



European
Commission

Education and Training Monitor 2019

Croatia



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Luxembourg: Publications Office of the European Union, 2019

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PRINT	ISBN 978-92-76-09393-0	ISSN 2466-9989	doi: 10.2766/69432	NC-AN-19-011-EN-C
PDF	ISBN 978-92-76-09391-6	ISSN 2466-9997	doi: 10.2766/48135	NC-AN-19-011-EN-N

Cover image: composition with images © istock.com

EUROPEAN COMMISSION

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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.

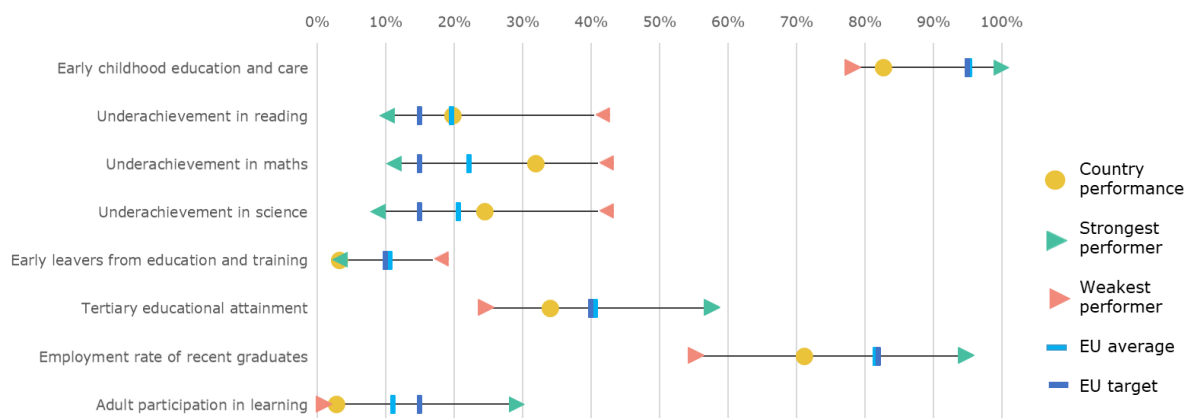
*The manuscript was completed on 26 August 2019.
Additional contextual data can be found online (ec.europa.eu/education/monitor)*

1. Key indicators

		Croatia		EU average		
		2009	2018	2009	2018	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		5.2%	3.3%	14.2%	10.6%	
Tertiary educational attainment (age 30-34)		21.3%	34.1%	32.3%	40.7%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		69.2%	82.8% ¹⁷	90.8%	95.4% ^{17,d}	
Proportion of 15 year-olds underachieving in:	Reading	22.4%	19.9% ¹⁵	19.5% ^{EU27}	19.7% ¹⁵	
	Maths	33.2%	32.0% ¹⁵	22.3% ^{EU27}	22.2% ¹⁵	
	Science	18.5%	24.6% ¹⁵	17.7% ^{EU27}	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)	76.3%	71.2%	78.3%	81.6%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.0%	2.9%	9.5%	11.1%	
Learning mobility	Degree-mobile graduates (ISCED 5-8)	:	3.1% ¹⁷	:	3.6% ¹⁷	
	Credit-mobile graduates (ISCED 5-8)	:	4.6% ¹⁷	:	8.0% ¹⁷	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.9%	4.7% ¹⁷	5.2%	4.6% ¹⁷	
	Expenditure on public and private institutions per student in € PPS	ISCED 0	€3 826 ¹²	:	:	€6 111 ^{15,d}
		ISCED 1	€7 507 ¹²	:	€5 812 ^{12,d}	€6 248 ^{15,d}
		ISCED 2	:	:	€6 937 ^{12,d}	€7 243 ^{15,d}
		ISCED 3-4	€3 337 ^{12,d}	:	:	€7 730 ^{14,d}
ISCED 5-8		:	:	€10 549 ^{12,d}	€11 413 ^{15,d}	
Early leavers from education and training (age 18-24)	Native-born	5.3%	3.3%	13.1%	9.5%	
	Foreign-born	3.7% ^u	:	26.1%	20.2%	
Tertiary educational attainment (age 30-34)	Native-born	21.4%	34.8%	33.1%	41.3%	
	Foreign-born	18.7% ^u	28.0% ^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	72.9%	66.3%	72.5%	76.8%	
	ISCED 5-8	80.7%	75.2%	83.8%	85.5%	

Sources: Eurostat; OECD (PISA); Learning mobility figures are calculated by the European Commission's Joint Research Centre (JRC) on UOE data. Further information can be found in Section 10 and Volume 1 (ec.europa.eu/education/monitor). Notes: The EU's 2009 PISA averages do not include 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

- 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.

