



European
Commission

Education and Training Monitor 2019

Bulgaria



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EUROPEAN COMMISSION

Education and Training Monitor 2019

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Volume 2 of the Education and Training Monitor 2019 includes twenty-eight individual country reports. It builds on the most up-to-date quantitative and qualitative evidence to present and assess the main recent and ongoing policy measures in each EU Member State. It therefore complements other sources of information which offer descriptions of national education and training systems.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 briefly identifies the main strengths and challenges of the country's education and training system. Section 3 focuses on teachers and challenges of teaching profession. Section 4 looks at investment in education and training. Section 5 deals with policies to modernise early childhood and school education. Section 6 discusses measures to modernise higher education. Finally, section 7 covers vocational education and training, while section 8 covers adult learning.

The Education and Training Monitor 2019 was prepared by the Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General of Employment, Social Affairs and Inclusion (DG EMPL) and the Eurydice Network. DG EAC was assisted by the Education and Youth Policy Analysis Unit from the Education, Audiovisual and Culture Executive Agency (EACEA), Eurostat, Cedefop and the JRC's Human Capital and Employment Unit, Directorate Innovation and Growth. The Members of the Standing Group on Indicators and Benchmarks (SGIB) were consulted during the drafting phase.

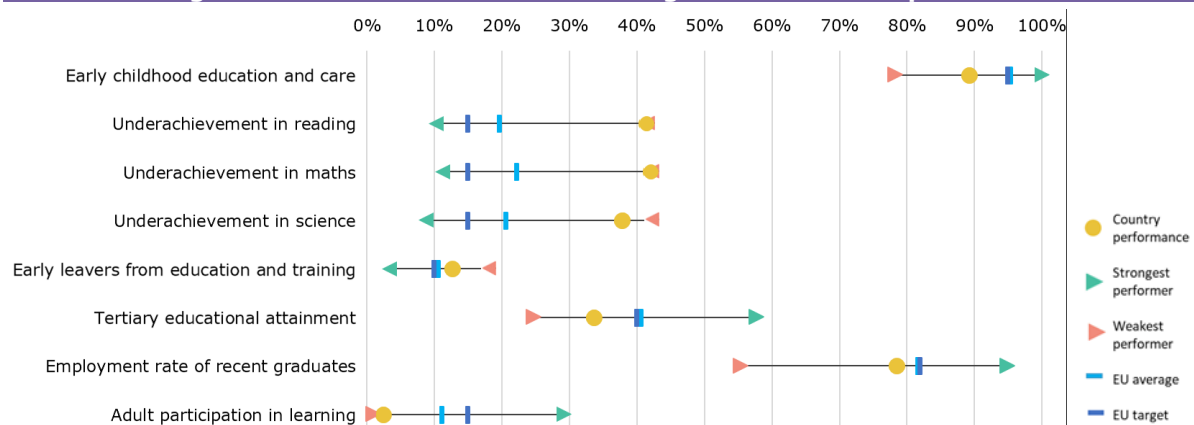
*The manuscript was completed on 26 August 2019.
Additional contextual data can be found online (ec.europa.eu/education/monitor)*

1. Key indicators

		Bulgaria		EU average		
		2009	2018	2009	2018	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		14.7%	12.7%	14.2%	10.6%	
Tertiary educational attainment (age 30-34)		27.9%	33.7%	32.3%	40.7%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		84.2%	83.9% ¹⁷	90.8%	95.4% ^{17,d}	
Proportion of 15 year-olds underachieving in:	Reading	41.0%	41.5% ¹⁵	19.5%	19.7% ¹⁵	
	Maths	47.1%	42.1% ¹⁵	22.3%	22.2% ¹⁵	
	Science	38.8%	37.9% ¹⁵	17.7%	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	73.6%	78.6%	78.3%	81.6%	
	ISCED 0-8 (total)	1.6%	2.5%	9.5%	11.1%	
Learning mobility	Degree-mobile graduates (ISCED 5-8)	:	8.1% ¹⁷	:	3.6% ¹⁷	
	Credit-mobile graduates (ISCED 5-8)	:	1.4% ¹⁷	:	8.0% ¹⁷	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.1%	3.6% ¹⁷	5.2%	4.6% ¹⁷	
	Expenditure on public and private institutions per student in € PPS	ISCED 0	€3 114 ¹²	€3 579 ¹⁶	:	€6 111 ^{15,d}
		ISCED 1	€1 865 ¹²	€2 274 ¹⁶	€5 812 ^{12,d}	€6 248 ^{15,d}
		ISCED 2	€2 220 ¹²	€2 820 ¹⁶	€6 937 ^{12,d}	€7 243 ^{15,d}
		ISCED 3-4	€2 106 ¹²	€2 577 ¹⁶	:	€7 730 ^{14,d}
ISCED 5-8		€3 818 ¹²	€5 197 ¹⁶	€10 549 ^{12,d}	€11 413 ^{15,d}	
Early leavers from education and training (age 18-24)	Native-born	14.8%	12.7%	13.1%	9.5%	
	Foreign-born	:	: ^u	26.1%	20.2%	
Tertiary educational attainment (age 30-34)	Native-born	27.9%	33.5%	33.1%	41.3%	
	Foreign-born	: ^u	: ^u	27.7%	37.8%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	63.7%	67.8%	72.5%	76.8%	
	ISCED 5-8	85.2%	84.5%	83.8%	85.5%	

Sources: Eurostat; OECD (PISA); Learning mobility figures are calculated by the European Commission's Joint Research Centre from UOE data. Further information can be found in Annex I and in Volume 1 (ec.europa.eu/education/monitor). Notes: EU averages of 2009 PISA do not cover Cyprus; d = definition differs, u = low reliability, : = not available, 12=2012, 14= 2014, 15 = 2015, 16= 2016, 17 = 2017.

Figure 1 Position in relation to strongest and weakest performers



Source: European Commission, Directorate-General for Education, Youth, Culture and Sport (DG EAC) calculations, based on data from Eurostat (LFS 2018, UOE 2017) and OECD (PISA 2015).

