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Education and Training Monitor 2020

ROMANIA

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EUROPEAN COMMISSION

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Volume 2 of the Education and Training Monitor 2020 includes 27 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 digital education. Section 4 looks at investment in education and training. Section 5 deals with policies to modernise early childhood and school education. Section 6 covers vocational education and training. Finally, Section 7 discusses measures to modernise higher education, while Section 8 covers adult learning.

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The manuscript was completed on 15 September 2020.

Additional contextual data can be found at ec.europa.eu/education/monitor

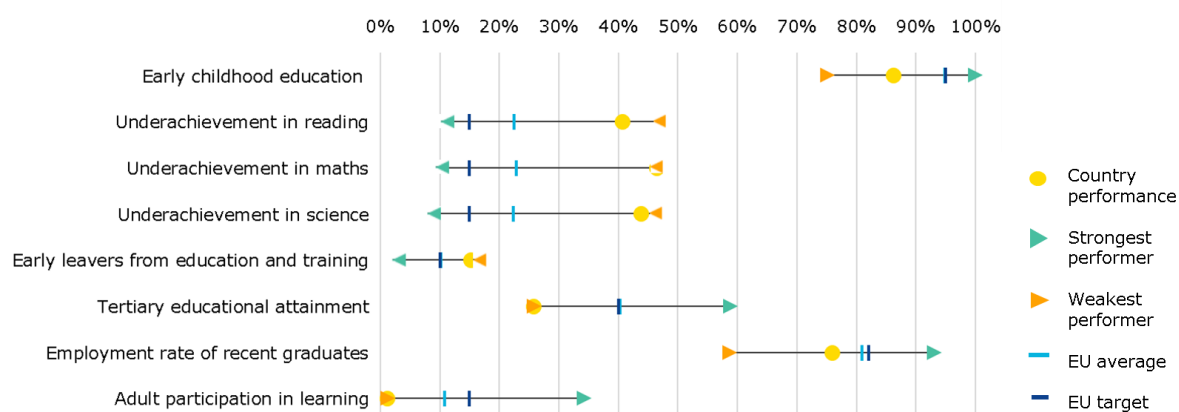
1. Key indicators

Figure 1 – Key indicators overview

		Romania		EU-27	
		2009	2019	2009	2019
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		16.6%	15.3%	14.0%	10.2%
Tertiary educational attainment (age 30-34)		16.8%	25.8%	31.1%	40.3%
Early childhood education (from age 4 to starting age of compulsory primary education)		88.0%	86.3% ¹⁸	90.3%	94.8% ¹⁸
Proportion of 15 year-olds underachieving in:	Reading	40.4%	40.8% ¹⁸	19.3%	22.5% ¹⁸
	Maths	47.0%	46.6% ¹⁸	22.2%	22.9% ¹⁸
	Science	41.4%	43.9% ¹⁸	17.8%	22.3% ¹⁸
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	77.6%	76.1%	78.0%	80.9%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	1.8%	1.3%	7.9%	10.8% ^b
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	6.0% ¹⁸	:	4.3% ¹⁸
	Credit mobile graduates (ISCED 5-8)	:	1.7% ¹⁸	:	9.1% ¹⁸
Other contextual indicators					
Public expenditure on education as a percentage of GDP		3.8%	3.2% ¹⁸	5.1%	4.6% ¹⁸
Education investment	Expenditure on public ISCED 1-2	€1 668 ¹²	€1 930 ¹⁶	€6 072 ^{d, 12}	€6 240 ^{d, 16}
	Expenditure on public and private institutions ISCED 3-4	€1 769 ¹²	€2 466 ¹⁶	:	€7 757 ^{d, 16}
	per student in € PPS ISCED 5-8	€4 035 ¹²	€4 688 ¹⁶	€9 679 ^{d, 12}	€9 977 ^{d, 16}
Early leavers from education and training (age 18-24)	Native-born	16.7%	15.4%	12.6%	8.9%
	Foreign-born	: ^u	:	29.3%	22.2%
Tertiary educational attainment (age 30-34)	Native-born	16.7%	25.8%	32.0%	41.3%
	Foreign-born	: ^u	: ^u	25.1%	35.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	69.1%	66.9%	72.2%	75.9%
	ISCED 5-8	85.7%	87.6%	83.7%	85.0%

Sources: Eurostat; OECD (PISA); Learning mobility figures are calculated by DG EAC, based on UOE 2018 data. Further information can be found in Annex I and in Volume 1 (ec.europa.eu/education/monitor). Notes: The 2018 EU average on PISA reading performance does not include ES; b = break in time series; d = definition differs; u = low reliability; : = not available; 12 = 2012, 16 = 2016, 17 = 2017, 18 = 2018.

Figure 2 - Position in relation to strongest and weakest performers



Source: DG EAC, based on data from Eurostat (LFS 2019, UOE 2018) and OECD (PISA 2018).

2. Highlights

- Some efforts have been made to improve the quality of early childhood education and care and strengthen initial teacher education.
- Despite several initiatives, there is a need to increase the digital skills of teachers, trainers and students and better equip schools with digital equipment.
- A large percentage of young people have inadequate levels of basic skills. Ensuring quality and labour market-relevant education and training is still a key challenge.
- Socio-economic background significantly affects students' performance, limiting the role that education can play as an equaliser of opportunities. Despite measures to mitigate the impact of COVID-19 in education, the shift to distance learning risks worsening already high inequalities.

