EUROPEAN
COMMISSION

Brussels, 18.11.2022
SWD(2022) 751 final

PART 7/28

COMMISSION STAFF WORKING DOCUMENT

Education and Training Monitor 2022

Accompanying the document

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions

on progress towards the achievement of the European Education Area

{COM(2022) 700 final} - {SWD(2022) 750 final}

Education and Training Monitor 2022

ESTONIA

Directorate-General for Education, Youth, Sport and Culture

2022 EN

The Education and Training Monitor's country reports present and assess the main recent and ongoing policy development at all education levels in EU Member States. They provide the reader with more in-depth insight of the performance of countries with regard to the EU level targets agreed within the EEA. They are based on the most up-to-date quantitative and qualitative evidence available.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 focuses on how the Member State has addressed or is addressing one of its education challenges. Section 3 covers early childhood education and care. Section 4 deals with school education policies. Section 5 covers vocational education and training and adult learning. Finally, Section 6 discusses measures in higher education.

The Education and Training Monitor's country reports were prepared by the European Commission's Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL).

The document was completed on 30 September 2022
More background data at:
https://op.europa.eu/webpub/eac/education-and-training-monitor-2022/en/

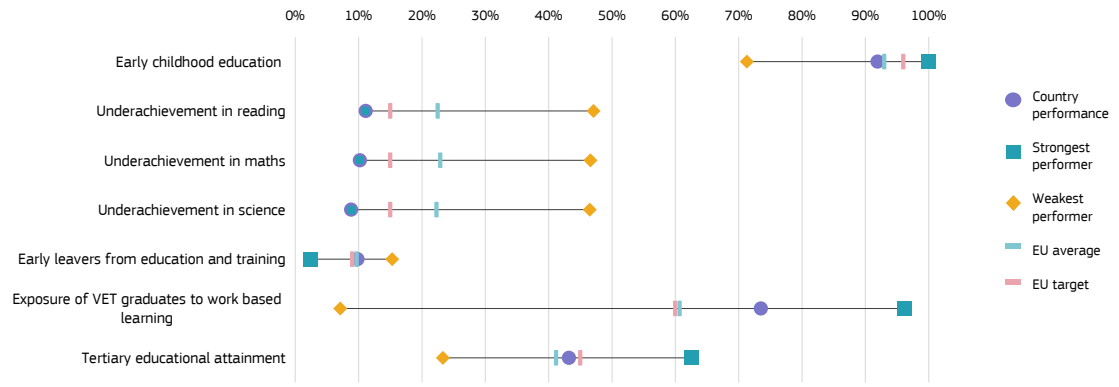
1. Key indicators

Figure 1: Key indicators overview

			Estonia		EU	
			2011	2021	2011	2021
EU-level targets		**2030 target**				
Participation in early childhood education (from age 3 to starting age of compulsory primary education)		≥ 96 %	89.6% 13	91.9% 20	91.8% 13	93.0% 20
Low achieving eighth-graders in digital skills		< 15%	:	:	:	:
Low achieving 15-year-olds in:	Reading	< 15%	13.3% 09	11.1% 18	19.7% 09	22.5% 18
	Maths	< 15%	12.6% 09	10.2% 18	22.7% 09	22.9% 18
	Science	< 15%	8.3% 09	8.8% 18	18.2% 09	22.3% 18
Early leavers from education and training (age 18-24)		< 9 %	10.6%	9.8% b	13.2%	9.7% b
Exposure of VET graduates to work-based learning		≥ 60 % (2025)	:	73.5%	:	60.7%
Tertiary educational attainment (age 25-34)		≥ 45 %	39.0%	43.2% b	33.0%	41.2% b
Participation of adults in learning (age 25-64)		≥ 47 % (2025)	:	:	:	:
Other contextual indicators						
Equity indicator (percentage points)			:	5.1 18	:	19.30 18
Early leavers from education and training (age 18-24)	Native		10.6%	9.6% b	11.9%	8.5% b
	EU-born		:	: bu	25.3%	21.4% b
	Non EU-born		: u	: bu	31.4%	21.6% b
Upper secondary level attainment (age 20-24, ISCED 3-8)			82.8%	85.9% b	79.6%	84.6% b
Tertiary educational attainment (age 25-34)	Native		38.6%	41.5% b	34.3%	42.1% b
	EU-born		: u	: bu	28.8%	40.7% b
	Non EU-born		48.4% u	66.6% b	23.4%	34.7% b
Education investment	Public expenditure on education as a percentage of GDP		6.1%	6.6% 20	4.9%	5.0% 20
	Public expenditure on education as a share of the total general government expenditure		16.3%	14.3% 20	10.0%	9.4% 20

Sources: Eurostat (UOE, LFS, COFOG); OECD (PISA). Further information can be found in Annex I and at *Monitor Toolbox*. *Notes*: The 2018 EU average on PISA reading performance does not include ES; the indicator used (ECE) refers to early-childhood education and care programmes which are considered by the International Standard Classification of Education (ISCED) to be 'educational' and therefore constitute the first level of education in education and training systems – ISCED level 0; the equity indicator shows the gap in the share of underachievement in reading, mathematics and science (combined) among 15-year-olds between the lowest and highest quarters of socio-economic status; b = break in time series, u = low reliability, : = not available, 09 = 2009, 13 = 2013, 18 = 2018, 20 = 2020.