3. A focus on teachers

Teaching is a predominantly female profession. In 2017, there were 84 370 teachers working at various levels in the education system. Early childhood education and care (ECEC) and primary teachers are almost exclusively female (99% and 93% respectively). Women are also in the majority (67%) in upper secondary schools, while there is virtual gender parity in tertiary education¹. Time spent in contact teaching is below the EU average (OECD, 2016). Many students apply for initial teacher education, so it is possible to be selective. A national study suggests that students' motivation drops in the course of their studies (Šimić Šašić et al., 2013). The proportion of teachers whose first choice of career was teaching (66.7%) is around the EU average, but differs significantly between female (70.6%) and male (53%) teachers (OECD, 2019)². In the OECD's TALIS Survey, teachers reported that the profession is not considered attractive (OECD, 2019). This may be due to low social status³.

There are teacher shortages in ECEC and certain subjects. For the former, the (already big) shortage (in 2016, Croatia needed 4 217 more ECEC teachers) would nearly double if Barcelona targets were to be reached by 2030 (Dobrotić et al., 2018)⁴, in particular in poorer areas where coverage is already low. The number of new entrants to the profession is insufficient to cover the shortfall⁵. In schools, there are shortages in remote areas and for science, technology, engineering and mathematics (STEM subjects), and for information and communications technology (ICT). There are no specific incentives on offer to address these shortages. If there is no teacher with subject-specific qualifications, subjects can be taught by any qualified teacher. About a third of teachers are aged over 50⁶.

Teachers' salaries are below average for tertiary graduates. Staff pay (largely teachers' salaries) accounts for 73.2% of government expenditure on education (the EU average is 62.0%)⁷. However, in November 2018 the average net teachers' salary was EUR 895 in primary schools and EUR 975 in secondary schools (CBS 2018a), significantly below the average net salary for tertiary graduates. A 5% pay rise will be introduced in two stages in 2019. Certain categories of teachers (e.g. those working in three or more schools or in special needs education) receive slightly higher salaries. Also, teachers in schools involved in the implementation of the School for Life curricular reform pilot project⁸ receive a bonus of up to 15%.

Initial teacher education differs according to the levels of education. For ECEC, a bachelor's degree is needed; from primary onwards, a master's. After studies, teachers must undergo a one-year induction and take the state certification examination. The most frequently reported

¹ Eurostat, UOE 2017.

² In 2018, 23 Member States participated in TALIS survey: 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.

³ According to TALIS 2018, 90.8% of teachers feel that the teaching profession is not valued. Croatian research shows that 63.9% of secondary students share this opinion (AZVO, 2018a).

⁴ In 2017/2018, there were 12 142 ECEC teachers; it is estimated that 9 148 more will be needed by 2030.

⁵ About 500 students graduate annually as ECEC teachers, a net annual growth of only 200 after taking account of retirees (CBS, 2018b).

⁶ 29% in ECEC, 27% in primary schools, 30% in secondary schools, 34% in tertiary education (all below the EU average).

⁷ Eurostat, COFOG 2017.

⁸ See: <https://skolazivot.hr/>.

professional development need is in the field of ICT skills (26.2%, compared with an EU average of 16.1%) (OECD, 2019). Continuous professional development (CPD) is obligatory for primary and secondary school teachers and a requirement for career progression. In higher education, there is a tendency to downplay teaching qualifications and teacher training, since they are not a pre-condition for career advancement (Domović et al., 2018).