3. A focus on digital education

Despite several initiatives to digitalise the education system, the need to improve the acquisition of digital skills remains high. In 2015, Romania adopted a national strategy on the Digital Agenda setting out actions until 2020 in key areas that included the use of information and communication technologies (ICT) in education. However, the degree to which the commitments of the strategy were met is unknown (European Commission, 2020a). Although Romania has progressively integrated elements of digital technology in its policies, school curricula and training programmes, and despite some major investments at national level, a lack of monitoring and support mechanisms has resulted in many of these initiatives not being sustainable (Balica M et al., 2018). To date, the results remain limited (European Commission, 2020a). At the same time, the private sector, especially tech companies, has started a number of projects with schools and universities focusing on teacher training and development of digital learning resources¹, as well as provision of digital equipment. Overall, only 57% of young Romanians aged 16-19 have basic or above basic digital skills (EU average: 82%). The gap with the EU average is particularly evident in problem solving and software skills, which include making decisions about digital tools and using them, purchasing online, creating content and coding. ICT is an optional subject in primary grades and, since 2017, a compulsory subject in lower secondary education. However, schools in rural areas, which provide schooling to 43% of students², are less able to offer digital education due to having fewer qualified teachers and poorer digital infrastructure. In upper secondary education, students' digital competences are evaluated as part of the baccalaureate exam through a fail/pass practical test, which can be equated with the European Computer Driving Licence.

Several areas of teachers' digital skills require strengthening. Romanian teachers feel confident about certain aspects of their digital skills, in particular about communication and collaboration (see Figure 3), but less so when it comes to digital content creation, information and data literacy (European Commission, 2019). Similarly, the OECD's 2018 Teaching and Learning International Survey (OECD, 2019a) showed that almost 70% of lower secondary teachers believe they are well or very well prepared for the use of digital methods in teaching, while 21% reported a high need for professional development in ICT skills (EU average: 18%). Despite a large number of training courses being available for digital skills, their quality, coverage and relevance are lower than expected (ISE, 2018). At the same time, teachers often feel exposed and do not know how to react to the expectations and demands of their students related to the use of technologies for learning (ibid). In addition, more than half of the teachers surveyed had insufficiently developed competences for the effective use of online learning platforms. The CRED project (Relevant Curriculum, Open Education for all), co-financed by the European Social Fund, has been supporting the development of teacher competences, including during the COVID-19 school closure.

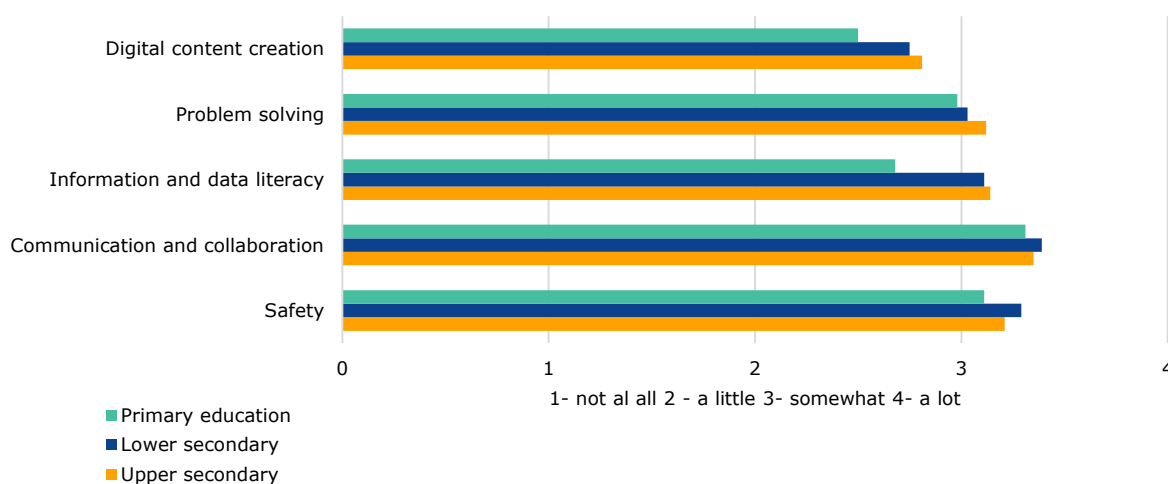
Digital infrastructure in schools lags behind, especially in rural areas. Compared to the EU average, substantially fewer schools are highly digitally equipped and connected. Only 14% of Romanian students in primary education (EU average: 35%), 16% in lower secondary (EU

¹ e.g. 'Digitaliada', 'Atelierul Digital', 'InfoEducation', 'Clasa viitorului', Educlick, etc.

² Primary and lower secondary

average: 52%) and 31% in upper secondary education (EU average: 72%) study in such schools (European Commission, 2019). Available data shows that, in 2017, 1 in 5 schools was not connected to the internet at all, of which only 5% in urban areas and 24% in rural areas (Ministry of Education and Research, 2018). The number of computers per school is 60% higher in urban areas than in rural areas, illustrating the broader rural-urban gap in education.

Figure 3 - Teachers' confidence in their digital competences, 2017-2018



Source: 2nd Survey of Schools: ICT in Education, based on the DigComp framework.

Box 1: Large-scale EU-funded programmes aim to improve the digitalisation of the education system

The 'WI-FI Campus' project is equipping at least 2 000 schools with the technical infrastructure necessary to use open educational resources and 4 500 gymnasiums with wireless equipment. The project is co-financed by the European Regional Development Fund (ERDF) (EUR 38 million).

The 'Electronic Catalogue³' (EUR 40 million co-funding from the ERDF) will then help implement online enrolment in high school, electronic class registers and the online evaluation of written national examinations.

On resources, the 'Digital platform with open educational resources' (ERDF co-funding of EUR 41 million) will facilitate free access to electronic textbooks, while the 'CRED project', co-financed under the European Social Fund (ESF), helps develop online educational resources.