2. Highlights

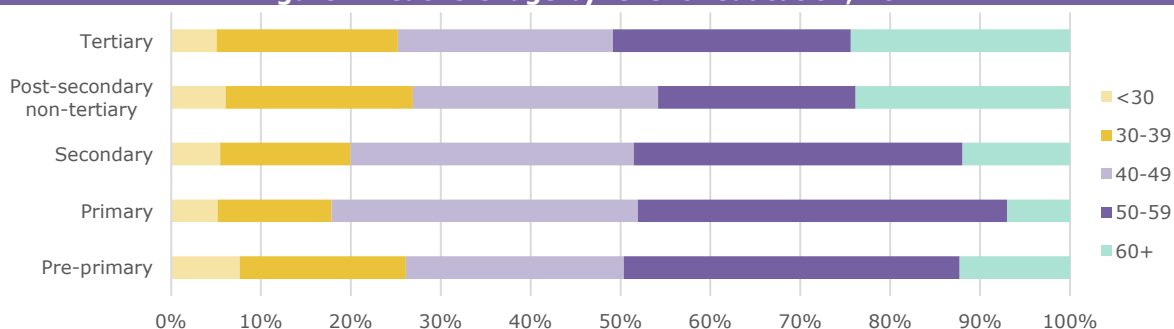
- The modernisation of the education and training system continues while quality, labour market relevance and inclusiveness remain challenging.
- Demographic trends and rising skill shortages suggest that Bulgaria needs to invest better in the skills of its current and future workforce. The need to upskill and reskill the adult population is high while participation in adult learning is low.
- The status of the teaching profession is low and the teacher workforce is ageing. Salaries are being increased as a means to boost the attractiveness of the profession.
- Steps have been taken to increase the labour market relevance of vocational education and training (VET).

3. A focus on teachers

The status of the teaching profession is low. As in many other European countries, teacher training programmes struggle to attract talented young people. Although the percentage of graduates in such programmes is roughly the EU average¹, only 60% of graduates actually enter the profession². Low salaries are a major factor deterring young people from choosing a teaching career (Sofia University, 2017). Other negative factors are unattractive working conditions, for example, reflected in insufficient opportunities for professional development or deteriorating class discipline³. A recent survey (AEJ, 2019) shows that negative attitudes towards teachers prevail in the media. Only 17.7% of teachers believe that their profession is valued by society and only 57% believe that the advantages of being a teacher outweigh the disadvantages⁴ (OECD, 2019). While generally unpopular with young Bulgarians, the teaching profession is particularly unappealing to men, who make up only 17% of school teachers⁵ (EU average: 28%).

Teacher shortages are emerging as the teacher workforce ages. Almost half of all teachers are older than 50 and thus likely to reach retirement age within the next 10 years; 10% are already over 60. Shortages have started to emerge and are expected to worsen. This is particularly the case for kindergarten and primary school teachers, for subject teachers in foreign languages, ICT, mathematics, physics, and for some VET subjects. The exact replacement need by subject and by level of education is not known, as Bulgaria has only recently (with EU support) started setting up a forecasting tool for the teaching profession. Nevertheless, even with declining student numbers⁶, it is expected that there will be a great need to replace the large cohorts of retiring teachers. In addition, the number of support specialists (such as resource teachers, school psychologists, speech therapists, etc.) is also insufficient, with unmet demand expected to rise as the inclusive education reform advances.

Figure 2 Teachers' age by level of education, 2017



Source: Eurostat, UOE, 2017. Online data code: educ_uoe_perp01

¹ In 2017, 8% of graduates at Bulgarian universities had followed teacher training programmes (EU-28: 9%).

² According to the data from Bulgaria University Rating <http://rsvu.mon.bg/rsvu3/?locale=en>

³ For example, 14% of students reported frequent bullying (OECD, 2016).

⁴ EU-23: 71%.

⁵ ISCED 1-3.

⁶ In Bulgaria, the school age population (3-18 year-olds) is projected to fall by 9% by 2030 compared to Eurostat's baseline projections for 2020.

The need to better prepare teachers to cope with classroom challenges is high. Among the 23⁷ European countries surveyed in the OECD's Teaching and Learning International Survey (TALIS) (OECD, 2019), Bulgarian teachers reported one of the highest need for continuing professional development in knowledge of their subject field (19%, EU-23: 6%), knowledge of the curriculum (20%, EU-23: 5%), pedagogical competences (17%, EU-23: 8%) and ICT skills (23%, EU-23: 16%). The percentage of teachers reporting a high need of training in student behaviour and classroom management, and in teaching in a multicultural or multilingual environment, is also higher than the average of the 23 EU countries surveyed⁸. There is also an acute need of training to accompany the inclusion of children with special educational needs and disabilities (UNICEF, 2018). However, almost 60% of teachers report that participation in training is restricted by high costs (EU-23: 44%) (OECD, 2019). Although some measures have been taken to strengthen initial teacher training, the need to better prepare new teachers remains high. Considering the large number of teachers that are set to retire, further improving initial teacher education and attracting talented candidates to the profession could potentially have a major positive impact on the Bulgarian education system.

Box 1: Reforming the teaching profession

Teachers were put at the centre of the education reform that started in 2016 with the Pre-school and School Education Act. Since then, a series of steps have been taken to improve the attractiveness of the profession and strengthen support for policies for teachers. Nevertheless, the teaching profession continues to face important challenges.

To avert a possible crisis due to high numbers of retiring teachers, plans are under way to double teacher salaries by 2021 compared with their 2017 level, bringing salaries to 120% of the average salary in Bulgaria. Alternative entry pathways into the profession are also being supported.

Pedagogy was included on the list of priority professions in higher education, and as such receives more funding. In line with a planned amendment of the Higher Education Act, tuition fees for this study track will be eliminated, as for other professions where there are shortages. An induction programme was also introduced to support novice teachers.

An obligation to undertake continuing professional development was introduced for the first time, and was linked to career progression along a five-stage qualification level. A fast-track career development programme was also put in place for teachers in 'innovative schools'. Commuting and accommodation costs for teachers working in remote areas became reimbursable in 2018.

Box 2: EU-funded support for continuing professional development

'Qualification of Pedagogical Specialists' is a project co-financed by the European Social Fund. With a budget of almost EUR 10 million, the project will provide training to 52 900 teachers, with a view to acquiring qualification levels 1-3, and training to 48 000 teachers with a view to acquiring qualification levels 4-5. More broadly, the aim is to improve professional and career development and to upgrade teachers' competences in key fields such as digital skills, modern pedagogy and student evaluation. The project started in October 2018.

4. Investing in education and training

Although public spending on education is increasing, the system remains underfunded.

In 2017, Bulgaria's general government expenditure on education rose by 8% in real terms compared to the previous year, reaching the equivalent of 3.6% of GDP. Despite this improvement, public spending on education is still among the lowest in the EU, and significantly below the EU average of 4.6%. As confirmed by the 2019 budget, rising teacher salaries will drive expenditure in the next couple of years. This year's budget also funds four additional national programmes⁹ that

⁷ In 2018, 23 Member States participated in TALIS: Austria, Belgium fr, Belgium nl, Bulgaria, Croatia, Cyprus, Czechia, Denmark, England (UK), Estonia, Finland, France, Hungary, Italy, Latvia, Lithuania, Malta, the Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden. TALIS 2018 covers lower secondary teachers and school leaders in mainstream public and private schools.