Measures to improve attractiveness of school principals positions are being taken. School principals are elected by school boards for a renewable five-year period and approved by the Minister of Education. They must have at least five years' teaching experience. While their role is mainly administrative, they used to receive little training in leadership or education management, but new education management training has been introduced this year. Their performance is not evaluated and does not affect their pay. The Strategy for Education, Science and Technology proposed licensing for school principals, which is included in the Education Act.

4. Investing in education and training

Education spending is close to the EU average. In 2017, Croatia spent 4.7% of its GDP on education (the EU average is 4.6%). As a proportion of general government expenditure, education spending (10.5%) is also close to the EU average (10.2%). The share of spending on tertiary education is 21.5%, above the EU average of 15.0%.

The financing of ECEC is almost exclusively the responsibility of local government. Total public expenditure for ECEC rose from 0.46% of GDP to 0.61% (from 8.1% to 10.6% of the total budget of local self-government units). There are big regional differences: spending is considerably less in poorer units⁹ (Dobrotić et al., 2018). Structural investments are being made on national level to improve the situation.

Top-up funding for higher education is being introduced. Performance contracts have been experimentally introduced since 2012; the current (third) cycle covers funding for both research and teaching. In the next 4 years, the contracts will provide higher education institutions with top-up funding of EUR 250 million used for both basic teaching-scientific funding and for top-ups: up to 5% of basic for teaching, up to 20% of basic for science and up to 3% of total funding for a specific institution profile.

5. Modernising early childhood and school education

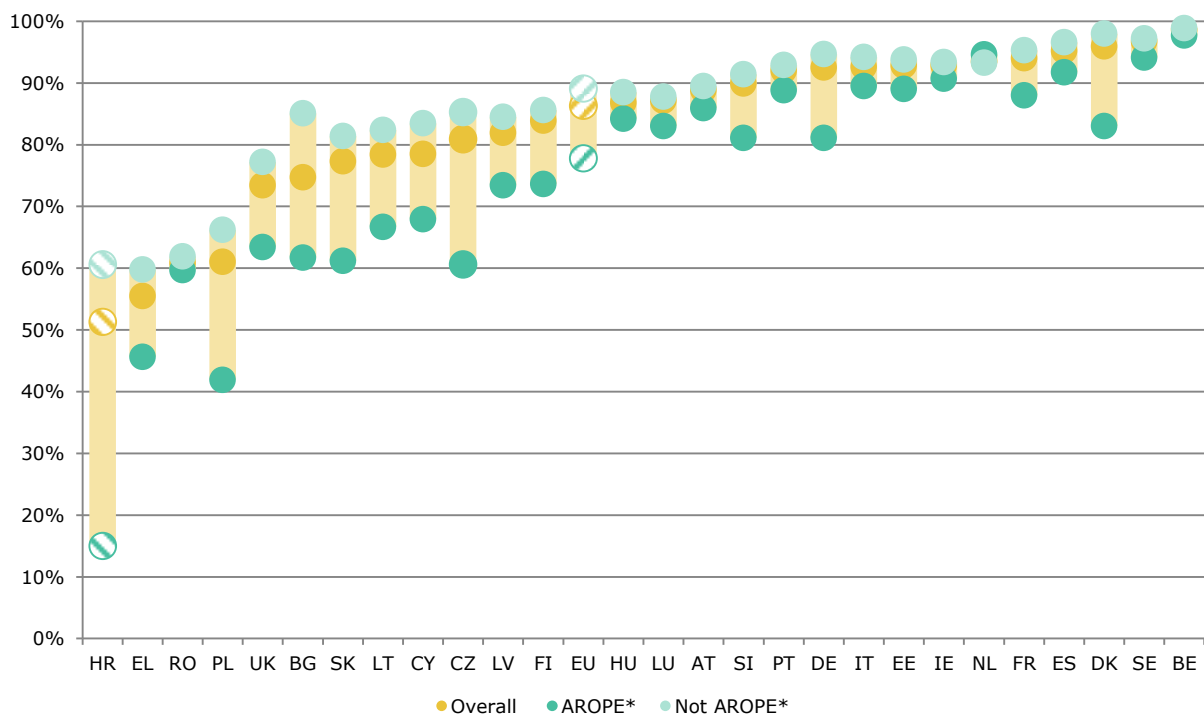
Low participation in ECEC is hard to remedy, due to decentralised funding and sometimes counterproductive measures. Croatia has one of the lowest ECEC participation rates in the EU for children between the age of 4 and compulsory education (82.8%, well below the 95% benchmark for 2020 and the EU average of 95.4%), although in 2017 it has risen by 7.7 pps since 2016. Compulsory education starts a year before primary school, so almost all children attend at least that year (OECD, 2017, p. 74). There are not enough places to guarantee participation¹⁰. Priority is given to families where both parents are working, so the children of unemployed parents are at a disadvantage. Other barriers include insufficient teacher numbers and high parental contributions¹¹. The poorest levels of provision are to be found in remote and less-developed regions. Some municipalities give financial support to help parents whose children do not attend kindergarten to care for them at home, thus in effect disincentivising their participation in ECEC (City of Zagreb, 2016). Some positive initiatives are being taken, such as longer opening hours to help parents who work early or late shifts. The EU structural funds support the building and renovation of kindergartens.