Despite measures to mitigate the impact of COVID-19 in education, the shift to distance learning risks worsening already high inequalities. Following the closure of schools, the Ministry of Education and Research organised online trainings for teachers and provided free access to educational platforms. Classes were also web-streamed on national television. A number of initiatives involving the private sector and NGOs have sought to support online teaching and equip students with devices. EUR 31 million were earmarked to purchase 250.000 tablets with internet connection, though with some delays in the process. Guidance was issued to teachers on addressing learning gaps accumulated during the school closure. A recent online survey (National Centre for Policy and Evaluation in Education, 2020) shows that 96% of respondent schools provided distance learning, in a combination of synchronous (real-time) or asynchronous (i.e. content on platforms, emails) format. 94% of respondent students took part in distance learning. Nevertheless, parents' responses showed that this happened with a varying degree of frequency, while teachers' responses indicated a varying coverage of subjects and of the curriculum. Two thirds of teachers declared that all students engaged in distance learning; more than 20% stated that more than half of their students engaged, and the rest reported that fewer of their students

³ Sistem Informatic pentru Managementul Școlarității (SIMS).

engaged. The mobile phone was used by about 90% of respondent students; about half used a dedicated computer/laptop, while one fifth shared a device. Lack of devices impacted particularly students from rural areas, from professional education (ibid.) and more generally students from disadvantaged backgrounds, including Roma. 38% of respondent teachers had to share a device with family members, while 11% do not own a device. The same percentage had poor internet connections, particularly in rural areas. In 2020, the Council of the European Union adopted a country-specific recommendation calling on Romania to 'strengthen skills and digital learning and ensure equal access to education' (Council of the European Union, 2020).

4. Investing in education and training

Romania's expenditure on education remains among the lowest in the EU. The latest available data shows that, in 2018, general government expenditure on education had increased in real terms by 6.4%, equivalent to 3.2% of GDP. This level of spending is significantly below the EU average of 4.6% and one of the lowest in the EU. Compared to 2010, expenditure on education remained broadly stable, recording real growth of only 1%. Nevertheless, by level of education there has been a shift from tertiary education (-19%) and pre-primary and primary education (-16%), to secondary education (+28%). Under-investment is still particularly felt in pre-university education and funding mechanisms to support equity remain weak. Although the relationship between spending and educational outcomes is not linear, Romania's low spending on essential public services, most notably on education, means that socio-economic background has a pivotal impact on human capital outcomes (World Bank, 2020).

5. Modernising early childhood and school education

Efforts are being made to improve the quality of services in early childhood education and care but participation rates are still low. The latest available data shows that the rate of participation in early childhood education for children between the age of 4 and the starting age of compulsory education declined to 86.3% in 2018. This is significantly below the EU average of 94.8% and the EU benchmark of 95%. Participation rates are low in rural areas and for the Roma (FRA, 2016). The participation rate in childcare (ages 0-3) was 15.1% in 2019, significantly below the Barcelona target of 33%, also due to insufficient availability of facilities. To improve quality, a new pre-school curriculum was introduced in 2019. The ESF is supporting the development of a strategy for early education and a framework regulation setting clear organisation and functioning rules. New accreditation standards for pre-school education have been developed and are expected to be adopted by the end of 2020.

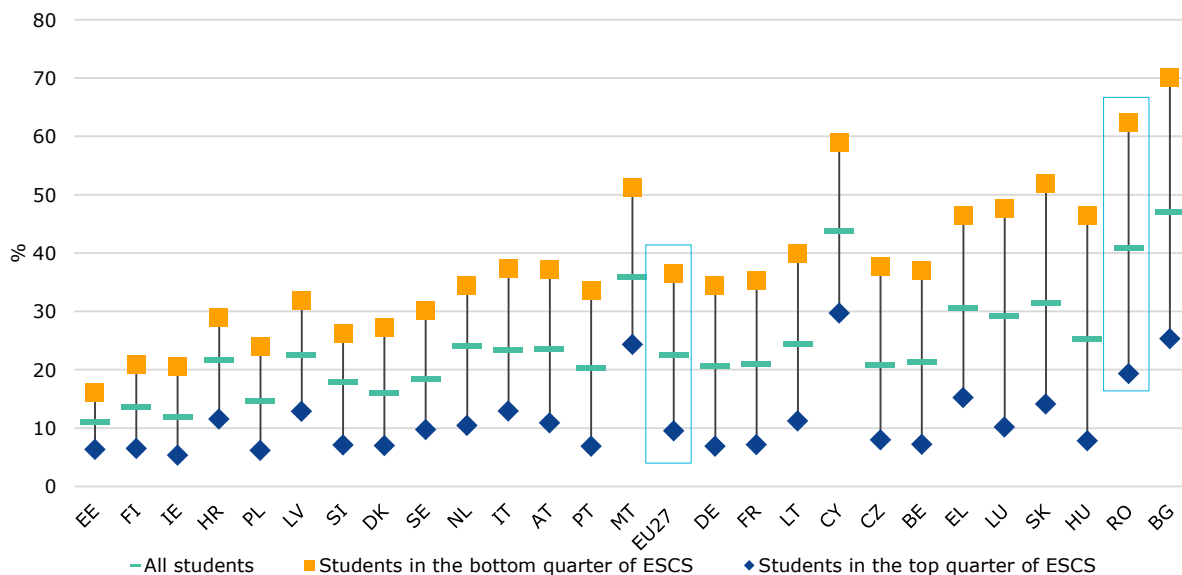
Early school leaving has dropped but remains high. The proportion of early leavers from education and training among 18-24 year-olds decreased for the fourth consecutive year. Nevertheless, at 15.3% in 2019, the rate remains one of the highest in the EU, significantly above the EU average (10.2%) and Romania's 2020 target (11.3%). Echoing wide disparities in access to quality education and socio-economic factors, early leaving is particularly high in rural areas (22.4%) and among disadvantaged groups, including the Roma (FRA, 2016). In practice, there is still no integrated national approach to prevent and tackle the structural problem of early school leaving, although some measures are in place. These include EU-co-funded second chance programmes and integrated projects in several schools in disadvantaged and marginalised communities, as well as nationally-financed social assistance measures. The warm meal pilot project was recently extended from 50 to 150 schools. The early warning mechanism will be piloted in 10 counties, providing hands-on support to selected schools and support to stakeholders at national, regional and local level, with a view to scaling-up the project at national level.

