are ranked in descending order according to the share of 30 to 34 year-olds that lacks a labour market relevant qualification (medium vocational or tertiary).

Enlarging the attractiveness and provision of upper secondary VET is particularly useful for countries with large shares of early school leavers. In such countries, VET could substantially contribute in raising education attainment. For Member States that already have large shares of tertiary graduates but aim to further up-skill their secondary graduates who do not continue into higher education, enlarging the provision of post-secondary non-tertiary VET could be a useful option¹²².

Work-based learning and apprenticeships

The added value of VET is the relevance of skills and competences for the labour market. There are different instruments ensuring that vocational schools and training centres are providing relevant, up-to-date training for particular professions. Such instruments include the involvement of the private sector in the design and evaluation of education curricula, professional standards and the examination of students. Moreover, one of the most straightforward ways to ensure that skills acquired by students are relevant for the labour

¹²² In order to address persistent youth unemployment, Member States should also provide adult learning opportunities, facilitating the return to education and training for those young people who have already left initial education. For example, a more targeted use of the European Social Fund (ESF) could be one of the avenues to address the challenge, particularly as training for the unemployed was found to be one of the most effective intervention areas of the ESF in the period 2007-2013. For further details, see Section 3.5.

market is to carry out part of the training outside the school environment, for example in a real workplace within a company.

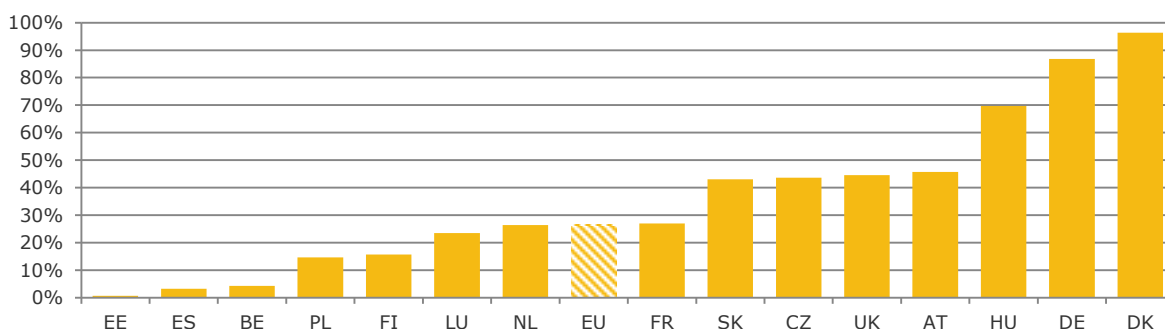
Apprenticeships are the best known example to organise VET provision in this way. They are defined as a formal VET programme that includes alternation between company-based training (periods of practical work experience at a workplace) and school-based education (periods of theoretical/practical education followed in a school or training centre), or a combination of the two. Such training, upon successful completion, should lead to a nationally recognised qualification. Often there is a contractual relationship between the employer and the apprentice, with the apprentice receiving a salary in exchange for the work undertaken.

Examples of recent policy measures in Member States

CY is gradually expanding the offer of VET, including the restructuring of upper secondary and secondary technical and vocational education, the *New Modern Apprenticeship* and the post-secondary non-tertiary VET institutes. According to the 2015 school reform, traineeships in IT will become compulsory for all students in the last three years of upper secondary education. SK adopted a new *Act on VET* to encourage more work-based learning at companies from September 2015.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Figure 3.3.4. Initial VET students in combined work- and school-based training



Source: Cedefop calculations based on Eurostat (UOE) data for 2012 (ISCED 1997 level 3). See Cedefop (2013), *On the way to 2020: data for vocational education and training policies* (<http://www.cedefop.europa.eu/>).

Apprenticeships are not the only possible scheme for work-based learning provision. There are other, less intensive work-based learning approaches. These include, for example, school-based VET combined with on-the-job training elements, where these elements typically represent less than 50% of the training programme duration. There are also ways to deliver work-based learning at school, notably by providing school-based programmes with on-site labs, workshops, kitchens, restaurants, practice firms, simulations or real business project assignments¹²³.

Table 3.3.1. priorities of European cooperation on VET for 2015-2020

(1)	Promote work-based learning in all its forms, with special attention to apprenticeships, by involving social partners, companies, chambers and VET providers, as well as by stimulating innovation and entrepreneurship;
(2)	Further develop quality assurance mechanisms in VET in line with the EQAVET recommendation ¹²⁴ and, as part of quality assurance systems, establish continuous information and feedback loops in VET systems based on learning outcomes;
(3)	Enhance access to VET and qualifications for all through more flexible and permeable systems, notably by offering efficient and integrated guidance services and making available validation of non-formal and informal learning;
(4)	Further strengthen key competences in VET curricula and provide more effective opportunities to acquire or develop those skills through VET;
(5)	Introduce systematic approaches to, and opportunities for, initial and continuous professional development of VET teachers, trainers and mentors in both school and work based settings.

Source: SWD(2015) 161 final.

¹²³ European Commission (2013), *Work-based learning in Europe: Practices and policy pointers* (http://ec.europa.eu/education/policy/vocational-policy/doc/alliance/work-based-learning-in-europe_en.pdf).

¹²⁴ COM(2014) 30 final.

There are only limited European data on the current status of work-based learning programmes in initial education and training across Member States. Still, from available data (Figure 3.3.4) it is evident that combined work- and school-based programmes are most common in DK, DE and HU¹²⁵.

Responding to the challenges outlined throughout this section, the Commission, together with the Member States and social partners in the context of the *Bruges Communiqué*¹²⁶ and the overall *Copenhagen process*¹²⁷, is working to further develop and modernise VET systems in Europe. Notably, in June 2015, a set of medium-term deliverables have been endorsed for the period 2015-2020 (Table 3.3.1), reinforcing the vision of developing high quality, attractive, accessible and inclusive VET.

Key findings and policy relevance

Evidence suggests that initial vocational education and training facilitates the transition from education to the labour market for young people. However, in some Member States, very few young people have access to high-quality initial VET programmes and returns to VET qualifications differ across countries. At the same time, in a few Member States there is a large proportion of young people who completed general upper secondary education but neither continue into higher education nor attempt to receive labour market relevant qualifications through VET. Developing good links between VET and the labour market is essential to improve the quality and attractiveness of VET programmes. Introducing more work-based learning, and particularly apprenticeships, is one of the most straightforward ways to ensure such links between the needs of employers and the education and training provided by VET systems across Europe.

3.4. The modernisation of higher education

It is clear that the expansion of higher education discussed earlier has to go hand in hand with active policy measures to ensure quality and relevance. This section deals with the priority of improving the quality of higher education and making it more relevant. Firstly, it looks at how higher education can be better sensitised to the needs of the labour market, whether through government-supported, system-wide planning and steering, or through policies and practices at institutional level to adapt learning programmes to prepare students better for working life. Then, given the EU's role in supporting the internationalisation of higher education, it looks at the specific contribution of learning mobility to graduate employability. The section ends with an overview of how innovation in higher education is bringing about new pedagogies, use of technology and reshaped curricula.

Employment amongst graduates from higher education

The employment rate of recent graduates from at least upper secondary education increased in 2014 for the first time since 2008. The corresponding ET 2020 target is to return to the 2008 value of 82% by the year 2020, but, in the wake of the crisis, graduate employment had been decreasing ever since.