⁹ 5.7% to 14.1% of units' budget in 2015.

¹⁰ 146 municipalities did not have kindergartens in 2014-2016 (Dobrotić et al., 2018).

¹¹ 80% of children live in municipalities where parents have to pay monthly contributions of EUR 65-93 for kindergarten, equivalent to 10-12% of the average net salary (Dobrotić et al., 2018).

Figure 2: Participation in formal childcare or education of children between 3 and mandatory school age, by socio-economic background, 2016 (%)



Source: JRC calculations using 2016 EU-SILC microdata. Notes: *AROPE = at risk of poverty or social exclusion

Emigration is reducing the school-age population. The school-age population in Croatia is expected to fall by 23.1% between 2020 and 2040, partly as a result of many young families moving to other countries¹².

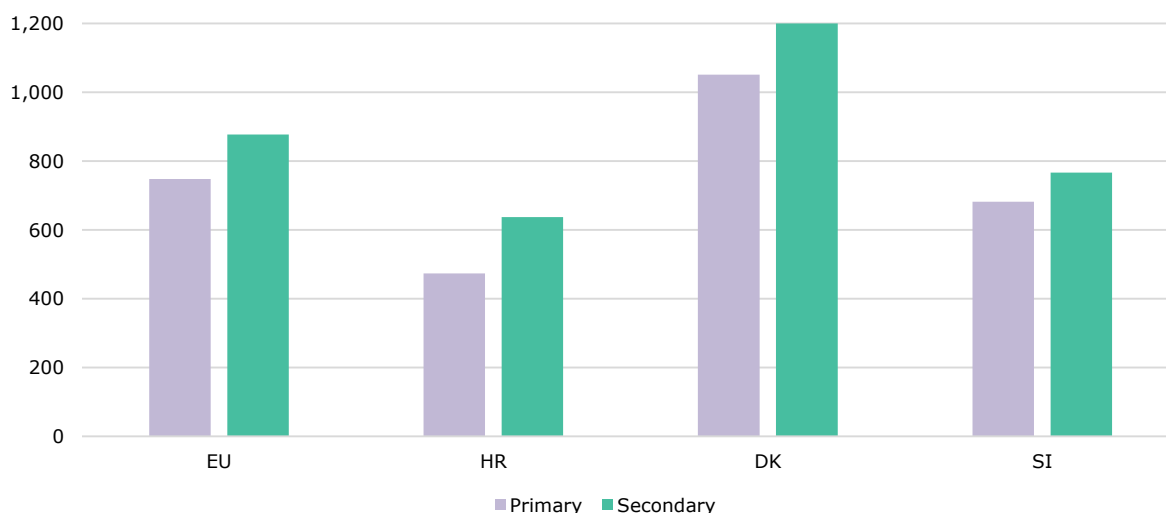
The rate of early school leaving is very low, but the overall quality of education remains a challenge. Croatia has the lowest rate of early school leaving in the EU (3.3%, compared with an EU average of 10.6%). Nevertheless, the gap for students with disabilities is one of the largest in the EU (14 pps, as against an EU average of 10 pps) (Grammenos, 2013). Croatia has one of the shortest compulsory primary and lower secondary schooling cycles in the EU – it lasts only 8 years. The Strategy for Education, Science and Technology identified this as an area for change, but there are infrastructure challenges, as many schools work in two or three shifts. There is a project in cooperation with the World Bank that aims to enable change to one-shift teaching and increase the number of teaching hours/lessons. This should help improve the results of Croatian pupils (e.g. OECD's Programme for International Skills Assessment (PISA) test, where pupils perform below the EU average in reading, science and in particular mathematics (OECD, 2016)). A national youth study shows that young people are not very satisfied with the quality of their education (Gvozdanić et al., 2019), while according to World Economic Forum indicators the quality of education in Croatia ranks 112th out of 137 (Schwab, 2017).