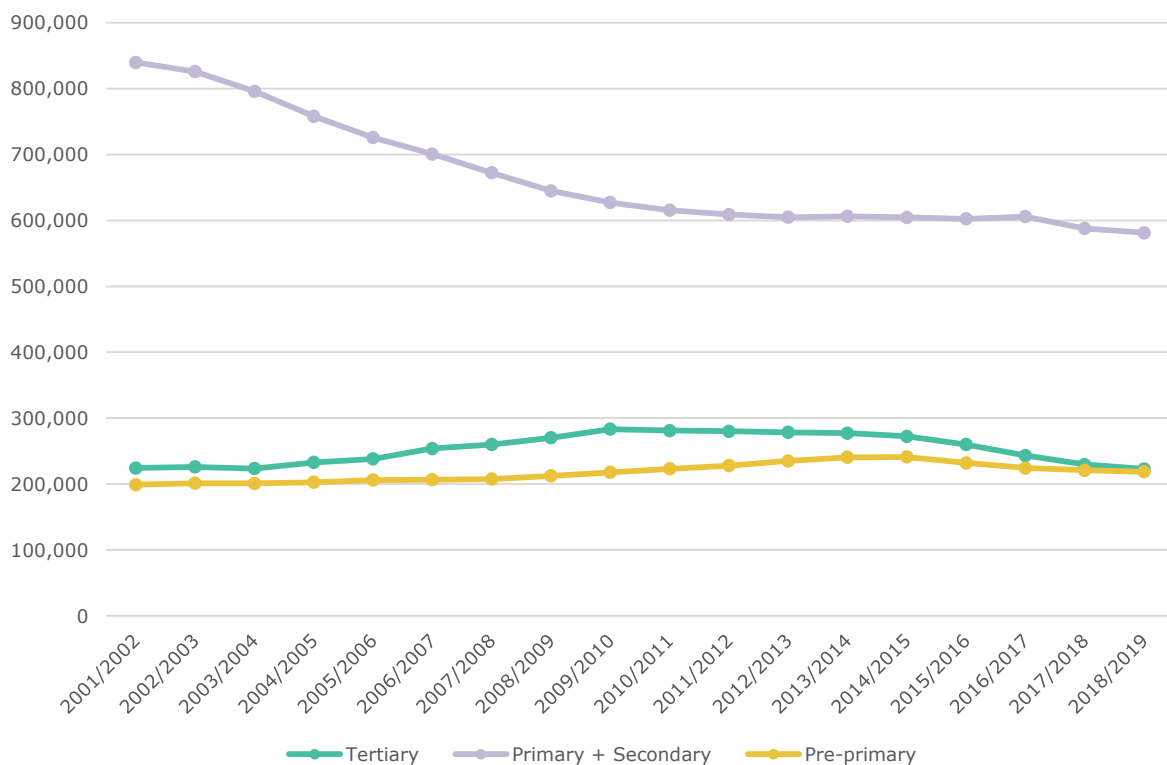
⁸ 22% compared with EU-23: 12.5% and 21% compared with EU-23: 13%.

⁹ 'Motivation of teachers', 'IT companies in schools and teachers in IT companies', 'Innovation in action' and 'Support for municipalities for educational desegregation'.

aim to attract and train teachers in subjects for which shortages are expected, introduce innovative teaching methods, support early career orientation and create links between schools and IT companies. A national programme has also been introduced to provide support to municipalities for desegregation actions. It finances transport costs, activities with parents, teaching materials and funding for educational mediators. In addition, starting from 2019, all upper secondary schools will receive additional funding to work with students from disadvantaged backgrounds. A similar provision for primary schools was introduced in 2018.

Educational infrastructure is in great need of modernisation. There are considerable disparities in the quality of school facilities, with poorer municipalities being particularly at disadvantage (UNICEF, 2018). Schools often lack basic facilities or equipment, and have no laboratories or sports facilities. In addition, maintaining adequate heating during winter is a challenge in many schools in poorer municipalities (ibid). Compared with the European average, there are fewer highly digitally equipped and connected schools (European Commission, 2019a). The network of kindergartens and nurseries is also insufficiently developed.

Figure 3 Number of students enrolled by level of education, 2001-2019



Source: National Statistical Institute.

5. Modernising early childhood and school education

Participation in early childhood education and care remains low, hampering the early acquisition of cognitive and socioemotional skills. Good quality early childhood education and care are crucial for the development of key competences. In Bulgaria, the participation rate for children aged 4 to compulsory school age has been declining since 2014. The latest data available indicate an enrolment rate of 83.9%, significantly below the EU average of 95.4%. Disparities in enrolment exist between regions¹⁰ and between districts¹¹. Care-related kindergarten fees still limit the participation of children from disadvantaged backgrounds and Roma, while a lack of facilities tends to particularly affect large urban areas. To improve enrolment rates, Bulgaria started implementing the EU-funded project 'Active inclusion in pre-school education'. The project provides

¹⁰ Participation rates range from 87.1% in Yugozapaden to 77.5% in Severoiztochen.

¹¹ The gross enrolment rate for children aged 3-6 ranges from 88.9% in Blagoevgrad to 64.8% in Sliven (National Statistical Institute).

additional Bulgarian language training for children with a mother tongue other than Bulgarian; it finances the cost of fees for attending the full-time kindergarten programme and supports parental involvement. Enrolment rates are very low for children younger than 3. Only 9.4% of children in this age group were enrolled in formal childcare for a variety of reasons, including the lack of nurseries. The rate is considerably below the EU average of 34.2%.

In spite of ongoing efforts, early school leaving remains problematic. In 2018, the rate of early leavers from education and training (18-24 age group) was 12.7%, still above Bulgaria's national Europe 2020 target of 11% and the EU average of 10.6%. No substantial progress has been made since 2010, with the rate hovering around 12-14% since then. Leaving the education system too early, without proper education and skills, is particularly problematic among the Roma¹² and in rural areas¹³, where poverty is higher and the quality of education is typically lower. It is also problematic from the perspective of the labour market, given the increasing need for higher-skilled workers and the decline of the working-age and student populations. Implementation of the inter-institutional mechanism that aims to identify out-of-school children and return them to education continues. The focus is shifting to school retention measures, such as activities aimed at overcoming learning gaps and increasing students' motivation. Dropout rates, including due to temporary or permanent emigration, remain high, however, and show very large regional variations (Institute for Market Economy, 2018). Despite the efforts of past years and the results that have been achieved so far, expanding and stepping up measures to prevent dropout remains particularly important.