Across Europe, the employment rate of recent higher education graduates is recovering more slowly than hoped

The employment rate of 20-34 year-olds now stands at 76.1%, up 0.6 percentage point from the previous year. However, looking more closely at the data reveals that this positive development is due entirely to an improvement in employment outcomes of upper secondary

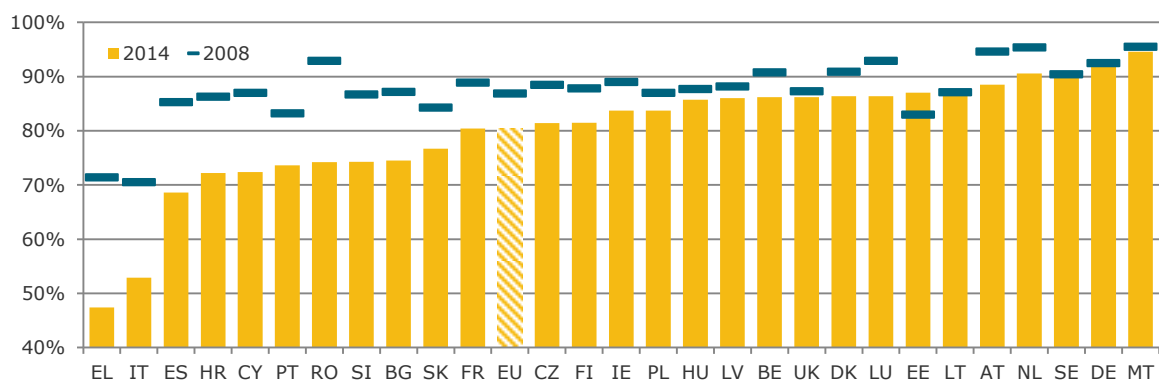
¹²⁵ Note that this analysis includes all work-based learning programmes, whether or not including a training element at a company.

¹²⁶ See http://ec.europa.eu/education/policy/vocational-policy/doc/brugescom_en.pdf.

¹²⁷ See http://ec.europa.eu/education/policy/vocational-policy/doc/copenhagen-declaration_en.pdf.

qualifications; employment rates among tertiary graduates show decreasing employment rates¹²⁸, although the average rate in the EU is still over 80%.

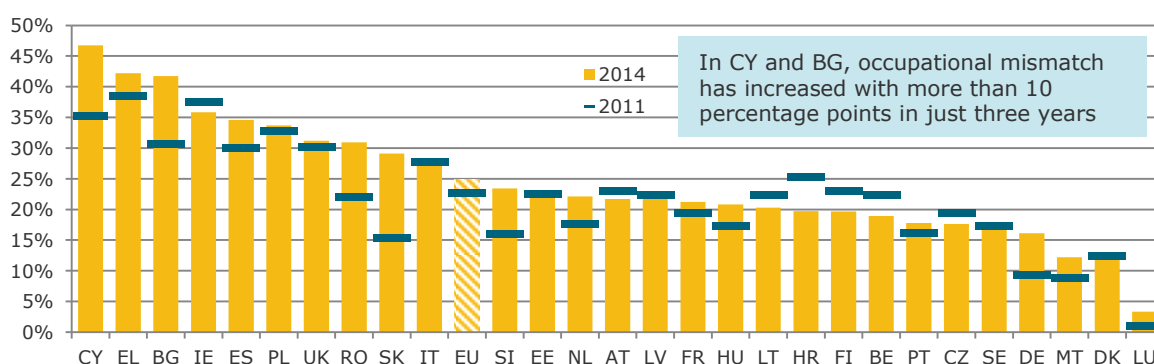
Figure 3.4.1. Employment rate of recent tertiary education graduates



Source: Eurostat (LFS, 2008-2014), online data code: *edat_lfse_24*. Note: the indicator shows the employment rate of graduates (ISCED 5-8) 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.

Between 2008 and 2014, convergence in recent graduate employment rates between Member States disappeared, with bottom-performing countries seeing much larger falls in employment rates than top-performing countries (Figure 3.4.1), as they were hit hardest by the cyclical labour market effects of the crisis. Rates in EL, RO, IT, ES, CY, HR, BG and SI decreased by more than 10 percentage points. More recently (2013-2014), the change in employment rates of higher education graduates has been much more diverse across the EU. Some bottom-performing Member States have improved (e.g. EL) whereas others have worsened (e.g. IT). Some top-performing Member States registered a small decline (e.g. DE) whereas others managed to further improve (e.g. MT).

Figure 3.4.2. Employed higher education graduates overqualified in their current job



Source: Eurostat (LFS, 2011-2014), based on a May 2015 extraction. Note: the indicator shows the share of 25 to 34 year-olds with tertiary education attainment that has an occupation not traditionally requiring a tertiary education qualification. This comprises clerical support workers; service and sales workers; skilled agricultural, forestry and fishery workers; craft and related workers; plant and machine operators and assemblers; and elementary occupations.

The issue of employability goes beyond average employment rates. There are also concerns that a number of higher education graduates are working in jobs that would not typically require a tertiary qualification: with the risk that they are not fully exploiting their skills. Across the EU,

¹²⁸ Table A.2 in the annex provides the full overview regarding Member States' progress towards the ET 2020 target for the employment rate of recent graduates (ISCED 3-8, ISCED 3-4 and ISCED 5-8). Longer time series can be consulted by using the Eurostat online data code *edat_lfse_24*. Between 2013 and 2014, the employment rate for those with ISCED 3-4 qualifications grew from 69.5% to 70.8%, while the employment rate for young people with ISCED 5-8 continued its consecutive drop from 80.9% to 80.5%.

25% of employed graduates from tertiary education find an occupation that would traditionally be viewed as not requiring a tertiary qualification (see Figure 3.4.2)¹²⁹. The occupational mismatch is particularly strong in CY, EL and BG. While the data used to generate these proportions are not perfect, they highlight potential problems in the functioning of the labour markets. Individuals working in jobs below their qualifications may become less satisfied with their jobs, may earn less, be more prone to change jobs and in the long-run will be more likely to lose skills by not using them¹³⁰.

The full picture of occupational mismatch is difficult to capture for a number of reasons. Firstly, the OECD's Survey on Adult Skills (PIAAC) showed that there is a substantial difference between qualification and skill mismatch¹³¹. Secondly, labour market characteristics affect these mismatches and require their own policy intervention¹³². And thirdly, both supply and demand differ also *within* countries, between sectors and occupations, and across time, which makes it difficult to anticipate trends. Going beyond the rudimentary measures possible at EU level¹³³, Member States are increasingly improving their own forecasts with more refined data.

Sensitising higher education to the needs of the labour market

So what can Member States and institutions do to better sensitise their higher education institutions (HEIs) to the needs of the labour market? With a plethora of choices and often-difficult transitions between education types and levels or between education and work, individualised career guidance is imperative throughout the whole student lifecycle. Table 3.4.1 shows that career guidance services are indeed available to all students in the large majority of Member States.

However, this career guidance is rarely informed by regular labour market forecasting or graduate tracking surveys¹³⁴. By providing evidence-based assessments of the changes expected in the structure of the labour market and skills requirements, labour market forecasts help to build a picture of the world for which current and future higher education students are being prepared. Yet only around half of the countries conducting regular labour market forecasts make efforts to take their results into account in higher education planning at the central level (BE fr, IE, FR, IT, LV, LT, FI, SE, UK)¹³⁵.