Instruction time is low and students have a negative attitude towards school. In primary education, average annual instruction time is 473 hours (EU average: 748). In lower secondary education, it is 637 hours (EU average: 877) (Eurydice, 2019). Nevertheless, students increasingly describe their education as hard and stressful (Gvozdanić et al., 2019); a large percentage do not like going to school at all (42.2% at age 11 and 60.9% at age 14) (Jokić et al., 2019). A positive development is that 86% of pupils surveyed following participation in the School for Life pilot said that their classes were different and more interesting¹³.

¹² Own calculations on EUROSTAT population projections data. Online data code: [proj_15npms].

¹³ <https://skolazazivot.hr/preliminarni-rezultati-zadovoljstva-dionika-reforme-skola-za-zivot/>

Figure 3 Recommended minimum instruction time for the compulsory curriculum (in hours, per notional year and by ISCED level), 2017/2018



Source: Eurydice, *Recommended Annual Instruction Time in Full Time Compulsory Education in Europe*.

Curricular reform is progressing. Reformed curricula have been adopted for most subjects and cross-curricular topics and these will be implemented incrementally from 2019/2020 in all primary and secondary schools. Schools are being supplied with all necessary equipment and materials. The reform includes extensive CPD for teachers, mentoring, and learning communities to share practices on teaching methods (see text box 1). Following the e-Schools project, ICT was introduced as a compulsory subject in the fifth and sixth grades of primary and the first grade of general secondary schools from 2018/2019. Croatia received from the Council of the European Union a country specific recommendation to “Deliver on the education reform and improve both access to education and training at all levels and their quality and labour market relevance.” (Council of the European Union, 2019).

Digital skills levels are low. In 2017, the percentage of 16-74 year-olds who have reported having basic or above-basic overall digital skills was the second lowest in the EU (41%, as compared with an EU average of 57%)¹⁴. The proportion of people regularly using the internet is among the lowest in the EU (73%, as compared with the EU average of 83%). The digital skills of young people aged 16-19 are slightly better than EU average, but they dropped significantly between 2016 (70%) and 2017 (59%).

Box 1: Mass training of teachers in preparation for curricular reform

Curricular reform was piloted in 74 schools in 2018/2019, with a view to full implementation the following year. Due to the tight schedule, preparations for full implementation are proceeding alongside, and being informed by, the evaluation of the pilot phase (MZO, 2019a).

There is an extensive programme of face-to-face and online training courses to prepare teachers and support staff to implement the new curriculum. A first round of face-to-face training covered 32 000 teachers, 26 000 in a second round and 29 000 in the third round. Supplementary online training is taking place at the same time (MZO, 2019b).

Training and support materials have been developed to help teachers implement new elements such as learning outcomes, different types of assessment and the teaching of transversal themes and to make best use of the new IT equipment. Virtual classes are offered for each subject, in which teachers should participate for up to 4 hours a week. Participation is not obligatory, but many teachers are taking them. The goal is that all primary and secondary teachers should have completed training by the next school year.

Online training will continue as needed after full implementation in 2019/2020.

¹⁴ Eurostat, DESI 2017.

6. Modernising higher education

Student numbers are high, but completion of studies is low. 81% of grammar school and eligible vocational education and training (VET) students hope to go on to higher education (AZVO, 2018b). 68% of upper secondary students enrol in higher education (AZVO, 2014), including 61% of VET students. In 2018, the tertiary education attainment rate was 34.1%, a steep (5.4 pps) increase from 2017 (28.7%), but still well below the EU average of 40.7%. There is an unusually wide gender difference (41.9% of women against 26.5% of men) and 57% of current students are female (CBS, 2018c).