Improving quality and inclusiveness in education remains a major challenge. Bulgaria's sharply declining demographic trends means that its economic future will depend to a large extent on how well it can upgrade the skills of its current and future workers (World Bank, 2016). Socio-economic disadvantage is still a key determinant of poor skills and low educational outcomes¹⁴ in a context of important skills mismatches and shortages. Although a series of measures are being rolled out to improve quality and equity¹⁵, existing data shows that there are important gaps in the acquisition of basic and digital skills. PISA 2015 shows that about 40% of teenagers in Bulgaria do not have basic competences in reading, mathematics or science, with underachievement rates above 60% among disadvantaged students (OECD, 2016). Digital skills are low among the young: only 53% of young people aged 16-19 assess their level of digital skills as basic or above basic, compared to an EU average of 83%. Roma children are less likely to attend kindergarten and much more likely to drop out of school. An important continuing challenge is promoting ethnically-mixed schools and desegregation measures. The link between skills forecasting and follow-up in the education and training system is still not comprehensive (European Commission, 2019b), although some measures to improve the matching of supply and demand were recently taken. In this context, the 2019 country-specific recommendations call on Bulgaria to improve the quality, labour market relevance and inclusiveness of education and training, in particular for Roma and other disadvantaged groups (Council of the European Union, 2019).

6. Modernising higher education

Student numbers continue to fall, while participation of students from disadvantaged backgrounds is rather low. The number of students enrolled in universities continues to fall, mainly driven by demographic trends but also by the national policy to decrease the number of students in certain study fields. In 2018, the number of students enrolled was 20% lower at bachelor level and 15% lower at master level than in 2013/2014. Conversely, the number of PhD students grew by 7% in the same timeframe. The number of international students is increasing but is insufficient to compensate for the large number of Bulgarians studying abroad¹⁶. Available data suggests that the enrolment of students from disadvantaged backgrounds is low¹⁷. Tertiary

¹² 67% among Roma aged 18-24 (FRA, 2016).

¹³ 26.2% in rural areas, 12.2% in towns, 5.9% in cities.

¹⁴ Previous international surveys showed that socio-economic status has a significant impact on students' educational outcomes (European Commission, 2019b).

¹⁵ A continuation of the efforts of Ministry of Education and Science to tackle these issues is the project 'Support for success', co-financed by ESF, which builds on previous projects, including 'Your class'. The project targets 1 500 schools, particularly students with learning gaps or at risk of dropping out. Career guidance is planned for students grades V to VII. The project started in February 2019 and has a budget of EUR 65 million.

¹⁶ In 2017, 8.1% of upper secondary graduates in Bulgaria had finalised tertiary education abroad.

¹⁷ Less than 2% of students enrolling in a bachelor programme come from families where the parents' level of education is low (European Commission, 2018).

educational attainment among the population aged 30-34 increased slightly to 33.7% in 2018, but is still below Bulgaria's national Europe 2020 target (36%) and the EU average of 40.7%. The gender gap persists, with 40.8% of women in this age group holding a tertiary education degree, compared to 27% of men.

Measures to increase labour market relevance are underway but overall higher education is still insufficiently aligned to the needs of the labour market. In a context of increasing skills mismatches and declining student numbers, the profile of graduates does not correspond to the qualifications demanded on the labour market. Available data shows that Bulgaria continues to have one of the highest percentages of graduates in social sciences, business and law¹⁸, while the number of graduates in science, technology, engineering and mathematics (STEM) remains low¹⁹. A number of measures have been put in place to address this mismatch, such as linking public funding to quality and relevance for the labour market, eliminating tuition fees in professions where there are shortages on the labour market, additional funding for qualifications in demand on the labour market and limiting the number of places in study fields that are in oversupply. Some positive developments are visible (such as falling numbers in business administration and an increase in the number of students in ICT and medical studies). However, the attractiveness of STEM fields – which are high in demand on the labour market- is still rather low. This situation can be partly explained by the performance gaps in science and mathematics among young people (as measured by PISA), insufficient career guidance and the visible gender imbalance in the participation in higher education, particularly in certain study fields²⁰. In addition, employers report that graduates have knowledge and skills deficiencies, including in soft skills and other transversal skills. Nevertheless, when students admitted under the new rules graduate, a more in-depth evaluation of the impact of the higher education reform will be possible.

7. Modernising vocational education and training

Efforts are being made to increase the labour market relevance of vocational education and training (VET). In June 2018, the Bulgarian Council of Ministers adopted a list of professions in shortage of qualified specialists, and the conditions for additional funding to schools that offer these qualifications. Most of these specialties are in the field of machine building, construction and transport. Since February 2019, learners in these fields have been receiving additional scholarships. Available data show a slight decline in total enrolment in upper secondary VET (50.7% in 2017, still above the EU average of 47.8%). The employment rate of recent VET graduates increased significantly in 2018, reaching 66.4%, compared with 59.1% the year before. Nevertheless, in 2018 it remained significantly below the EU average of 79.5%. The main development in relation to dual training was the adoption of the revised VET Act in October 2018. Amendments include the definition of requirements, the development of a database for companies involved in dual training, and the setting up of a labour contract for learners in dual training to provide for social and health insurance. The amended Act also sets rules for the training of in-company trainers, including compulsory training in pedagogy and methodology so that they acquire the competences needed to support dual learners in companies. In addition, an ESF co-financed project that aims to support the dual training system is set to start in the second half of 2019. The concept of 'teacher-methodologist' was introduced under the Bulgarian-Swiss dual VET project (DOMINO). Teacher-methodologists link mentors, (i.e. company employees participating in the development of curricula for practical training), with VET school teachers. In April, the Ministry of Education and Science introduced a national training programme for in-company trainers.

¹⁸ In 2017, 13.2% of all graduates at Bulgarian universities had studied social sciences, journalism and information (EU average: 8%), and 32.9% had studied business, administration or law (EU average: 24%). Together, these two major study fields add up to 46.1%. While this was significantly above the EU average of 33.7%, it does mark a decline compared to previous years (51% in 2014).

¹⁹ The latest available data show that in 2017, 20.5% of tertiary graduates in Bulgaria had studied STEM (EU average: 25.8%). This represents 14.3 graduates in STEM for every 1 000 Bulgarians aged 20-29 and is among the lowest in the EU.

²⁰ Out of the 31 100 bachelor graduates in 2017, almost 60% were women. 30% had graduated in business administration and law (66% women), 4% had graduated in ICT (36% women), while 14% had graduated in engineering, manufacturing or construction (25% women).