The percentage of low achievers in reading, mathematics and science is very high and the situation has not improved. The 2018 OECD Programme for International Student Assessment (PISA) shows that 40.8% of Romanian 15 year-olds had difficulties understanding texts of moderate length and complexity or unfamiliar material (OECD, 2019b). 46.6% had difficulties in interpreting and recognising how simple situations can be represented mathematically, while 43.9% did not have a level of basic knowledge in science. These rates of underachievement are among the highest in the EU and about twice the EU average (22.7% for reading, 22.9% for mathematics and 22.3% for science). In all three domains, the mean PISA score of Romanian students was about 60 score-points below the EU average, equivalent to one-and-a-half years of schooling. Compared to 2015, Romania's performance has not improved in

reading or in science and has worsened considerably in mathematics⁴, reversing some of the gains observed between 2006 and 2015 (OECD, 2019c). The proportion of high achievers, i.e. students who demonstrated complex knowledge in the subjects tested, is very low, significantly below the EU average: 1.4% in reading (EU average: 8.5%); 3.2% in mathematics (EU average: 11%); 1% in science (EU average: 6.3%). The impact of the ongoing curricular reform – which shifted the learning approach from content to competences – will only be measurable starting from the next testing round (2022), when PISA will assess for the first time the competences of students who have followed the new curriculum. The PISA survey also showed that almost 45% of 15 year-olds feel that they do not belong at school. A third reported being bullied at least once a month and their performance was 40 score-points lower.

The learning outcomes of students from disadvantaged backgrounds and rural areas are significantly lower than the national average. While the mean PISA score of Romanian students from advantaged socio-economic backgrounds is only around the average of all students in the EU⁵, they still outperform students from disadvantaged backgrounds by a large margin. In reading, this performance gap is 109 score-points, equivalent to more than two-and-a-half years of schooling. These figures show that challenges related to the quality of education go hand in hand with a lack of equity. The percentage of underachieving students in the bottom socio-economic quartile is particularly high, with 62% of disadvantaged pupils struggling in reading compared to 19% of their socio-economically advantaged peers. At the 2020 national evaluation at the end of eighth grade, 24% of candidates did not obtain the minimum grade of 5, of which 15% were in urban areas and 38% in rural areas. Furthermore, Romania has a strong intergenerational persistence of education, implying that students' final educational achievement is highly linked to that of their parents, which limits the role that education plays in bringing about equal opportunities (World Bank, 2020). In addition, Roma inclusion in education remains an important challenge. The methodology for monitoring school segregation, envisaged by the 2016 revised anti-segregation order, was adopted at the end of 2019, but to date there has not been a clear follow-up.

Figure 4 – Underachievers in reading by socio-economic status (ESCS), PISA 2018



Source: OECD 2019b, PISA 2018 Database. Note: the EU-27 average does not include Spain.

Strengthening the teaching profession remains a key priority for modernising the school system. Romania's aspirations to raise learning outcomes and develop a competency-focused student-centred approach to teaching and learning largely depend on its teachers (OECD, 2020). In October 2020, a pilot master's programme in pedagogics started in eight universities. It explores a

⁴ The mean score decreased by 15 in mathematics, while the percentage of underachievers increased by 6.6 p.p. The changes for science and reading are not statistically relevant.

⁵ 484 score-points in reading compared to 487 on average in the EU.

new model of initial teacher education that could replace the current socio-pedagogical module, which offers very little practical preparation, especially in modern teaching techniques and inclusive pedagogy (OECD, 2017). However, with less than 30% of school teachers older than 50 and the overall number of teachers expected to decline in line with the student population, any reform of initial teacher education will only affect a minority of the profession in the next few decades (OECD, 2020). This implies that updating and modernising teachers' knowledge and skills will primarily be achieved by working with the existing teachers (ibid). Although a high percentage of Romanian teachers take part in professional development, the content and delivery of courses is not perceived as sufficiently adapted to their needs (ISE, 2018), and participation is often restricted by high costs (OECD, 2019a). At the same time, attracting highly motivated teachers to work in disadvantaged schools, including in rural areas, remains a key challenge.

6. Modernising vocational education and training

The attractiveness of vocational education and training (VET) has increased, but ensuring quality and labour market relevance remains a challenge. Compared to the 2011/2012 school year, the number of students enrolled in professional schools increased seven-fold. Of the 85 000 students pursuing this study field in 2019, 15% were enrolled in dual education. The number of new entrants to dual VET was almost three times higher than in 2017/2018, revealing strongly increasing interest among students and companies in this training path. In 2019, new six-month apprenticeship programmes became available for low-qualified people and for those who left school without any qualification. These programmes support integration in the labour market and do not require prior formal qualifications, while employers receive an incentive of about EUR 340 per month for each apprenticeship contract. However, the overall employment rate of recent vocational graduates suggests that the adequacy and quality of the training is insufficiently aligned to labour market needs (67.7% compared to the EU average of 79.1%). Furthermore, the PISA test showed a large performance gap between students in general and those in the VET strand (108 score-points).