The number of study programmes is large; the government gives scholarships for STEM studies. There are 1781 study programmes in Croatia of which 727 in STEM (38.9%) (MZO Register, 2019). For STEM programmes funding arrangements are more favourable: the proportion of STEM graduates is among the highest in the EU (27% in 2017, compared with an EU average of 25.8%).¹⁵ Also, 3 400 scholarships for STEM studies annually were introduced from 2017/2018. However, the scholarships do not specifically encourage students to become STEM teachers and there are already teacher shortages, which may have a negative effect on the future supply of STEM students.

The level of student mobility is low. Learning mobility is low (6.9%, well below the EU benchmark of 20% and average of 10.7%). Inward degree mobility is the lowest in the EU (0.4%, compared with an EU average of 8.6%); almost all of it is for doctorates and master's degrees. 90% of foreign students are European (64.3% from non-EU European countries). The government hopes to, among other things, stimulate internationalisation through performance funding.

The government is making efforts to improve equity. The 2018-2021 National Plan for the Enhancing the Social Dimension of Higher Education (adopted in January 2019) highlights 16 categories of students who face challenges in accessing higher education or are at risk of dropout. The plan includes:

- improved data management;
- quantitative indicators;
- instruments for improved access; and
- increased retention, completion and employment rates, to be linked to funding for higher education.

As only about half of the eligible students with lower socio-economic status were receiving the regular state scholarship, in 2017/2018 Croatia started using ESF funds to increase the number of scholarships per year from 5 400 to 10 000, including for students with disabilities. It has also increased transport subsidies for students with disabilities.

7. Modernising vocational education and training

Enrolment in VET has decreased, but employability has improved. The number of new students entering formal VET programmes fell by 7% in 2017 compared to 2016. Total enrolment in upper secondary VET fell slightly (to 69.6%), but is still above the EU average (47.8%). It is reported that until 2017/2018 there were no combined school- and work-based learning programmes in formal VET in Croatia (i.e. the breakdown is reported as not applicable) (UOE, 2017). The employability of VET graduates improved significantly (from 59.4% in 2017 to 68.8% in 2018), but it is still below the EU average (79.5%).

Many VET students go on to higher education. Between 2010/2011 and 2013/2014, around 78% of four-year VET students passed the state *Matura* exams each year and 61% enrolled in higher education programmes (Jokić and Ristić Dedić, 2014).

Croatia is implementing curricular reform in VET. It aims to develop new innovative and flexible sectoral curricula based on labour market needs and to strengthen teacher competences.

¹⁵ Eurostat, UOE, 2017.

Curricula will be developed for each of the VET sectors. VET institutions will be able to adapt 30% of the curricula to local needs. Relevant institutions and social partners are working to develop occupational standards, which will be entered in an online database. A Qualification Framework (CROQF) Register¹⁶ has been created, including units of learning outcomes and qualification standards.

VET regional centres of competence and a dual VET education pilot are complementing the reform. In July 2018, 25 VET schools were designated as regional centres of competence in five sectors to promote VET excellence, including teacher training and lifelong learning. Basic features include innovative learning models, teaching excellence (including mentors), high-quality infrastructure and creative partnerships among relevant stakeholders. The experimental programme "Dual Education in VET" launched in 2018 has been expanded by 13 VET schools for 2019/2020, providing more opportunities for work-based learning. It aims to address inadequacies in practical training and insufficient entrepreneurial competences, and to reduce the skills mismatch (over half of registered unemployed people are VET graduates). An ESF project, 'Modernisation of the system of continuous VET teachers' and trainers' development', supports the training of VET school principals and has involved two VET teachers' days attended by over 1 000 participants.

The VET Act does not provide for VET graduate tracking; data is only collected by schools on a voluntary basis. The Croatian Agency for VET and Adult Education (AVETAE) plans to implement a tracking model as part of a wider project. A separate inter-institutional project aims to monitor people not in employment, education or training.