8. Developing adult learning

The need to upskill and reskill the population is high. In Bulgaria, 17.4% of the working age population aged 25-64 (approx. 677 000 people) is low skilled. Although this percentage is slightly below the EU average (21.9%), it is particularly problematic given that it corresponds to twice the number of jobs available that require only an elementary level of skills (357 000). This clearly highlights the need for substantial up-skilling and re-skilling. However, only 2.5% of adults aged 25-64 in Bulgaria have had a learning experience during the preceding 4 weeks of the Labour Force Survey (EU average: 11.1%).

Bulgaria has taken steps to increase the employability of disadvantaged groups and reduce regional disparities in employment rates among the working age population. In January 2019, the Council of Ministers approved the National employment action plan, which aims to upskill unemployed people from disadvantaged groups through training and subsidised employment, particularly in municipalities with high levels of unemployment. The 'New chance for success' project is specifically aimed at people who have not completed education, as well as those who are unemployed and illiterate. 'Education of adults who have taken literacy courses' provides training for unemployed through apprenticeships and internships.

Bulgaria lacks a comprehensive system for the training and assessment of teachers and training in adult education, and the supply is not sufficient. In many cases, especially in vocational centres and enterprises offering job-related non-formal training, the qualification of adult educators is left entirely to the staff involved and is treated as a personal development issue. Adult educators fall into the same professional category as other teaching staff, but their profession is seen as even less attractive than being a school teacher. Insufficient attention is paid to the need for special qualifications for adult educators working with Roma. Further efforts are needed to improve teaching and teacher training for adult education. For example, a legal definition of the status of adult educators and for inclusion of the profession among teachers and pedagogical specialists is needed, alongside the development of a comprehensive system for adult teaching training.

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- Sofia University St Kliment Ohridski (2017), Господинов, Б., Пейчева-Форсайт, Р., Пектова, И., Мизова, Б., Първанова, Й. Национално изследване на системата за подготовка на педагогическите кадри във висшите училища и сравнителен анализ на системата за поддържаща квалификация и кариерно развитие в Република България, Европейския съюз и други страни (*National survey of the system for preparation of pedagogical staff in higher education institutions and*

comparative analysis of the system for continuous qualification and career development in the Republic of Bulgaria, the European Union and other countries)

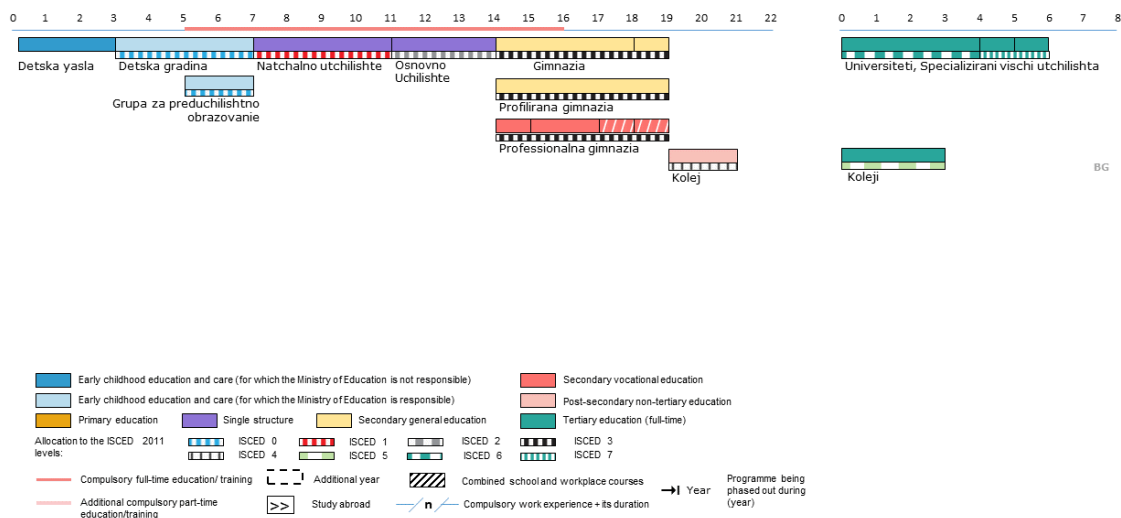
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Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility:	
- Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
- Credit mobile graduates	

Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2018. The Structure of the European Education Systems 2018/19: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
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Executive summary

Highlights of the cross-national analysis

Highlights of the country analysis



Highlights of the cross-national analysis

Among all factors in the school environment, teachers are considered to have the greatest impact on students' learning outcomes. At the same time, more than 60%²¹ of public expenditure in education in the EU is spent on teachers. Any policy effort seeking to improve educational outcomes – or the efficiency of education and training – is bound to take a close look at the role of teachers and look for ways to help teachers excel in their demanding profession. New evidence from the OECD TALIS survey sheds more light on teachers. The recent survey data inform the 2019 Education and Training Monitor, which contains a dedicated analysis of school teachers in the EU. Being a unique source of information on teachers' motivations, lifelong learning and careers, the new evidence from TALIS 2018 can help policy-makers harnessing the full potential of teachers by preventing and addressing challenges.

After the teacher-dedicated part, the 2019 Monitor sets to analyse the existing targets adopted by the Council of the European Union under the strategic framework for European cooperation Education and Training 2020 ('EU benchmarks'). This part of the report presents latest data on participation in early childhood education and care; early leaving from education and training; tertiary educational attainment; underachievement in basic skills; employment rate of recent graduates; adult learning; and learning mobility in higher education. Next, the 2019 Monitor offers analysis on education indicators used in other well-established or emerging priorities, including entrepreneurship education; digital education; multilingualism. The report concludes with a section analysing public investment in education and training.

At the core of learning: the teachers

Across the entire EU, education systems are confronted with a number of challenges relating to teachers. Several countries already face or are about to face shortages of teachers, either across the board or in particular subject areas (typically science, technology, engineering and maths); or in particular geographical areas. In view of the proportions of teachers aged 50 or plus, the 23 EU countries participating in TALIS 2018 will have to renew about one third of their teaching population in the next decade or so. At least five EU countries will have to renew around half of their secondary school teachers in the same period (Italy, Bulgaria, Lithuania, Estonia, Greece and Latvia; and the same applies to primary school teachers in the former three countries).

Successfully renewing the teachers' population requires acting upon key factors such as the number of students deciding to embark on teacher education, the number of new teachers starting in the job and the number of teachers stopping to work. To address this challenge, there is a need to improve the attractiveness of the profession and offer good working conditions for sustained professional activity.