Feedback from labour market forecasts and graduate surveys should better inform career guidance in higher education

Graduate tracking – i.e. collecting quantitative information on the employment situation and career development of graduates from specific programmes – is increasingly common in HEIs¹³⁶. But again, the actual use of information stemming from graduate tracking, whether for career guidance or the adjustment of study programmes, remains limited. Only nine Member

¹²⁹ For more on this contextual indicator, see: <https://crell.jrc.ec.europa.eu/ET2020Indicators/>.

¹³⁰ See chapter 2 of European Commission (2014), *Employment and Social Developments in Europe 2014* (<http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=7736>).

¹³¹ See, for instance, JRC-CRELL (2014), *Occupational mismatch in Europe: understanding overeducation and overskilling for policy making* (<https://crell.jrc.ec.europa.eu/>).

¹³² Examples are active labour market policy measures and enterprise investment in human resource management and recruitment. For related contextual indicators, see JRC-CRELL (2014), *Monitoring the Evolution of Education and Training Systems: A Guide to the Joint Assessment Framework* (<https://crell.jrc.ec.europa.eu/>). See also Section 3.5 for barriers to continued learning.

¹³³ One example is the annual Cedefop forecast, based on comparative international data (<http://www.cedefop.europa.eu/en/events-and-projects/projects/forecasting-skill-demand-and-supply>). For an analytical overview of different mismatch indicators, see European Commission (forthcoming), *Measuring skills mismatch* (DG EMPL Analytical web note).

¹³⁴ Graduate tracking surveys are surveys of higher education graduates seeking to track their employment destinations and early careers, including, for example, their employment situation, the quality of their job, their job search experiences, their job satisfaction, or the match between their skills and job requirements.

¹³⁵ Two examples of systematic use are most commonly reported. In LV, LT, FI and UK-SCT, labour market information is used to determine enrolment quotas or state-funded study places in all or certain higher education study fields. In BE fr, FR, PL, PT, RO, SE and UK, such forecasts are taken into account when deciding on the establishment of new study programmes and/or when adapting the content of existing programmes to labour market needs.

¹³⁶ Rather than the regular tracking assessed here, much of this graduate tracking is of a more ad-hoc nature, as recently shown by a feasibility study for setting up a European wide graduate survey (<http://www.eurograduate.eu/results/digests>).

States make systematic efforts to use the information from regular graduate tracking surveys (BE¹³⁷, DK, EE, IE, IT, PL, SK, SE, UK).

Table 3.4.1. Graduate employability: a selection of structural indicators

	Career guidance for all students in HEIs	Regular labour market forecasting used systematically by education authorities	Regular graduate surveys used systematically by education authorities	Incentives for work placements for all students	Required involvement of employers in external QA
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: European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>). Note: * = UK-ENG, UK-NIR and UK-WLS. The structural indicators pertain to 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

Work-placements in higher education can be incentivised more across Europe

Another way to increase the relevance of programmes is to embed work-based learning, such a common component of vocational education and training (VET), across higher education. Evidence shows that students who participated in practical training before graduation are more likely to find jobs than their counterparts without relevant work experience¹³⁸.

¹³⁷ Except for BE de, which conducts regular surveys at the regional level but does not subsequently use the information systemically.

¹³⁸ JRC-CRELL (2012), *The employability of young graduates in Europe* (<https://crell.jrc.ec.europa.eu>).

Only seven EU education and training systems provide incentives to their HEIs to include work placements in all education programmes (BE de, EE, ES, FR, IT, LT, RO). Traditionally emphasised only in professionally oriented higher education institutions, work placements would strengthen the relevance of academically oriented higher education institutions as well.

Finally, Member States acknowledge the need for strengthened dialogue between their HEIs and labour market actors (employers and other social partners). Such a two-way communication is needed in order to improve mutual understanding of, respectively, the types of knowledge, skills and competences required in the real economy and the capacity and mission of higher education¹³⁹. In the majority of Member States, there are formal requirements regarding the involvement of employers in external QA, the main mechanism through which education authorities can encourage HEIs to enhance the employability of their graduates.

Examples of recent policy measures in Member States

To better match higher education programmes with labour market needs, DK is reviewing its higher education programmes and foresees cuts in public funding in fields where graduate unemployment has been significant in the last ten years. NL adopted a law on higher education offering prospective students, including talented ones, more differentiation between courses. HR is implementing the *Croatian Qualifications Framework* with a view to modernising higher education curricula according to the labour market needs and reducing the horizontal skills mismatch.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Learning mobility in higher education

Particularly in times of skills shortages and bottlenecks, learning mobility can offer students the invaluable opportunity of experiencing another education and training system and establishing an international professional network. Evidence has been accumulating in recent years on how learning mobility positively affects personal development, as well as employment prospects¹⁴⁰.

Learning mobility can improve students' employment prospects

The 2014 *Erasmus impact study*¹⁴¹ shows that university graduates who participated in the Erasmus programme enjoy both better labour market and career developments prospects. The study also reports that an important benefit from studying abroad is the improvement of transversal skills such as communication, problem-solving and entrepreneurship. Similar effects are reported by studies provided by the national Erasmus+ agencies.

As the evidence on the benefits of learning mobility is improving, so are the quantitative data on the actual share of students and graduates participating in an international learning mobility scheme¹⁴². On top of that, qualitative data reveal to what extent students are prepared for mobility and whether the institutional settings provide incentives or barriers¹⁴³.

Table 3.4.2 shows the share of inbound mobile students and graduates per country, out of their total student and graduate population. On average, 7.5% of the EU student population is mobile (amounting to more than 1.4 million students), up from 6.4% in 2005. Likewise, the number of Erasmus students has gone up from around 1.0% in 2005 (more than 150,000 students) to 1.3% in 2013 (more than 250,000 students)¹⁴⁴.

¹³⁹ While it is important for higher education institutions to respond to labour market needs, it is equally important for employers to recognise the wider function of higher education, which is to provide students with a well-rounded education for the long-term (and not just immediate business needs).

¹⁴⁰ EUROSTUDENT V (<http://www.eurostudent.eu/results/reports>); JRC-CRELL (2013), *Does Student Mobility During Higher Education Pay? Evidence From 16 European Countries* (<https://crell.jrc.ec.europa.eu/>).

¹⁴¹ 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).

¹⁴² As requested by the 2011 Council recommendation that also defined the ET 2020 benchmark of at least 20% higher education graduates having had a period of study or training abroad (OJ 2011/C 372/08).

¹⁴³ EUROSTUDENT V (<http://www.eurostudent.eu/results/reports>); European Commission/EACEA/Eurydice (2015), *The European Higher Education Area in 2015: Bologna Process Implementation Report* (<http://ec.europa.eu/eurydice>).

¹⁴⁴ It should be noted that Erasmus mobility increasingly takes the form of traineeships; in 2013 they amounted to 21% of the total.