Figure 2: Position in relation to strongest and weakest performers



Source: DG Education, Youth, Sport and Culture, based on data from Eurostat (LFS 2021, UOE 2020) and OECD (PISA 2018).

2. A focus on gender equality in education

Boys and men are overrepresented among those with lower educational achievement, while the labour market does not always reward girls' and women's higher levels of education. Boys leave school early almost twice as often as girls. While the gender gap in early school leaving has diminished over time, it is still the third highest in the EU, with 4.4 pps in 2021. Low achievement at the end of lower secondary school is much higher among boys (Government of Estonia, 2021a). Educational paths differ too: boys choose vocational education and training more often, while more girls continue in upper secondary general education (HaridusSilm, 2022). Consequently, male vocational education graduates significantly outnumber female graduates (see figure 3), while more girls graduate from university. As a result, the tertiary education attainment gap is among the highest in the EU (21.2 pps in 2021, EU average: 11.1 pps). Although Estonia boasts the highest share of women among ICT graduates across the EU, with 35.5%[1], women are still underrepresented both in ICT programmes and on the labour market, where only 22.1% of ICT specialists are female (2021 Digital Economy and Society Index). Lower participation of women in high-paying ICT jobs plays a part in the gender pay gap, which is the second highest in the EU[2]. While men have more leadership positions in education, science and research[3], schoolteachers are predominantly female: 85% across education levels, and 99.5% in early childhood education and care (OECD, 2019b).

Gender gaps throughout the education system are one of the bottlenecks in unlocking the population's full potential. Skills shortages persist, so gender segregation in education matters. For example, the jobs and skills forecasting system OSKA concluded that 2 600 new ICT professionals are needed every year – a number that the education system currently cannot supply (in 2020, 766 students graduated with an ICT degree)[4]. Finding a job is easier with higher levels of education: in 2021, 92.4% (EU: 84.9%) of recent university graduates found a job versus 70.6% of recent vocational education and training graduates (EU: 76.4%). Yet, implications of educational inequality might be broader: Estonians with a higher education diploma report being in good health more often than those

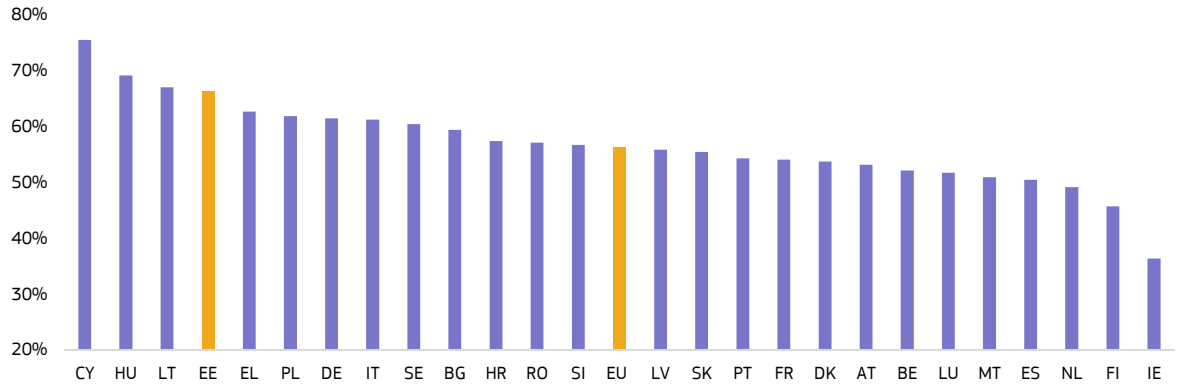
1 Eurostat [educ_uoe_grad02].

2 21.1%, compared to the EU average of 13%, unadjusted, Eurostat [SDG_05_20].

3 Gender Statistics Database of the European Institute for Gender Equality, indicator on decision-making in education, science and research.

4 Eurostat [educ_uoe_grad02].

Figure 3: Share of male graduates in upper secondary vocational education, 2020



Source: Eurostat (UOE), [educ_uoe_grad01]. Note: Data for CZ not available.

without[5]. The gender gap in life expectancy at birth is one of the highest in the EU (8.5 years in favour of women in 2020, EU average: 5.6 years)[6]. While the causal links between education, gender, employment and health need further research, governments should assess the broader indirect implications of gender inequality in education (Staring, Donlevy, & Day, 2021).