Steps have been taken to continue VET remotely. A consistent part of the training component of VET programmes was taught online in partnership with companies, with a focus on development of skills and professional competences. Where needed, remedial practical activities were expected at the beginning of the school year. For students in final years who had not completed a practical period of their studies, online activities will be carried out to allow them to complete their training properly. Graduation exams for European Qualifications Framework (EQF) 3 and 4 training programmes were replaced by a student project in the field of study that was submitted for examination. For graduates from EQF 5, the written and practical part were equated with the final grades for the specialty modules obtained throughout the years of study and with the presentation of a report, which took place either online or face-to-face.

7. Modernising higher education

Although the demand for higher skills is increasing, the number of tertiary educated graduates is low and graduates' skills do not match labour market needs. Having a sufficient number of higher education graduates is important for productivity growth, innovation and competitiveness. However, according to EUROSTAT, in 2019, only 25.8% of Romanians aged 30-34 had a university degree, significantly below the EU average of 40.3% and the lowest in the EU. Nevertheless, the rate has increased significantly compared to 2009 (16.8%), even though it is still below Romania's national Europe 2020 target of 26.7%. A look at graduating cohorts shows that, in 2018, for every 1 000 people aged 20-29 there were 45 higher education graduates combined at bachelor's, master's and doctoral level. This number is significantly below the EU average of 60⁶. In 2018, 28.1% of graduating students graduated in science, technology, engineering or mathematics (STEM), of which 5.8% in ICT. Although these proportions are among the highest in the EU, the actual number of professionals ready to enter the labour market is low. Furthermore, graduates' skills often do not meet the expectations of employers (see Box 2).

⁶ ISCED 5-8, which includes short cycle programmes.

The number of students in higher education is shaped by demographic, educational and socio-economic factors. At the start of the 2019/2020 academic year, the total number of students enrolled in higher education had increased slightly compared to the previous year (by 1.8%). Still, this number was 38% lower than in 2011, and has dropped particularly in private universities, whose number has decreased sharply from 52 to 27. Influencing this downward trend are demographic factors, including emigration, but also high early school leaving rates, the low percentage of high-school graduates that pass the baccalaureate exam (64.5% in 2020), and a certain preference for studying abroad⁷, whereas the number of foreign students is rather low (5.7% in 2018/2019). Among the 15 year-olds that sat the PISA test in 2018, 60% expect to complete higher education (EU average: 62.4%). However, only 33% of the poorest students expect to do so, compared to 87.3% of their more advantaged peers, which is one of the biggest gaps in the EU.

Universities have moved to online examinations and admission due to COVID-19. Universities were in a better position to shift to remote learning thanks to the better availability of digital infrastructure and online platforms. Teaching and examinations were carried out mostly online, while practical examinations that required physical presence were postponed. To overcome learning gaps and compensate for practical training that could not take place online, universities planned to organise intensive recovery sessions. Most universities organised admissions online, taking into consideration students' grades and their result in the baccalaureate exam. Only for certain study fields, including medicine and pharmacy, were admission exams organised *in situ*.

8. Promoting adult learning

Several initiatives have been introduced to promote adult learning, but there is still little policy innovation in this area. In 2019, only 1.3% of adults had had a recent learning experience. This is one of the lowest levels in the EU, significantly below the EU average of 10.8%. In 2019, a methodology for managing the national register of qualifications was adopted to help bring the descriptions of all qualifications acquired through initial, continuing and tertiary education and training together in one place. In 2020, the national authority for qualifications launched a project to systematise and simplify registries for qualifications. There are limited resources for awareness campaigns, counselling services, or for setting up the proposed community centres for lifelong learning, although the necessary regulations were adopted in 2019. Ensuring skills development for a just transition will require sustained effort aimed at improving skills through quality upskilling and reskilling opportunities.

The acquisition of digital skills faces significant challenges, although some existing projects and planned initiatives seek to improve the situation. The Agenda for Competences for Romania for 2025 lists digital competences as a priority for connectivity and the labour market, as well as being key competences for life. In general, adults have to pay to acquire or improve their digital competences, unless they are taking part in dedicated projects or using open educational resources. Addressing training provision for all segments of the population (the elderly, people living in rural areas, or those in other vulnerable situations) systematically, including ensuring infrastructure and training of teachers for digital competences, remains a challenge. Steps have been taken during the COVID-19 crisis to make training courses available online. For example, in various counties, specialised ICT training providers run courses for different levels of digital competences, from basic skills to advanced programming.

Box 2: The skills challenge

Romania has one of the lowest labour force participation rates in the EU and its working-age population has been declining steadily since 2008, while labour and skills shortages have been increasing (European Commission, 2020b). There is therefore a need to capitalise better on existing human resources and invest in the skills of the current and future workforce. However, the education and training system is struggling to provide the skills the country needs (World Bank, 2020), due to challenges linked to quality, equity and labour market relevance.

Early school leaving remains high, especially in rural areas and for the Roma. Many 15 year-olds,

⁷ In 2018, 6.6% of upper secondary graduates from Romania finalised their studies abroad.

who are Romania's future workforce, do not have the basic skills that are required to solve the kinds of problems that are routinely faced by today's adults. Educational poverty is particularly acute among disadvantaged groups, thereby reinforcing social inequalities. The digital skills of the general population and among young people are lower than the EU average. Overall, less than a third of Romanians aged 16–74 have at least basic digital skills, compared to 58% on average in the EU.

The availability of tertiary educated professionals is restricted by the limited number of graduates and by emigration – almost 40% of Romania's higher education graduates aged 24–64 are estimated to have emigrated (World Bank, 2019).

There are significant skills mismatches, with a high proportion of people with tertiary education either over-educated for their occupations or employed in a sector that does not match their field of education (World Bank, 2020). Many employers view the curricula of secondary and tertiary education as being too abstract, with insufficient focus on the practical application of knowledge and problem solving and outdated teaching methods which are focused on memorisation rather than application, problem solving and team cooperation (ibid).