According to survey data, only 18% of lower secondary school teachers in the EU consider their profession as valued by society; and their proportion lowers with longer years of teaching experience. Similarly, the share of teachers would still choose to work as teachers, declines significantly, in several EU countries, among more experienced teachers. Overall, there is a specific challenge in attracting men into teaching; and particularly so for primary and pre-primary education, where the proportion of female teachers reaches 85% and 96% respectively.

Salaries of teachers do not always compare favourably to salaries of other equally qualified professionals. Among EU countries with available data, in four countries (Czechia, Slovakia, Italy and Hungary) teachers at all education levels earn less than 80% of what other tertiary-educated workers do. In most Member States, primary (and especially pre-primary) teachers earn less than secondary level teachers. In secondary education, teachers' statutory salary tends to be higher at upper-secondary level than at lower-secondary level.

There are also shortages of teachers with specific profiles. Nearly 40% of principals in lower secondary schools in the EU declare that the shortage of teachers teaching students with special

²¹ DG EAC calculation on Eurostat's general government finance statistics, reference year 2017 ([gov_10a_exp](#)).

needs hinders the quality of instruction at their school. Principals also point to shortages of teachers who have competences in teaching in a multicultural or multilingual setting (the largest shortages are in France, Italy and Portugal); and competences in teaching students from socio-economically disadvantaged homes (largest shortages in France, Italy, and Portugal). This second type of shortage is driven by change (technology; diversity in classrooms) and points to a need to improve training (initial and continued).

Furthermore, against an evolving technological and demographic background, teachers need new skills more than ever, including for dealing with cultural and linguistic diversity in the classroom, teaching in a technology-rich environment, and adopting collaborative teaching practices. While 92% of teachers report regular participation in professional development, 21% of them declare a further need for training on teaching students with special needs; 16% report a further need for training on the use of information and communication technology (ICT) for teaching; and about 13% report a further need for training in teaching in multilingual and multicultural environments.

Growing participation in education and educational attainment: main achievements in the last decade

In the last decade, the EU experienced a massive increase in tertiary educational attainment and met its target of having at least 40% tertiary graduates in the 30-34 year-old population – up from 32% in 2009. Despite this increase, there are clear patterns of inequalities in educational attainment. For example, on average, women's tertiary educational attainment (45.8%) is higher than men's (35.7%) – and the gap has been continuously increasing over recent years. Typically, women complete tertiary education earlier than men do. Also, young adults born in the reporting country or elsewhere in the EU, graduate more than their peers from non-EU countries (41.0% against 35.8% respectively). Yet, an overview of policy measures to broaden tertiary educational attainment shows that less than half of EU countries set specific targets to support participation in higher education of under-represented groups, such as, for example, people with disabilities, migrants or students from disadvantaged background.

The attendance of children from the age of 4 in early childhood education has expanded, and is, by now, almost universal. There are also high rates of participation in early childhood education by children from the age of 3. Yet the 90% participation rate for the general population decreases to 77.8% in the group of children at risk of poverty or social exclusion. Experiencing education in the early years of life has been found to be beneficial for better learning outcomes later on in life, and particularly so for children from socio-economically disadvantaged homes. The challenge of ensuring equal access to education in the early years needs to be addressed.

Since the EU cooperation framework in education and training started in 2009, the proportion of young adults leaving education and training without obtaining at least an upper secondary qualification has considerably reduced. Nonetheless, at EU level this process came to a halt after 2016. Comparing 2016 and 2018, there was progress on this indicator in large countries such as Spain or Poland, as well as in other countries such as Romania, the Netherlands and Portugal. However, this was countered by negative developments in other countries – for example, Italy, Sweden, Denmark, Slovakia, and Estonia (in descending order by size of population). Furthermore, in the past 2 years, early school leaving rates increased for both young adults born in the EU (between 2016 and 2017) and those born outside (between 2017 and 2018). Reducing early leaving remains a priority and a target of the EU, as those who leave education and training before obtaining an upper-secondary diploma will struggle with lower employment rates and lower rates of participation in adult learning.

The main challenge for the next decade: improving learning outcomes at school, and increasing adult participation in learning

Participation in education can be measured by data on enrolments, qualifications, or performance test. The latter show that reducing the number of underachieving 15-year-olds to meet the EU

target of less than 15% by 2020²² remains a challenge, particularly for pupils from disadvantaged socio-economic backgrounds. Failing to achieve basic mathematics, reading or science tasks at the age of 15 impacts on individuals' chances to continue studying, find and maintain employment later in life, cope with fast-paced technological change, and develop as citizens. Between 2012 and 2015, the EU has actually moved further away from meeting this target. Approximately one fifth of pupils in the EU cannot complete basic reading tasks, and the share is slightly higher for science and maths (2015 data). Despite less favourable or sometimes adverse background conditions, around a quarter of socio-economically disadvantaged pupils born in another country are considered academically resilient. Individual factors associated with higher resilience include high academic expectations, and not repeating grades; while disengagement from school (for example skipping classes, and abusing substances) has a negative association with resilience. At school level, the use of school evaluations, connecting the students' test results to teachers' performance, adequate provision of study rooms and being surrounded by pupils with higher socio-economic status are all factors correlating positively with resilience.

Over the years, there has been limited growth in the share of adults participating in education and training during the last 4 weeks in the EU – from 9.5% in 2008 to 11.1% in 2018. In addition, in practically in all EU countries people with little or no qualifications in education – those most in need of access to learning – are the least likely to benefit from it. Age and educational attainment matter when it comes to adult participation in learning. Young adults (25-34) are more than four times more likely to participate in learning as those aged 55-64. Similarly, those with a tertiary degree are more than four times more likely to participate in learning than those holding at most an upper-secondary diploma.

Developing competences for future life and employment

Research has long established the positive outcomes of being able to study abroad. Transnational learning mobility is associated with future mobility, higher earnings, and lower risk of unemployment. 'Making learning mobility a reality for all' is one of the objectives of the European Education Area²³. In 2017, 11.6% of higher education graduates 'were mobile', meaning that they studied partially or entirely abroad. About 8% of them were abroad for short-term periods, while 3.6% graduated in another country. The Erasmus+ programme supported about half of the short-term study periods spent abroad by EU graduates. Overall, Luxembourg, Cyprus, the Netherlands, and Finland (in descending order) have high shares of mobile graduates. As to inward mobility, capturing the volume of students coming into a country for a period of study, it can be read as a measure of the attractiveness of the education system. On this indicator the United Kingdom leads the way – both in percentage of inward graduates and in absolute numbers.

There are a number of key competences (or combination of knowledge, skills and attitude) that can support an individual's life chances and also easier transition to the labour market and career job prospects. For example, participation in entrepreneurship education increases the likelihood of engaging in entrepreneurial activities later in life by 35% on average. Of this 35%, a 7 percentage point increase is due to improved self-perceptions by participants of their entrepreneurial skills. However, available data show that participation in entrepreneurship education in the EU is mostly optional, and only a handful of countries make it compulsory.