Table 3.4.2. Share of inbound mobile students and graduates in tertiary education

	Enrolments		Graduates (inbound, degree mobile)				
	Inbound, degree mobile	Inbound Erasmus	Total	Short cycle tertiary	Bachelor*	Master*	Doctoral*
EU	7,5e	1,3e	:	:	:	:	:
BE	9.2	1.9	:	:	6.4	16.1	39.5
BG	4.1	0.4	3.4	-	3.9	2.7	3.6
CZ	9.4	1.5	8.4	3.1	7.4	9.6	12.5
DK	10.1	2.2	12.0	16.3	7.4	18.1	31.0
DE	7.1	1.1	6.5	0.0	3.3	10.0	15.3
EE	2.9	2.0	2.3	-	1.2	5.0	5.2
IE	6.4	:	6.2	4.2	4.6	9.3	24.9
ES	2.9	2.0	:	:	0.6	4.7	:
FR	9.8	1.2	:	:	:	:	:
HR	0.3	:	0.4	0.0	0.2	0.5	2.7
IT	4.4	1.1	:	:	2.9	5.1	10.2
CY	14.9	2.6	11.7	15.2	14.6	4.6	3.8
LV	3.7	1.2	1.6	0.3	1.7	3.0	0.3
LT	2.5	1.5	1.4	-	1.2	2.2	1.1
LU	43.6	8.3	41.6	19.2	20.6	58.6	81.3
HU	5.8	1.2	3.7	0.4	2.8	7.0	6.9
MT	5.1	13.1	5.2	1.1	3.2	12.6	0.0
NL	10.2	1.5	13.5	0.0	9.4	20.4	40.3
AT	16.8	1.5	10.7	0.9	13.3	16.2	29.0
PL	1.5	0.6	:	:	0.6	1.3	:
PT	3.9	2.7	3.7	-	1.7	5.5	12.2
RO	3.5	0.3	2.0	-	1.6	2.5	3.1
SI	2.6	2.0	1.9	0.3	1.5	2.6	3.8
SK	4.9	0.7	3.9	0.8	4.2	3.5	6.4
FI	7.1	2.3	6.9	0.0	5.1	8.9	19.3
SE	5.8	2.5	11.3	0.2	2.5	24.0	31.7
UK	17.5	1.1	24.3	7.3	15.7	46.1	43.7

Sources: JRC-CRELL calculations based on Eurostat (UOE, 2013, online data code *educ_uoe_mobs02*) for mobile degree enrolment and graduate data; DG EAC (Erasmus+) data (see http://ec.europa.eu/education/tools/statistics_en.htm). Note: EL missing; * or equivalent; "e" estimate; ":" = missing; "-" = not applicable. Degree mobile students enrol and graduate abroad. Erasmus mobility is a study or training period abroad but where students graduate in their home country (where they started their study).

Country choice for degree mobility is different from country choice for Erasmus mobility

Most countries in Central, Eastern and Southern Europe host relatively few mobile degree students, whereas LU, UK, AT and CY reveal shares close to 15% or larger¹⁴⁵. The variation between countries is much smaller for Erasmus enrolments and the pattern is slightly different, with South European and Nordic countries hosting a relatively larger share of Erasmus students.

Mobility stays take place in particular at the doctorate level, when students are specialising at a high level in a specific topic. The mobility rates are lower amongst students enrolled in Master's and Bachelor's programmes. Some noticeable differences across EU countries should, however, be acknowledged. UK stands out with nearly half of its Master's degree graduates being inbound mobile students. SE, NL, DK, AT and BE have between 15% and 25% inbound degree mobility at Master level and up to 40% at doctorate level. This contrasts the shares in Eastern and Southern Member States, which are often below 5% at the Bachelor, Master and in some cases even doctorate level¹⁴⁶.

There are several institutional factors that can facilitate *outbound* learning mobility or support the integration of *inbound* mobile students. A first example links back to Section 3.2 and the

¹⁴⁵ LU is an outlier due to its geographical position and its small but internationally mixed population.

¹⁴⁶ Country choice is likely to be related to the attractiveness of HEIs, clearly leaning towards the Western and Northern parts of Europe. For more information on attractiveness, see the *European Tertiary Education Register* (ETER) at <http://eter.joanneum.at/imdas-eter/> and *U-Multirank* at <http://www.umultirank.org/>.

importance of foreign language learning in primary and secondary education. In 2011, the Council recommended Member States to acknowledge the importance of acquiring language and intercultural competences right from the earlier stages of education and to encourage quality linguistic and cultural preparation for mobility¹⁴⁷.

Table 3.4.3. Learning mobility: a selection of structural indicators

	At least 7 years of compulsory first foreign language instruction	External evaluation of personalised guidance services	Portability of grants without any requirements	Portability of loans without any requirements	External QA of ECTS or compatible systems	External QA of integration of foreign 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: European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>). Note: * = UK-ENG, UK-NIR and UK-WLS. The structural indicators pertain to 2014/15; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

Although the language of study in an increasing number of HEIs is English, many students still consider insufficient language skills a barrier to mobility¹⁴⁸. Table 3.4.3 shows that in twenty-two Member States compulsory first foreign language teaching lasts at least 7 years and begins at an early age. Many countries have reformed language learning over the last decade, starting provision at an earlier stage (Section 3.2).

Personalised guidance services represent a second preparatory support measure for outbound mobility, aimed at informing students about the many different options at their disposal. The external evaluation of such guidance services indicates the importance that is given to its quality. Yet only ten

Personalised guidance services are important in informing students of all the choices and considerations to be made

¹⁴⁷ See the June 2011 Council Recommendation on promoting the learning mobility of young people (OJ 2011/C 199/01).
¹⁴⁸ This is particularly the case in some East-European countries, but also in IE and FR. See chapter 10 of the EUROSTUDENT V results (2015) at <http://www.eurostudent.eu/results/reports>.

Member States include the external evaluation of personalised guidance services in their general monitoring of learning mobility (BE, BG, ES, FR, IT, LT, MT, AT, PT, RO).

The next three structural indicators in Table 3.4.3 have to do with active obstacles to learning mobility. Few Member States formally allow portability of grants and loans for studying abroad without restrictions. Only nine Member States (plus BE de) facilitate mobility by providing grants for students studying abroad; a couple more allow for student loans to be used for studying abroad¹⁴⁹. Consistent evidence shows that the biggest obstacle to studying abroad is the financial burden perceived by students¹⁵⁰.

Another active obstacle referred to in Table 3.4.3 concerns the use of the *European credit transfer and accumulation system* (ECTS), which is one of the most important instruments designed to facilitate recognition and enhance mobility in higher education. The use of the ECTS is, however, not followed up by external quality assurance in DE, EL, FR, HR, IT, CY, LV, LU, HU, SK, FI, SE and UK (ENG/WLS/NIR).

Across the EU, major obstacles to learning mobility are a failure to recognise learning credits and the non-portability of grants and loans

Finally, ensuring that quality services are provided to support *incoming* foreign students is an important aspect of supporting positive conditions for learning mobility. While the quality of services cannot be compared across countries, the practice of external quality assurance is a reliable proxy. Only very few Member States feature quality assurance systems that take into account the integration of mobile learners from other countries (BE fr/de, DE, FR, HU, SI, UK (ENG/WLS/NIR)).

Key findings and policy relevance

With the employment rate of higher education graduates having been hit by the crisis and signs of occupational mismatch remaining apparent, Member States and higher education institutions (HEIs) need to ensure they take appropriate measures to strengthen the quality and relevance of tertiary education provision. Improvements can be achieved through the systematic use of information coming from labour market forecasting or graduate tracking surveys, and by embedding work-based learning across higher education. In addition, learning mobility can offer students the invaluable opportunity of improving employment prospects. Obstacles to learning mobility do remain, however, particularly when it comes to the recognition of learning credits and the portability of grants and loans.