Box 2: Promotion of student competences and VET through skills competitions and fairs

This project is organised by AVETAE, the partner body for WorldSkills Europe¹⁷ and WorldSkills International. The cost of the project is EUR 5 455 980, of which 85% is covered by the ESF¹⁸. It started in January 2017 and will last 5 years.

In Croatia, vocational education is considered a less attractive option and this has a negative effect on enrolment. Vocational competitions aim to promote excellence and increase the attractiveness of vocational education. They also provide an opportunity for employers to connect with VET schools¹⁹.

This project aims to modernise vocational competitions and increase participation, thereby motivating students to improve their competences and presentational skills.

In the first two years, the project has supported the participation of more than 1 000 students and 639 teachers in a new type of competition. The national skills competition (the largest in this part of Europe) took place in March 2019 in Zagreb, with around 450 students competing in more than 40 skills, from traditional skills such as hairdressing to interdisciplinary disciplines such as robotics and mechatronics, in front of an audience of almost 10 000²⁰.

8. Developing adult learning

While there are relatively few low-qualified adults, participation in adult education is minimal. 14.9% of the adult population have not acquired at least an upper secondary qualification (EU average: 21.9%). The proportion of low-qualified adults in employment (37.5%) is also below the EU average (56.8%). However, 367 000 adults (aged 25-64) had a low level of educational attainment in 2017, while there were only 120 000 jobs in elementary occupations, highlighting the need for substantial up-skilling and re-skilling, mostly among older cohorts. Participation in adult learning is low (2.9%, EU average: 11.1%). In 2017/2018, no adult aged 25 or above acquired an upper secondary qualification.

¹⁶ See <https://hko.srce.hr/registar/>.

¹⁷ Agency for Vocational Education and Training and Adult Education (ASOO) <http://www.asoo.hr/default.aspx?id=1369>.

¹⁸ ASOO <http://www.asoo.hr/default.aspx?id=1173#PUK>.

¹⁹ *Ibid.*

²⁰ World Skills Croatia <http://www.worldskillscroatia.hr/hr/kalendar/drzavno-natjecanje-ucenika-strukovnih-skola-worldskills-croatia-2019/>

The adult education policy framework is outdated and programmes are not properly assessed. A new version of the Adult Education Act has been discussed for a long time, but is not yet adopted. It should ensure full compliance with the Croatian NQF, simplify administrative procedures, improve quality assurance through external evaluation and enable recognition of skills gained through non-formal and informal learning.

The initial and continuing training opportunities for adult education staff are insufficient. Teachers and trainers work as external associates; they are not employed in adult education institutions and their CPD is a personal responsibility, with no institutional funding. National statistics indicated that 692 adult learning educators participated in training in 2017. Future policy action could include:

- updating the CROQF with the skills required for adult education teachers and trainers;
- creating university programmes for specialists;
- new curricula to train teachers and trainers; and
- establishing permanent education and certification systems for them.

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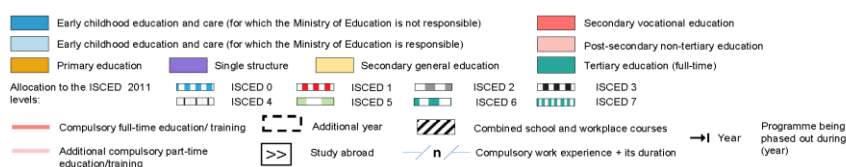
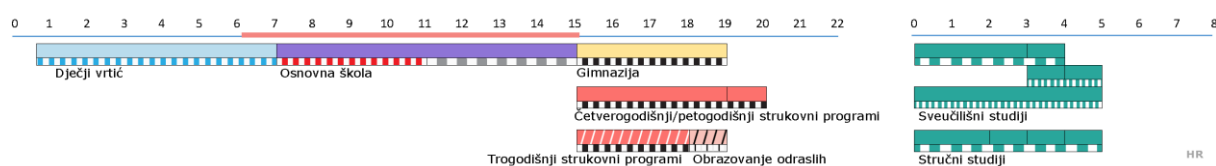
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Annex I: Key indicator sources

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 2018/2019: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg (Publications Office of the European Union)

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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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