Furthermore, the potential of digital technologies in improving educational practices is being held up by challenges that education systems still face. To successfully undergo digital transformation, schools need to support teachers' digital competence for pedagogical use, design innovative pedagogical approaches, and provide digital equipment as well as better connectivity. Capacity

²² Data for this benchmark come from the OECD PISA survey. Students scoring below level 2 are considered underachievers.

²³ In November 2017, EU leaders met in Gothenburg to discuss the social dimension of Europe, including education and culture. As part of the debate on the Future of Europe, the Commission set out its vision and concrete steps to create a European Education Area by 2025. One of the main objective of the European Area of Education is 'making mobility a reality for all', by building on the positive experiences of the Erasmus+ programme and the European Solidarity Corps and expanding participation in them, as well as by creating an EU Student Card to offer a new user-friendly way to store information on a person's academic records. Other measures to boost mobility under the European Education Area include initiating new processes to ensure the mutual recognition of diplomas; improving language learning; creating a network of European universities; and supporting teachers and their mobility.

building for digital assessment needs to be implemented for learners, teachers, schools and education systems.

Moreover, speaking several languages can increase individuals' employment prospects. Overall in Europe, between 2005 and 2015, the number of pupils who experienced compulsory language learning grew both in primary and secondary education. As to the former, 83.7% of primary school children learned at least one foreign language in 2014, against 67.3% almost a decade before. At lower secondary level, 59% of pupils learned two languages in school in 2015, against 46.7% in 2005.

After reaching the lowest point in 2013 (75.4%), the employment rate of recent graduates has been continuously increasing in the EU. With 81.6% in 2018, the rate is now close to the pre-crisis 2008 level of 82%. However, some countries still suffer from the effects of the crisis on employability of recent graduates – in particular Greece and Italy, where employment rates of recent graduates are around 55%. As compared to secondary graduates holding a vocational qualification, those with a general orientation qualification have a less easy transition into the labour market (66.3% against 79.5%). The employment rate of tertiary graduates was at 85.5% in 2018.

Public investment in education

In 2017, EU Member States invested, on average, 4.6% of their gross domestic product (GDP) in their education systems. This proportion has been slightly but continuously decreasing in the last few years, down from 4.9% in 2014. On average, EU countries spend about one third of their public expenditure for education on pre-primary and primary education; 41% on secondary education; and 15% on tertiary education. Looking at different education sectors, real expenditure on secondary and post-secondary education decreased (-1.3%, between 2016 and 2017) and increased in pre-primary and primary education (+ 1.4%), as well as tertiary education (+ 1.7%). So far trends in education expenditure have been largely independent from demographic developments, with the partial exception of expenditure on tertiary education. Due to the predicted school-age population decline in many EU countries, even constant spending on education is likely to result in an increase in spending per student.

Highlights of the country analysis

Austria

To avoid teacher shortages, Austria needs to attract enough students into initial teacher education and improve continuing professional development. Investment in higher education aims to improve the study environment. Improving digital competence is a priority in the education and training system. Discontinued recent reforms may weaken efforts to integrate students with migrant backgrounds and to improve education outcomes of students from a socially disadvantaged background.

Belgium

The Flemish Community (BE fl) will implement reforms at all levels of education, including dual learning, starting in September 2019. The French Community (BE fr) will also implement school reforms, starting with changes to governance, then the new extended common curriculum and reforming initial teacher education from September 2020. Education spending in Belgium is among the highest in the EU, but educational outcomes are comparatively low, suggesting room for increased efficiency and effectiveness. To reduce inequality and improve outcomes, teachers need more support to manage diversity in the classroom. Tertiary educational attainment is high but disparities remain between regions and groups.

Bulgaria

The modernisation of the education and training system continues while quality, labour market relevance and inclusiveness remain challenging. Demographic trends and rising skill shortages suggest that Bulgaria needs to invest better in the skills of its current and future workforce. The need to upskill and reskill the adult population is high while participation in adult learning is low. The status of the teaching profession is low, and the teacher workforce is ageing. Salaries are being increased as a means to boost the attractiveness of the profession. Steps have been taken to increase the labour market relevance of vocational education and training (VET).

Croatia

Pilot implementation of curricular reform and ambitious preparations for full implementation are under way. Reforms are under way in vocational education and training. Participation in early childhood education and care is held back by shortages of teachers and places. Plans to expand the very short average instruction time could help to improve low education outcomes.

Cyprus

The teaching profession is highly attractive. Reforms to upgrade it are promising but need to be sustained and expanded. Reforms are implemented to foster high-quality public early childhood education and care. However, provision is insufficient for the early years. Tertiary education attainment has risen further but underutilisation of skills remains a challenge given the specific features of the Cypriot labour market. Measures have been taken to upgrade vocational education and training and adult learning, but attractiveness of both sectors and participation in them remain low.

Czechia

Czechia continues to make vocational education and training more relevant to the needs of the jobs market. Authorities are making good use of EU funds to support reforms. Inclusive education is progressing but measures targeted at Roma remain limited. The attractiveness of the teaching profession remains low.

Denmark

Changes to university education are making it more flexible and labour market friendly, but the need for more STEM graduates remains. The number of apprenticeships has been increased and measures are being taken to promote adult learning. Reduced education spending is having an impact on schools and universities. There is considerable local variation in the education performance of young people from migrant backgrounds.

Estonia

Estonia is developing an education strategy for 2021-2035, aiming to bring gradual changes to the system to respond to changes in the labour market and society. Due to demographic trends and

the limited responsiveness of the education and training system to labour market needs, aligning skills supply and labour demand remains a challenge. The ageing of the teaching population coupled with the low attractiveness of the teaching profession are a long-term challenge for the functioning of the education system. Participation in adult learning has reached a record high but the need for upskilling and reskilling remains high.

Finland

While teaching is a prestigious and attractive profession, there are teacher shortages for kindergarten and special needs education. There has been some growth in education inequalities, and spending on education has fallen. New policy measures aim to improve the quality, effectiveness and internationalisation of higher education. Demand for graduates in Information and Communications Technology (ICT) is high and difficult to meet. Implementation of vocational education and training reform is ongoing, and reforms are planned to foster adult learning.

France

Work continues on improving educational outcomes and reducing inequalities, with support for teaching staff and funding measures. A new law on education extends the length of compulsory education and training to 3-18. Authorities are faced with the challenge of combining the rapid pace of reforms with the need to consult stakeholders to ensure good ownership and optimal impact. Implementation of the vocational education and training reform is in full swing.