Innovation in higher education: new ways of teaching and learning

Successfully modernising higher education implies fully exploiting the potential of technological advances and new models for delivery, including adapting assessment and accreditation of learning as necessary. Flexible higher education is not a new phenomenon, but the opportunities for HEIs to offer open and distance learning have changed dramatically in recent years due to evolving technological capacities. Most notable are the now almost ubiquitous provision of fast mobile and wireless networks, portable devices and the impact of the Internet and social media in particular.

¹⁴⁹ Of course, Member States have to offer grants and loans in the first place in order for these to be portable. See European Commission/EACEA/Eurydice (2015), *Structural indicators for monitoring education and training systems in Europe 2015* (<http://eacea.ec.europa.eu/education/eurydice>).

¹⁵⁰ The Commission has created an EU-wide loan facility for mobility (http://ec.europa.eu/education/funding-search_en.htm#_themes=higher_education). The outcomes of the 2015 EHEA ministerial conference commit to promoting portability of grants and loans (http://www.ehea.info/Uploads/SubmittedFiles/5_2015/112705.pdf).

In addition, digital content is increasingly reproducible at low or almost no cost, particularly when institutions producing educational tools, such as recorded lectures, apply open licenses¹⁵¹. Open materials enable free sharing, reuse, translation and updating. To some extent, a new institutional model for higher education is emerging, spurred by the move towards open and accessible education, where stronger ties to business communities and civil society are also becoming increasingly important.

A profound change in higher education is seen in the new options for delivery, either by expanding traditional distance learning with digital technology, or by offering alternatives like Massive Open Online Courses (MOOCs) and Open Educational Resources (OER)¹⁵². The technological development that has made education opportunities at the level of tertiary education more accessible, allowing for the provision of university-like courses by other organisations, is challenging the role and structure of HEIs.

Distance and blended learning

Most education and training systems in Europe are currently undertaking efforts aimed at providing distance learning, commonly delivered via e-learning platforms. Table 3.4.4 shows that CY, DE, EL, ES, IE, IT, MT, PT, SI and UK have specialised institutions for providing distance education. In AT, BE fr, CZ, DK, EE, EL, FI, FR, IE, IT, LV, LT, PL, RO, SE, and UK, distance learning, e-learning or blended learning are provided in most of the traditional higher education institutions (HEIs). Central level authorities in BE de, BG, CZ, IE, EE, FR, LT, LV, PL, and UK have also provided specific support (policies, projects, funding) for developing distance learning.

Table 3.4.4. Provision of distance learning and e-learning programmes

	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	
Specialised HEIs focusing on the provision of distance learning ¹⁵³							●		●	●	●			●	●			:		●	:			●		●				●	
Traditional HEIs providing distance learning, e-learning and blended learning	●				●	●		■	●	■		●		●		●	■	:			:	■	●		●				●	●	●

Source: European Commission/EACEA/Eurydice (2014), *The modernisation of higher education in Europe: Access, retention and employability* (<http://eacea.ec.europa.eu/education/eurydice>). Note: ■ = existing provision mainly includes blended learning (provision of full distance/e-learning is limited); ":" = data not available. The structural indicators pertain to 2012/13; see the country reports in Volume 2 of the Education and Training Monitor 2015 for the latest information on policy measures and reforms (<http://ec.europa.eu/education/monitor>).

A combination of in-person and technological modes of instruction seems to cater well to different audiences. One example is continuing professional development (CPD) provided by conventional educational actors through *blended* models (i.e. based on both independent online work and physical meetings). The vast majority of institutions offer blended learning and online learning courses (91% and 82% respectively)¹⁵⁴. Less frequent, but also on the rise, are other forms of provision such as joint inter-institutional collaboration and online degree courses.

MOOCs

MOOCs have been heavily debated since they gained widespread attention in 2011. The Commission's *High Level Group on the Modernisation of Higher Education* considers MOOCs as

¹⁵¹ See, for instance, *Creative Commons* at <http://creativecommons.org>.

¹⁵² COM(2013) 654 final.

¹⁵³ BE nl and AT have formalised agreements with institutions in other countries. FR has a *National Centre for Distance Education*, which offers programmes in partnership with universities and HEIs.

¹⁵⁴ EUA (2014), *2014 Survey on e-learning in the European higher education institutions* (<http://www.eua.be>).

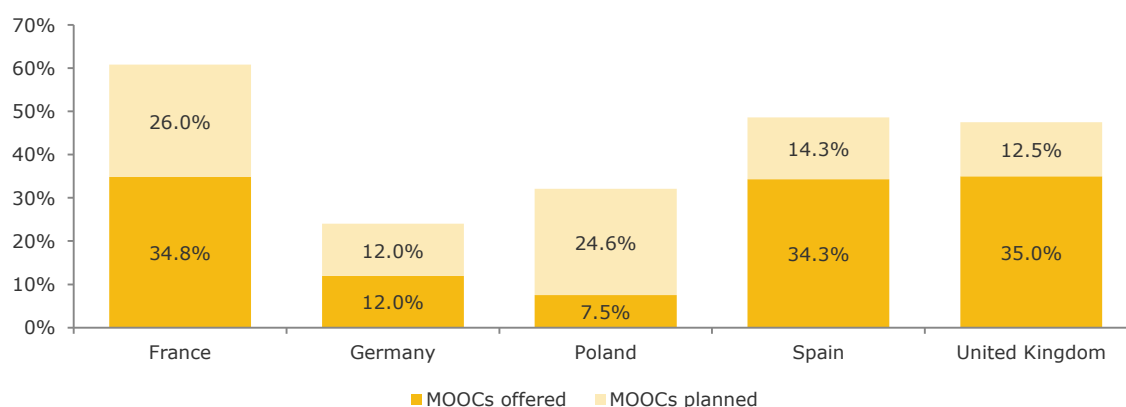
only part of a wave of innovations gathering pace in higher education, affecting both pedagogy and mode of delivery¹⁵⁵. A vast array of additional digital platforms and portals are coming online, providing easy access to educational resources and course materials from institutions across the globe.

However, unless MOOCs have a specific social or professional target, they are usually similar in style and content to higher education courses and attract a similar audience. Accordingly, the vast majority of participants are higher education students, former students, or upper secondary school students likely to enter higher education¹⁵⁶. MOOCs are also likely to be followed by young professionals, not too removed from the world of learning, who see this as a possibility either to gain additional knowledge and skills for their professional practice, or use it as a break from their daily work routine¹⁵⁷.

The potential for MOOCs to attract new groups of learners remains underexploited

MOOCs have not yet fulfilled all the promises that were associated with their rise, but they seem to have prompted change and innovation in higher education. As the number of new MOOCs continues to increase, business models are developed based on MOOCs and new variations on the MOOC concept.

Figure 3.4.3. Share of HEIs offering MOOCs



Source: JRC-IPTS (forthcoming), *How are higher education institutions dealing with openness? A survey of practices, beliefs and strategies in five European countries* (<https://ec.europa.eu/jrc/en/ipts>). Note: data collected April-June 2015.