There is no skills forecasting system to feed into the planning of VET and higher education programmes, although one is expected to be developed as a pre-condition for using European Structural and Investment Funds (2021–2027). Despite the high need for training to keep up with trends in the economy and to improve the resilience of the workforce, participation in adult learning programmes is very low.

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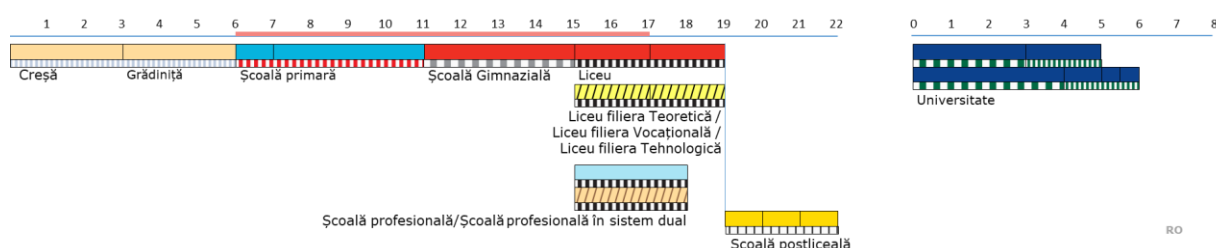
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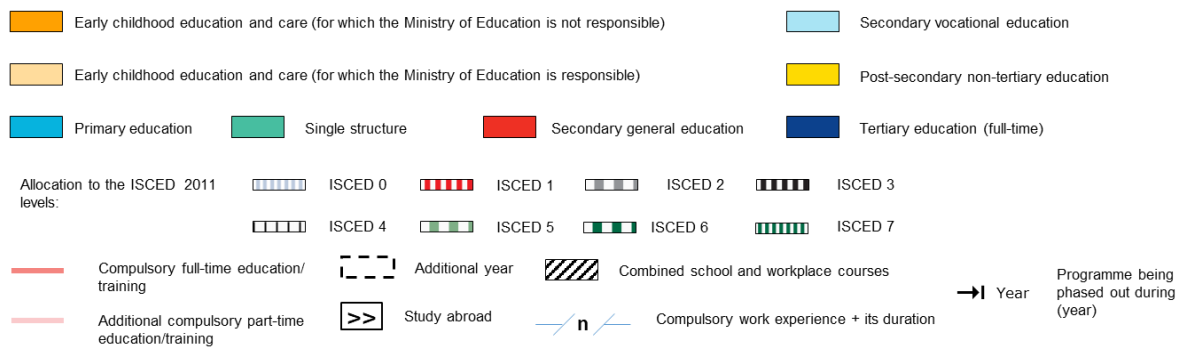
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Annex I: Key indicators sources

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	educ_uoe_enra10
Underachievement in reading, maths and 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	DG EAC computation based on Eurostat / UIS / OECD data
- Credit-mobile graduates	

Annex II: Structure of the education system





Source: European Commission/EACEA/Eurydice, 2020. The Structure of the European Education Systems 2019/2020: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

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Executive summary

Teaching and learning in a digital age
The Education and Training 2020 targets



Executive Summary

2020 has been an unprecedented year of challenge and disruption on education and training. The almost universal school closures due to the COVID-19 outbreak, starting from mid-March and lasting at least two months, affected more than 95 million of learners and 8 million teachers across the EU at all educational levels and sectors. Nevertheless, as a result of the tremendous efforts by the education sector, EU Member States managed to ensure education continuity by shifting rapidly to distance learning, often within a few days or weeks. As of autumn 2020, the overwhelming majority of Member States have relaunched in-situ teaching, in most cases under strict safety requirements and with contingency scenarios, which made the return difficult both from a pedagogical and organisational point of view.

Uneven access to distance learning, quality and well-being have been key concerns. The first reviews point to significant variation in terms of access to distance learning across and within countries. While in some Member States, coverage was almost universal (e.g. in Slovenia fewer than 2% of pupils could not be reached), in others a significant share of pupils were left without education (e.g. 48% of pupils in Italy). Reasons for exclusion included lack of devices, inadequate internet connections and/or difficult home situations, and many Member States distributed tablets and laptops to fill these gaps. Teaching practices also varied significantly among schools even within countries, leading to uneven quality. Initial research findings and surveys estimate that the physical closure of schools may affect learning outcomes due to the loss in instruction time and reduced pedagogical content. Vocational education and training was additionally hit by the closure of companies disrupting work-based learning. Finally, the lack of social interactions of pupils with their peers and teachers, as well as stress related to distance learning, are reported to have had a major negative impact on the well-being of students.

There is a risk that the crisis may affect vulnerable learners most, including those from lower socio-economic backgrounds and those with special educational needs and in rural or remote areas. However, the crisis did not only challenge already known vulnerable groups, but also many other learners, who for various reasons, such as a less supportive home environment and motivational factors, had difficulties in coping under the new circumstances. As a response, some countries put in place special support measures, for example Ireland, Croatia and Malta set up special forms of psychological support to pupils at risk of becoming disengaged. Belgium (French Community) decided not to provide new learning content to avoid inequalities.

Education systems faced special challenges in terms of end of year exams and enrolment to universities. End of year exams and enrolment in higher education institutions have also been a major challenge and Member States approaches varied significantly from one country to another. Germany has decided that all final examinations would be conducted, whereas some other countries (e.g. Austria and Slovakia) preferred to postpone upper secondary school leaving exams, as well as the deadline of application to universities. In some Member States final exams have been cancelled (e.g. France and Sweden,) and replaced by continuous assessment.