Germany

Germany has announced significant investments in digitalisation, higher education and research in the decade ahead, but as well in school education. Germany is preparing for fundamental change in the skills of its workforce by carrying out digital initiatives and by refocusing the system of adult learning. The teaching workforce is aging and Germany faces a challenge to replace a large number of teachers. Young people from disadvantaged socio-economic and/or migrant backgrounds continue to lag behind in educational attainment.

Greece

The teaching profession is highly attractive in Greece but opportunities and incentives to improve professionalism are lacking. Education expenditure is lower than in most EU countries and largely spent on salaries. Early school leaving has been further reduced, particularly in rural areas. Finding employment after education remains difficult, including for highly qualified people. Measures to tackle the brain drain of tertiary graduates are being implemented but internationalisation of Greek universities is underdeveloped.

Hungary

Recent measures have raised the qualification levels of staff in early childhood education and care. Measures to reduce performance gaps between pupils have been strengthened. Admission conditions for entry to higher education have been made more restrictive. A new medium-term strategy aims to modernise vocational education and training and adult education.

Ireland

Ireland has a strong framework to ensure highly qualified teachers and further plans to meet emerging needs, including teacher shortages. Early school leaving has continued to decline, and participation in early childhood education and care is to be supported by new national schemes. Despite increased public spending on education, investment in higher education has not kept up with rising student numbers. Ireland implements initiatives aimed at upskilling and increasing adult participation in learning and training but the numbers of low-skilled adults in the population remain sizeable.

Italy

Italy invests well below the EU average in education, particularly in higher education. The share of teachers satisfied with their jobs is among the highest in the EU, but only a small share believe that theirs is a valued profession. Compulsory work-based learning in vocational education and training could help provide more structured training for apprentices and ease the transition from education to work. The level of tertiary educational attainment is low, and the transition from education to work remains difficult, even for highly qualified people.

Latvia

Latvia has already met and exceeded its Europe 2020 education targets. Latvia should achieve further improvements in learning outcomes through the new competence-based curriculum, a stronger individual approach to students at risk and support for inclusion of students with special educational needs. Enrolment in vocational education and training (VET) is increasing and the employment rate of VET graduates is improving, although both remain below the EU average. In higher education, a gradual increase in investment and incremental changes in quality assurance are welcome, but the sector remains fragmented and international competitiveness low.

Lithuania

Current trends in student population and teacher workforce call for a comprehensive strategy to manage teacher supply and demand. Improving key competences and relevant skills remains a priority at all levels. Further development of monitoring and evaluation systems may help improve the quality of education and training. Measures have been put in place to increase the education system's overall efficiency, but further efforts are needed to ensure their implementation. Policy measures to address low participation in adult learning are lacking.

Luxembourg

In 2018, more flexible entry requirements for the recruitment competition for early childhood and primary education teachers attracted more candidates. Pupils' performance is heavily influenced by their ability to cope with the trilingual system. A reform of the orientation process at the end of primary education may have stopped a trend whereby many pupils were being guided to the lowest track in secondary education. Employment rates among recent graduates from all types of education are significantly higher than the EU average.

Malta

Work is underway to improve the quality of teaching and the attractiveness of the profession. Improving the quality of investment in education and developing monitoring and assessment are key challenges. Increased participation in early childhood education and care and the new secondary system may help reduce the number of early school leavers. While participation in tertiary education is increasing, its labour market relevance is still a challenge.

Netherlands

The early school leaving rate is below the Europe 2020 national target but has slightly increased. The Netherlands faces an increasing shortage of teachers, both in primary and secondary education. The 2019-2022 Quality Agreements aim to improve the quality of vocational education and training. Dutch tertiary education increasingly attracts foreign students.

Poland

Early school leaving continues declining and participation in early childhood education and care among children under 3 remains low. The higher education reform has been launched, bringing major changes to the functioning of higher education institutions. Implementing the 2017 school system changes is causing organisational, financial and curricular challenges. Further challenges relate to teachers' pay, emerging shortages, and initial and continuing training. Participation in adult learning remains low.

Portugal

Teachers are satisfied with their jobs, but the ageing teacher population, the high proportion of non-permanent staff and weaknesses in induction and continuing professional development remain challenging. Investment to upgrade infrastructure is insufficient, particularly for early childhood education and care in metropolitan areas. Regional disparities in education outcomes, grade repetition and early school leaving rates are improving. Tertiary educational attainment has grown but business demand for ICT specialists exceeds supply. There is a significant proportion of low qualified adults while participation in adult learning remains low.

Romania

Concrete ideas have been presented for major reform of the education and training system. Clear steps need to be taken for the implementation of the reform. Public spending on education is low in EU comparison, while the sector's investment needs are high. Any major reform is likely to require additional funding linked to stronger equity and efficiency mechanisms. Better support for teachers – in particular by redesigning initial teacher education and strengthening continuing professional

development – can help improve quality and equity. Efforts were made to expand dual education. Participation in adult learning remains low despite the high need for upskilling and reskilling.

Slovakia

Slovakia is improving early childhood education and care, which is particularly positive for children from deprived families. Slovakia is taking a more strategic approach to lifelong learning, upskilling and reskilling. The early school leaving rate has continued increasing since 2010, approaching 14% in Eastern Slovakia. Investment in education and training is insufficient, and this is reflected in teachers' still low salaries despite recent increases.

Slovenia

Enrolment in early childhood education and care is approaching the EU benchmark. The proportion of Slovenian upper secondary students enrolled in vocational education and training is one of the highest in the EU, and the employment rate of such graduates is high. There are enough new entrant teachers but large numbers are approaching retirement and shortages already exist in certain categories. Tertiary educational attainment is high, but the differences between men and women and the native-born and foreign-born population are large.

Spain

The teaching profession is attractive, but working conditions differ among regions and between public and private education systems. Private spending in education is significant, while public spending is static compared to GDP. Planned reforms, reflecting political uncertainties, have been slowed down. The process to modernise vocational education and training is ongoing. Adult participation in education is slowly rising.

Sweden

Tertiary educational attainment and graduate employment rates are high. The population's digital skills are among the best in the EU. There is a serious teacher shortage, and a large number of teachers lack formal qualifications. School segregation and inequality are serious and growing concerns.

United Kingdom

Efforts are being made to tackle the high proportion of teachers leaving the profession. In England, school academies are growing in number but many are facing financial pressures. The consequences of Brexit for UK higher education are unclear but policy responses to address the potential loss of EU research funding and reduced student inflows will be needed. England will introduce new qualifications as part of ongoing reforms of upper secondary VET.

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