A recent survey of HEIs explored the offer of MOOCs in five Member States, showing clear disparities between them (Figure 3.4.3). In FR, ES and UK, the proportion of universities that are offering MOOCs is similar and relatively high (around 35%), compared to DE and PL at 12.0% and 7.5% respectively. However, both FR and PL stand out where the planning of future MOOCs is concerned; respectively 26.0% and 24.6% of HEIs plan to offer MOOCs in the near future.

Analysis and accreditation of learning

The report of the *High Level Group on Modernisation of Higher Education* states that advances in big data and learning analytics can help HEIs customise teaching tools and develop more

¹⁵⁵ European Commission (2013), *Improving the quality of teaching and learning in Europe's higher education institutions* (http://ec.europa.eu/education/library/reports/modernisation_en.pdf). The European MOOC Scoreboard, produced within the Commission's *OpenEducationEuropa* initiative, counts to date more than 3,000 MOOCs globally, of which more than 1,500 stem from a European HEI or other organisation. For further information, see http://www.openeducationeuropa.eu/en/european_scoreboard_moocs.

¹⁵⁶ European University Association (2014), *MOOCs: Massive Open Online Courses* (<http://www.eua.be/>).

¹⁵⁷ Preliminary results from the on-going JRC-IPTS *MOOCKnowledge* study show the same tendency of MOOC participants being well educated and either working or studying. Most participants in the study show a relatively high degree of information literacy and interaction skills, and most of them know how to structure their own learning environment in order follow the MOOC properly.

personalised learning pathways based on student data¹⁵⁸. Analysis and assessment of collected data can be used to improve assessment and the choice of learning materials, or as an intervention tool by instructors to identify at-risk students at an early stage. This use of analyses of big data could thus contribute to reduce drop-out and strengthening completion rates (Section 2.2).

Further discussion is needed on how learning credits from stand-alone MOOCs can be recognised and whether they could be related to the instruments of the EHEA¹⁵⁹. Assessment is key if MOOCs are to confer formal credits. Formal recognition of non-formal open learning can fast-track learners through traditional education programmes and enables them to demonstrate their skills and knowledge to employers. However, recognition requires careful consideration of the type of assessment used¹⁶⁰.

Big data and learning analytics can be used to combat student drop-out rates

Key findings and policy relevance

Exploiting the full potential of technology to improve learning is a growing priority in Member States and HEIs, and is often promoted at national or regional level, in particular where HEIs are publicly funded and perceived to have public interest. However, MOOCs are still not widespread and seem to mainly attract participants that are in some way affiliated with higher education already. In addition, MOOCs face difficulties in adapting to recognised systems for accreditation of learning, which could be an obstacle to their wider uptake. Still, MOOCs and similar models for online learning continue to increase in numbers, to change structure, to develop pedagogies and to shift target audiences.

3.5. Tackling the adult learning challenge

The final domain of policy levers to be discussed in this report is learning after initial education, usually referred to as adult learning, which includes anything from on-the-job training to continuing VET or a return to formal education to obtain a doctoral degree¹⁶¹. The increasingly rapid changes in social, economic and labour market circumstances require individual citizens to be able to adapt quickly to their environment. This can be achieved by acquiring new knowledge, by learning new skills, and by further developing competences, whether cognitive or non-cognitive.

More worryingly, there are many adults who, after having failed to acquire a sufficient level of knowledge, skills, competences and *dispositions* (i.e. positive attitudes towards learning) during initial education, find themselves unable to take full advantage of adult learning opportunities. Many of these adults are stuck in low-quality jobs that offer little opportunity either for career growth, or motivation for undertaking further learning.

As the OECD's Survey of Adult Skills (PIAAC)¹⁶² shows, one in four adults in Europe is caught in a low-skills trap – one that limits access to the labour market while simultaneously closing avenues to further education or training. The Commission supports Member States in their

¹⁵⁸ However, the collection, analysis and use of learning data raise privacy concerns, and should only occur with the explicit consent of the student.

¹⁵⁹ Such as the ECTS. See EUA (2014), *Massive Open Online Courses: EUA Occasional Papers* (<http://www.eua.be/eua-work-and-policy-area/building-the-european-higher-education-area/e-learning/moocs.aspx>).

¹⁶⁰ For further information, see <http://is.jrc.ec.europa.eu/pages/OpenCred/ISUNITWEBSITE-IPTS-JRC-EC.htm>.

¹⁶¹ For the purpose of this section, adult learning is defined as the entire range of formal, non-formal and informal learning activities, which are undertaken by adults after a break since leaving initial education and training, and which results in the acquisition of new knowledge and skills. The ET 2020 benchmark on adult learning excludes informal learning, and focuses on the formal and non-formal learning activities of 25 to 64 year-olds, participated in during the four weeks preceding the survey questionnaire.

¹⁶² European Commission (2013), *The Survey of Adult Skills: Implications for education and training policies in Europe* (ec.europa.eu/education/policy/strategic-framework/doc/piaac_en.pdf).

efforts to develop systems for adult learning, to ensure a sufficient supply of quality opportunities for relevant learning for all adults, as well as to provide compensatory routes to learning (e.g. *second chance*) for those adults who cannot access such opportunities.

The benefits of learning throughout life

Promoting and increasing participation in adult learning brings numerous benefits to individuals, but also to companies, society, and the economy at large. There is a growing amount of research assessing those benefits. A 2015 literature review of empirical studies and meta-reviews¹⁶³ looks into recent research findings on the outcomes of adult learning, as well as the policy interventions that result in more learning (discussed further below). The review reveals a substantial evidence-base supporting a correlation between adult participation in learning and a wide range of positive externalities.

Evidence available on the benefits to employers of investing in employees' training is the strongest. In particular, there are clear links between participation in learning and higher company productivity and profitability. In addition, there is clear indication of training's positive effect on workforce motivation and on the level of innovation in companies.

Adult learning brings numerous economic and social benefits to individuals, employers and society at large

There is also solid evidence on the positive economic outcomes of training for individuals. Existing data suggest a positive link between participation of adults in learning activities and their employability. An evaluation of the 2007-2013 European Social Fund (ESF)¹⁶⁴ confirms investment in training for unemployed people as one of the most effective sets of ESF measures for developing human capital. In addition to economic benefits, there is evidence on the positive social and wellbeing outcomes of adult participation in education or training.

Finally, the literature review points to a further positive correlation between adult participation in learning and broader social or economic benefits. Positive macro-economic links between participation in learning and GDP growth have been recorded, as well as between participation in learning and lower unemployment levels, higher civic participation, improved public health, environmental literacy and lower re-offending rates.

Adult participation in learning

Bearing in mind the potential benefits that increased adult participation in learning could bring about, Member States agreed that by 2020 at least 15% of 25 to 64 year-olds in the EU should have a recent learning experience (gained during the previous 4 weeks). However, since 2009 there has been only limited progress towards this ET 2020 benchmark. The share of adult participation in learning now stands at 10.7%, with only six Member States above the target level of 15% (DK, SE, FI, FR, NL, UK).

No more than 4.4% of the 66 million adults with low education attainment participate in learning activities

Strong effects of education attainment levels and age can be observed in all countries (Table 3.5.1). Across the EU on average, no more than 4.4% of the 66 million adults with at most lower secondary education attainment participate in continued learning. The age effect is equally significant, with very few adults participating in any formal or non-formal learning at a later age.

This limited progress can be explained by a number of circumstantial factors, including the fall in employment rates due to the economic and financial crisis, an insufficient provision of training and other activation policies targeted at the unemployed and cost-saving decisions by private

¹⁶³ European Commission (forthcoming), *An in-depth analysis of adult learning policies and their effectiveness in Europe* (<http://ec.europa.eu/social/home.jsp>).