Teaching and learning in a digital age

The COVID crisis demonstrated the importance of stepping up the readiness of digital solutions for teaching and learning in Europe and also pointed to where the weaknesses lie. Member States have invested heavily in digital education, in particular in digital infrastructure with the support of Structural Funds. As a result, the digital infrastructure of schools developed significantly in the past decade, yet large disparities persist in many countries. The share of students attending highly digitally equipped and connected schools differs widely across Europe, is highest in Nordic countries, and ranges from 35% (ISCED 1) to 52% (ISCED 2) to 72% (ISCED 3). However, only 8% of students attend schools located in a village or a small city which have access to a high-speed Internet above 100 Mbps.

However, teachers were not adequately prepared to use digital technologies in the classroom before the crisis. Investment in digital infrastructure and tools has not always been adequately accompanied by appropriate preparation of teachers. On average in the EU, fewer than half of teachers (49.1%) report that ICT was included in their formal education or training. Moreover, while a growing number of teachers participate in continued professional development

(CPD) programmes related to the use of digital technologies, this does not always translate into teaching practices.

Pupils' digital skills are improving, but they are not digitally native. Contrary to the common view of the young generation of today as a generation of 'digital natives', the ICILS results indicate that young people do not develop sophisticated digital skills just by growing up while using digital devices. Underachievement, in the sense of a failure to understand and perform even the most basic ICT operations, is widespread in the EU. In 2018, as many as 62.7% of Italian pupils⁸ did not manage to pass the underachievement threshold. Neither did 50.6% of pupils in Luxembourg, 43.5% in France, 33.5% in Portugal, 33.2% in Germany, 27.3% in Finland and 16.2% in Denmark.

The adaptation to the crisis was easier for those Member States that were more advanced in digital education as a result of implementing comprehensive national strategies in recent years (e.g. Finland, Denmark and Estonia). This points to the importance of embedding investments in comprehensive digital education policies that cover a broad range of aspects, including digital equipment, skills development, pedagogical content, appropriate support mechanism etc. The effective use of EU funding has been essential in this regard. For example, Croatia was largely effective in the management of the crisis thanks to the preparation undertaken as part of the e-Schools supported by a European Social Fund (ESF) project and curricular reform project. In Estonia, between 2016–20, about 80% of teachers have attended CPD in digital skills, much of this has been funded under ESF.

The Education and Training 2020 targets

Participation in early childhood education and care is high thanks to sustained efforts by Member States, but uneven access and quality remain a challenge. On average in the EU, ECEC participation (4+) stood at 94.8% in 2018, just 0.2 percentage points (pps) below the target. However, some Member States have not made sufficient progress and stayed well below the 2020 benchmark, notably Greece (75.2%), Croatia (81.0%), Slovakia (82.2%), Bulgaria (82.4%) and Romania (86.3%). Moreover, participation tends to be lower for children from disadvantaged families including families with migrant background and vulnerable minorities such as Roma. There are also significant geographical disparities in terms of access (Spain, Portugal, Croatia and Italy) and uneven quality is an issue in several Member States (Austria, Sweden, Denmark, Malta and Romania). Member States have taken various measures to achieve progress, for instance the compulsory pre-school age is being lowered in Bulgaria (to four years), Belgium and Slovakia (to five years); and targeted financial support to families has been introduced in Germany and Italy. Moreover, an increasing policy focus is also placed on improving quality in several countries, e.g. Lithuania is developing a system of quality assessment, while Austria and Malta are reviewing qualification requirements of staff.

The target on early leavers from education and training stood at 10.2% in 2019, only 0.2 pps from the target. This represents a progress of 4 pps over the past decade. Fewer girls are early leavers (8.4%) than boys (11.9%). These figures hide sizable differences among countries varying between 3% in Croatia and 17.3% in Spain. Some countries have made considerable progress, particularly Portugal (20.3 pps), Spain (13.6 pps) and Greece (10.1).

However, basic skills have not improved during the past decade. Unfortunately, the EU has not met its target to reduce underachievement in basic skills to less than 15% and little progress has been achieved over the past decade. The underachievement rate stood at 21.7% in reading, 22.4% in mathematics, and 21.6% in science in 2018, the year of the latest PISA test. That means that Europe has to face a persisting challenge with more than one fifth of 15-year-olds demonstrating underperformance in basic skills that bodes ill for their chances in professional and private life. In reading, only four EU Member States met the 15% ET2020 benchmark: Estonia (10.2%), Denmark (14.6%), Poland (14.7%) and Finland (15.0%). On the other end, the underachievement rate exceeded 30% in Romania (46.6%), Bulgaria (44.4%), Cyprus (36.9%), Greece (35.8%) and Malta (30.2%). Several Member States have recently engaged in curricular reforms (Greece, Croatia, Lithuania, Netherlands, Latvia, Romania) to move to competence-based

⁸ Critics of the results of the ICILS survey have claimed that the Italian scores should not be directly compared with other countries because the pupils who sat the test were on average a year younger than in other countries.

education, reviewed evaluation and assessment methods (Cyprus, Lithuania), and strengthened quality assurance, but the results of these reforms are yet to be seen.

Socio-economic background is still the most important determinant of educational outcomes in the EU, hindering a sizable share of young people in acquiring an adequate level of basic skills and preventing upward social mobility. Its impact is particularly strong in Hungary, Romania, Bulgaria, Luxembourg, Slovakia and France. In the same vein, pupils with a migrant background seriously underperform in comparison with their peers in reading in Germany, Denmark, France and Portugal. Inequalities are partly driven by the concentration of pupils from similar backgrounds in certain schools and disparities in the quality of teaching across schools. To address inequalities, France has increased salaries of teachers working in disadvantaged schools and halved class size in the first two grades. Italy is taking steps to reduce regional gaps and plans to identify troubled schools in five southern regions. Support for language acquisition has been increased in Malta, Slovenia, Greece and Belgium (French Community) to support the integration of newly arrived migrants. Austria is piloting targeted funding for disadvantaged schools. Reforms have been recently launched to enhance inclusive education for learners with special educational needs in Poland, Ireland, Malta, Cyprus and Greece.