¹⁶⁴ European Commission (forthcoming), *ESF 2007-2013 ex-post evaluation: Investing in human capital - final report* (<http://ec.europa.eu/social/home.jsp>).

companies as well as public institutions. Methodological changes, affecting the indicator and its measurement, have also been at play in some of the Member States.

Table 3.5.1. Participation in learning by education attainment and age

	Total	Education attainment			Age groups			
		At most lower secondary education	Upper secondary education	Tertiary education	From 25 to 34 years	From 35 to 44 years	From 45 to 54 years	From 55 to 64 years
EU	10.7	4.4	8.8	18.8	17.0	10.9	9.0	5.9
Belgium	7.1	3.0	5.4	11.8	11.1	7.8	5.9	3.8
Bulgaria	1.8	:	1.7	3.1	5.8	1.0	0.4	:
Czech Republic	9.3	2.1	7.6	17.5	14.1	10.1	8.5	4.4
Denmark	31.7	22.8	28.3	40.7	43.3	32.1	28.8	23.8
Germany	7.9	3.3	7.0	12.0	17.9	6.9	5.1	3.0
Estonia	11.5	3.3	7.8	18.3	20.3	12.3	7.7	4.8
Ireland	6.7	2.3	5.8	9.8	11.5	6.2	4.8	2.9
Greece	3.0	0.4	3.2	5.4	7.6	2.6	1.2	0.5
Spain	9.8	3.8	9.6	17.5	17.5	10.4	7.1	4.0
France	18.6	8.1	15.5	29.7	24.2	20.7	16.9	12.8
Croatia	2.5	:	2.3	5.2	7.7	1.7	0.9	:
Italy	8.0	2.2	9.4	18.7	14.9	7.5	6.4	4.5
Cyprus	6.9	1.3	4.4	12.2	10.9	7.1	4.9	2.8
Latvia	5.5	2.2	4.1	9.4	10.0	5.9	3.7	2.2
Lithuania	5.0	:	2.8	9.0	9.8	5.1	3.1	2.3
Luxembourg	14.0	7.3	12.0	18.2	19.1	17.4	11.6	5.7
Hungary	3.2	2.0	2.6	5.5	6.6	3.0	2.3	1.1
Malta	7.1	2.8	8.2	18.8	11.0	8.8	5.3	3.2
Netherlands	17.8	8.8	17.6	24.9	27.3	17.6	16.2	11.1
Austria	14.2	5.0	11.3	24.6	24.1	14.3	11.5	7.1
Poland	4.0	0.7	2.0	9.7	8.4	4.2	2.0	1.0
Portugal	9.3	4.2	11.9	20.1	16.9	11.0	7.3	3.9
Romania	1.5	0.3	1.6	3.0	3.7	1.0	0.8	0.3
Slovenia	11.9	3.1	9.6	21.0	21.8	12.8	8.6	5.1
Slovakia	3.0	:	2.2	6.8	5.6	2.7	2.1	1.0
Finland	25.1	13.0	21.6	32.9	34.3	28.1	23.9	15.3
Sweden	28.9	19.6	24.2	38.4	38.0	30.5	26.3	20.4
United Kingdom	15.8	7.4	13.1	23.1	19.8	17.2	15.2	10.4

Source: Eurostat (LFS, 2014), online data codes: *trng_lfs_10* and *trng_lfse_01*.

Recent analysis has confirmed that, whereas many Member States have indeed issued legislation promoting access to education for vulnerable groups, very few have simultaneously adopted indicators to assess progress towards such stated objectives, for instance monitoring the number of unemployed adults who should take up these opportunities each year¹⁶⁵.

The lack of concrete, measurable commitments by the Member States in their policy documents, combined with an overall adult learning rate that has been stagnant during the last decade, raises the question as to what extent Member States' policies are making an actual impact on adults' access to and participation in education and training.

A stagnant adult learning rate and lack of policy commitment demand a re-think of adult learning policies

¹⁶⁵ European Commission/EACEA/Eurydice (2015), *Adult education and training in Europe: Widening access to learning opportunities* (<http://eacea.ec.europa.eu/education/eurydice>).

Increasing the participation rate

There is an unlimited range of options that policy makers can choose from to facilitate the provision of and access to training for adults. However, the number of policy measures that have been evaluated and confirmed as likely to make a positive impact is much smaller. The aforementioned review of the effectiveness of adult learning policies identifies a number of key success factors linked to higher adult participation in learning and different policy interventions associated with those success factors (see Table 3.5.2)¹⁶⁶.

Table 3.5.2. Evidence on the effectiveness of adult learning interventions

Success factor	Policy lever	Strength of evidence *
1. Improve learners' disposition towards learning	1.1 Heighten awareness of benefits of adult learning	++
	1.2 Provide targeted guidance to learners about learning options	+++
	1.3 Engage social partners in the planning of, promotion of and recruitment of learners to adult learning	++
	1.4 Provide appropriate introductory learning experiences for learners	++
2. Increase employers' investment in learning	2.1 Provide funding to assist employers to up-skill and retrain their workforce	+++++
	2.2 Promote the use of externally accredited qualifications by employers	+++
	2.3 Promote the provision of work-based learning	++
3. Improve equity of access for all	3.1 Fund learning for the disadvantaged and difficult to engage groups, including the inactive and the unemployed	+++++
	3.2 Provide targeted guidance and support services to learners and promote programmes to learners in under-represented groups	+++
	3.3 Provide scheme to recognise prior learning (informal and non-formal)	+++
	3.4 Use intermediary organisations in outreach to difficult-to-engage groups	+++
	3.5 Embed basic skills development in adult learning programmes	+++
4. Deliver learning that meets the needs of employers and learners	4.1 Understand and identify needs and motivations of learners	+
	4.2 Identify current and future skills needs of employers (through skills forecasting) and align provision with these	+++++
	4.3 Promote innovation and flexibility in the delivery of learning	+
	4.4 Provide progression pathways for learners across the national qualification framework	
5. Deliver high quality adult learning	5.1 Establish quality control framework for monitoring and evaluation of adult learning programmes	+
	5.2 Develop a skilled adult education workforce through initial teacher training and continuous professional development	+
6. Co-ordinate an effective adult learning policy	6.1 Co-ordinate adult learning (or lifelong learning) policy with other national policies for improving knowledge, skills and competencies of adults	++
	6.2 Establish mechanisms for policy alignment at local and regional levels	+++
	6.3 Build a knowledge base concerning what works in adult learning	+

Source: European Commission (forthcoming), *An in-depth analysis of adult learning policies and their effectiveness in Europe* (<http://ec.europa.eu/social/home.jsp>). Note: * = This assessment is made using the Maryland Scientific Methods Scale: a 5-point scale used to evaluate the methodological quality of studies and meta-reviews. Further discussion of this approach can be found here: <https://www.ncjrs.gov/App/publications/Abstract.aspx?id=198650>.

Among the set of policy levers likely to impact adults' disposition towards further learning, the provision of targeted guidance stands out as one of the most effective. Stronger still, among the policy actions linked to employer investment in learning, is the effect of co-financing of employers' investment on the amount of work-related training.

¹⁶⁶ European Commission (forthcoming), *An in-depth analysis of adult learning policies and their effectiveness in Europe* (<http://ec.europa.eu/social/home.jsp>).

Examples of recent policy measures in Member States

In 2014, EE adopted a *Lifelong Learning Strategy*, which specifically addresses the most important challenges in the area of lifelong learning, including aligning lifelong learning opportunities with the needs of the labour market and increasing participation. HU is implementing a new law on adult training, which provides for improving the organisation of training courses, enhancing the quality of their content and reinforcing their supervision. In PL, as from 2014, companies can co-finance training for their employees from a *National Training Fund*.

For further information and more examples of recent policy measures and reforms, see the country reports in Volume 2 of the Education and Training Monitor 2015 (<http://ec.europa.eu/education/monitor>).

Among the policy levers to improve access to learning for disadvantaged groups, the most meaningful intervention is the actual financing (or direct provision) of learning opportunities. Other effective measures include targeted guidance, recognition of prior learning, embedding basic skills development in adult education programmes, and the assistance of intermediary organisations (e.g. NGOs and social services) in engaging socio-economic groups that are harder to reach¹⁶⁷.

Such a comprehensive overview of the evidence-base on policy interventions allows for the construction of a framework for analysing and monitoring current European strategies in this domain, at both national and regional levels. A European monitoring framework is currently being pilot-tested by the Commission, in cooperation with the Member States.

Key findings and policy relevance

Research points to the existence of clear social and economic benefits to engaging adults into continued learning activities. Across Europe, however, the participation rate in adult learning programmes has been stagnant throughout the last decade, despite political commitments at both European and national levels. No more than 4.4% of the 66 million adults with low education attainment participate in learning activities. It is crucial to improve both the design and the implementation of current adult learning schemes. Such a re-think should include a more careful selection of policy levers, explicit targets and more rigorous frameworks for policy evaluation. Strong examples of policy levers are co-financing schemes to support employers' investment in adult learning provision, financing of learning programmes for disadvantaged groups, and the alignment of training provision with the identified future skills needs of employers.

¹⁶⁷ This literature review carried out for the Commission provides a comprehensive overview of adult learning policy interventions for which evidence exists showing a positive impact in increasing adults' participation in learning. However it does not provide information on the level of impact or the efficiency (cost-benefit assessment) of those policy actions.

Annex

Annex: Additional tables

Table A.1. Percentage of underachievement 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, 2009-2012). Notes: ":" = data not available.

Table A.2. Employment rate of recent graduates by level of education

	2008			2014		
	Total	Medium	High	Total	Medium	High
EU	82.0	77.1	86.9	76.1	70.8	80.5
Belgium	83.9	73.6	90.8	79.0b	67.4b	86.2b
Bulgaria	79.6	74.1	87.2	65.4	52.6	74.5
Czech Republic	87.9	87.6	88.5	81.3	81.2	81.4
Denmark	90.6	90.2	90.9	83.8	81.0	86.4
Germany	86.5	83.2	92.5	90.0	87.7	93.1
Estonia	82.3	81.5	83.0	81.0	74.4	87.0
Ireland	84.3	76.6	89.0	73.9	56.8	83.7
Greece	68.3	63.0	71.4	44.3	38.8	47.4
Spain	82.1	74.2	85.3	65.1b	54.7b	68.6b
France	83.3	75.1	88.9	75.4b	66.9b	80.4b
Croatia	77.9	71.2	86.3	62.0	47.3	72.2
Italy	65.2	60.4	70.5	45.0	38.3	52.9
Cyprus	85.8	80.9	87.0	68.7	54.6	72.4
Latvia	83.1	77.4	88.2	77.0	65.2	86.0
Lithuania	79.3	68.4	87.1	80.7	70.3	87.2
Luxembourg	86.9	80.0	92.9	83.8	78.2	86.4
Hungary	80.2	71.8	87.7	78.5	72.6	85.7
Malta	95.7	95.9	95.5	91.7	86.8	94.6
Netherlands	93.6	91.4	95.4	87.3	83.4	90.6
Austria	90.1	88.4	94.6	87.2b	86.0b	88.5b
Poland	79.3	70.1	87.0	75.6	65.6	83.7
Portugal	82.8	82.1	83.2	69.4	65.2	73.6
Romania	84.8	77.1	92.9	66.2	57.2	74.2
Slovenia	83.4	79.8	86.7	70.1	62.5	74.3
Slovakia	81.4	79.5	84.3	72.7	68.3	76.7
Finland	82.3	78.9	87.8	77.0	74.0	81.5
Sweden	85.7	81.6	90.4	85.0	79.7	90.8
United Kingdom	83.6	79.5	87.3	83.2	78.5	86.2

Source: Eurostat (LFS, 2008-2014), online data code: *edat_lfse_24*. Note: The indicator shows the employment rate of graduates (ISCED 3-8) 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. The indicator is broken down by level of education: medium (ISCED 3-4) covers upper-secondary and post-secondary non-tertiary education, high (ISCED 5-8) covers tertiary education.



AT	Austria	FR	France
BE	Belgium	HR	Croatia
BE fr	Belgium – French speaking community	HU	Hungary
BE nl	Belgium – Dutch speaking community	IE	Ireland
BE de	Belgium – German speaking community	IT	Italy
BG	Bulgaria	LT	Lithuania
CY	Cyprus	LU	Luxembourg
CZ	Czech Republic	LV	Latvia
DE	Germany	MT	Malta
DK	Denmark	NL	Netherlands
EE	Estonia	PL	Poland
EL	Greece	PT	Portugal
ES	Spain	RO	Romania
EU	European Union	SE	Sweden
FI	Finland	SI	Slovenia
		SK	Slovakia
		UK	United Kingdom
		UK-ENG	England
		UK-NIR	Northern Ireland
		UK-SCT	Scotland
		UK-WLS	Wales

CEFR	Common European Framework of Reference for Languages
COM	Communication of the European Commission
CPD	Continuing professional development
CRELL	Centre for Research on Education and Lifelong Learning (JRC)
DG EAC	Directorate-General for Education and Culture, European Commission
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion (European Commission)
EACEA	Education, Audiovisual and Culture Executive Agency (European Commission)
ECEC	Early childhood education and care
ECTS	European credit transfer and accumulation system
EENEE	European Expert Network on Economics of Education
EHEA	European Higher Education Area
EQAVET	European Quality Assurance for Vocational Education and Training
ESF	European Social Fund
ET 2020	The EU's strategic framework for European cooperation in education and training
EUROPE 2020	The EU's ten-year jobs and growth strategy
EUROSTAT	Statistical office of the European Union
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 (JRC)
ISCED	International Standard Classification of Education
ITE	Initial teacher education
JRC	Joint Research Centre (European Commission)
LFS	EU Labour Force Survey (Eurostat)
MOOCs	Massive Online Open Courses
NEET	Not in employment, education or training
NESET II	Network of Experts on Social Aspects of Education and Training
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources
OJ	Official Journal of the EU
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 Standard
QA	Quality assurance
SILC	EU statistics on income and living conditions
STEM	Science, technology, engineering and mathematics
SWD	Staff Working Document of the European Commission
TALIS	Teaching and Learning International Survey (OECD)
TIMSS	Trends in International Mathematics and Science Study (IEA)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UOE	Common data collection of the UNESCO Institute for Statistics, OECD and Eurostat
VET	Vocational education and training

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