The performance of education systems largely depends on the quality of teaching, yet the teaching profession is faced with significant challenges across the EU. The teaching workforce is ageing in most Member States. In some countries (Estonia, Lithuania, Hungary, Portugal and Italy) more than half of the teachers are above the age of 50. Shortages of qualified teachers are emerging in the majority of Member States, which is largely due to the low attractiveness of the profession. According to the TALIS survey, only 18% of teachers think that the teaching profession is valued by society. Therefore, strengthening the teaching profession has been an important priority of governments in recent years. Several countries have been raising teacher salaries (Bulgaria, Czechia, Estonia, Croatia, Hungary, Lithuania and Slovakia) and increased budgets (Finland, Denmark) to address teacher shortages. Measures have also been taken to facilitate entry into the profession, for instance by easing requirements for initial teacher education or promoting alternative pathways to the profession (Belgium, Czechia, Estonia and Latvia), in particular from STEM fields. Latvia is introducing fast-track teacher training programmes for university graduates in the STEM fields, while municipalities offer bonuses for teachers who relocate from another region. Lithuania has developed a teacher forecasting tool, which will feed into initial teacher education. There are also efforts to better adapt the continuing professional development programmes to the needs of teachers.

In the period from 2015-2018, spending at the pre-primary and primary level has increased in almost all EU countries. Countries have also seen a slight increase in spending at the secondary and post-secondary (non-tertiary) level, while at the tertiary level spending has decreased slightly. Most EU countries have seen an increase in the number of students from 2013-2018. In the context of budgetary pressure and demographic trends, it is more important than ever to ensure that educational governance provides for efficient spending, while ensuring quality outcomes. Evidence shows that higher spending per pupil does not automatically translate into better educational outcomes. In this context, some Member States (Malta and Luxembourg) are improving external evaluation of schools and gathering evidence on the performance gaps to improve quality and reduce inequalities. To address the challenges linked to the shrinking student population and the low quality of education in some small, mostly rural schools, Latvia has engaged in the consolidation of the school network including through setting minimum requirements for school and class sizes. Croatia is developing plans with the assistance of World Bank to increase instruction time, optimise the school network and introduce modern management practices. In Sweden, authorities are working on national targets and indicators for monitoring school's activities to improve equity and to better understand schools' success factors. Austria is reforming education governance to give schools more autonomy.

Tertiary educational attainment (TEA) has seen its target value of 40% reached. In 2019, the EU-27 had 40.3% people aged 30-34 with a tertiary degree (at least ISCED 5). This means the EU-27 has raised the TEA rate by 9.2 pps in the past decade. Among countries with previously low TEA, that have now reached the target, Slovakia stands out as a success story with an increase from 17.6% up to 40.1% over 10 years. The progress has also been particularly significant in Austria (from 23.4% up to 42.4% and Greece (from 26.6% up to 43.1%). The Member States with the highest tertiary attainment levels among the 30-34 year olds are Cyprus (58.8%), Lithuania (57.8%), Luxembourg (56.2%), and Ireland (55.4). Countries scoring the lowest are: Romania (25.8%), Italy (27.6%), Bulgaria (32.5%) and Hungary (33.4%). Moreover, gender differences

persist across the EU. In Estonia, Lithuania, Slovenia, Latvia, Cyprus, Poland and Finland the gap is at least 18 pps. Finally, disadvantaged students' expectations to complete tertiary education are much lower (43.4%) than their advantaged peers' (82.3%).

The target for the employment rate of recent secondary and tertiary graduates was also almost reached in 2019, when the EU-27 was 1 percentage point short of the target of 82%. Even if progress in recent years has been slow, the 2019 score is the highest value since the financial crisis of 2008. There is a visible employment and wage premium for graduates, particularly tertiary graduates. However, many countries are faced with significant mismatches between labour market demand and the profile of tertiary graduates. In particular the share of STEM graduates is lowest in Cyprus, Netherlands, Belgium, Malta and Denmark, leading to labour shortages. Several Member States (Latvia, Greece and Poland) have launched or are planning major reforms of higher education. Recent measures include strengthening quality assurance mechanisms (Slovakia, Netherlands, Greece), introducing performance based funding models (Greece, Latvia), expanding student support systems (Italy and Hungary), increasing participation of students with disabilities (Luxembourg), promoting internationalisation and attracting foreign students (Greece, Slovakia, Poland and France). Countries have also been working towards increasing the quality and labour market relevance of the (vocation education and training) VET systems, e.g. by setting up a national monitoring system for VET graduates (Cyprus), launching graduate tracking (Spain), developing a labour market barometer (Czechia), updating the National classification (repertory) of professional role profiles (Italy), preparing a VET quality strategy (Finland).

Progress in increasing participation in learning among adults has been slow over the past decade, and participation across Member States remains highly uneven. In 2019, the participation rate of adults in learning stood at 10.8% on average in the EU-27, a small increase from 7.8% in 2010 and still far from the 15% target, which is reached by only seven Member States. Participation rates are lowest in Romania, Bulgaria, Croatia and Slovakia, with less than 5% of adults participating in learning. This compares to participation rates above 25% in the best-performing countries Sweden, Finland and Denmark. The countries with the most remarkable improvements since 2010 in excess of 5 pps are Estonia, Finland and Sweden, two of which were already among the best performers in 2010. Some countries have taken concrete actions to support upskilling (Czechia, Denmark, Slovakia) or increase access to training, including through financial support (France, Netherlands and Germany). Several Member States focused on improving their adult learning systems (Austria, Finland and Estonia).

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