The Estonian government acknowledges gender gaps in education and their broader implications for society. Estonia's education strategy for 2035 highlights the importance of gender equality and recognises the need to organise learning in gender-sensitive ways. It mentions that from secondary school on, the choice of educational paths influenced by a person's gender might lead to socioeconomic inequality and labour market segregation. On the reasons for boys' lower performance, the strategy refers to 'differences in attitudes towards learning' (Government of Estonia, 2021a). The Gender Equality Act (§ 10) underlines that the design of curricula and study materials should help promote gender equality (Riigi Teataja (Official Journal), 2004). Consequently, the welfare development plan for 2016-2023 stipulated that gender equality would be systematically included in curricula, study materials, teacher education and continuous training at all educational levels (Ministry of Social Affairs, 2016). In practice, this is often not yet done (Anniste, Haugas, & Sepper, 2021). Finally, according to the Estonian language strategy for 2035, ensuring that everyone has good Estonian language skills will, inter alia, reduce gender inequality in education (Government of Estonia, 2021b).

Policies and measures addressing the gender gaps exist, but could be further consolidated. In an earlier report, the Education Ministry pointed out that Estonia is one of the few EU Member States that does not have a targeted policy to change gender norms and stereotypes in education (Valk, 2017). The report also suggested to take additional action to change gender stereotypes and gender-based behaviour in the school environment and in teacher education. The Education and Social Affairs Ministries collaborate on gender inequality on an ad hoc basis. The government takes measures to promote girls' participation in science, technology, engineering and mathematics (STEM)[7], but there are no specific measures to address boys' difficulties. Rather, existing programmes are seen as also benefiting boys[8]. While some argue that programmes should not be specifically targeted at boys to preserve inclusiveness in education, others maintain that a 'gender blind' approach undermines the effectiveness of policies and might reduce boys' chances to succeed.

Civil society stakeholders also take action. The Estonian Association of Kindergarten Teachers and the Estonian Women's Associations Roundtable organise a course to raise kindergarten teachers' awareness of how gender stereotypes influence children's development and lifestyles (Papp & Kütt, 2022). The organisation HK Unicorn Squad provides free learning resources (including tutorials and rooms) for setting up girls' tech groups. The aim is to raise girls' interest in engineering, robotics and natural sciences. Around 2 000 girls between 8 and 14 participate to date.

5 On average, 67.4% of Estonians with a university diploma state being in good or very good health (82% in the EU), whereas only 40.3% of Estonians without diploma do (56% in the EU) (Eurostat [hlth_silc_02]).

6 Eurostat [tps00208].

7 For example, the government's action plan for 2021-2023 includes the task 'Analysis and proposals for bringing girls and women into the field of ICT', for which the Social Affairs Ministry commissioned the study 'Glass walls and glass ceilings in Estonian ICT: nudges to increase women's representation in ICT education and the labour market'.

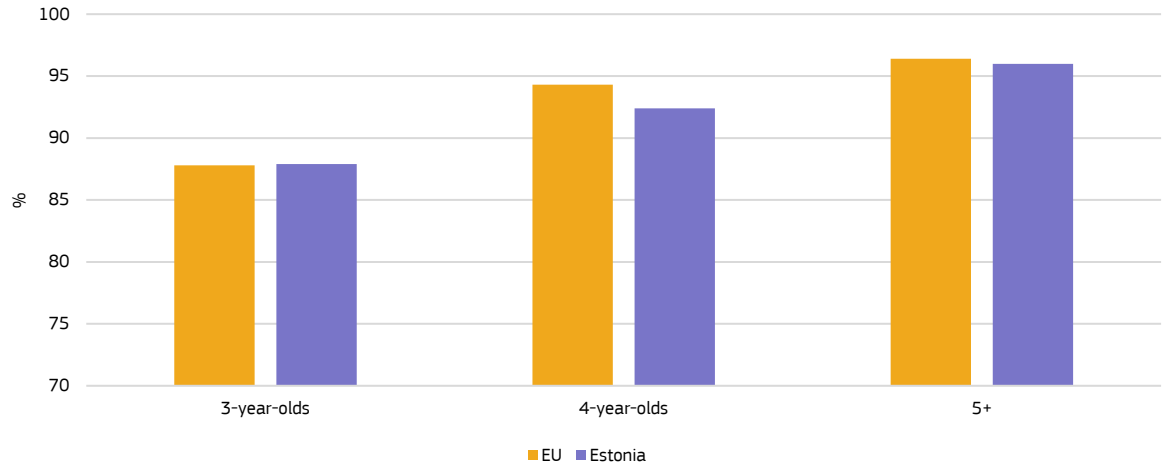
8 For example, the new action plan (running until 2027) for strengthening the Youth Guarantee (funding for innovative solutions to prevent early school leaving), ongoing work to better integrate non-formal and formal learning, and making better use of general competency tests to improve individual feedback to learners (https://harno.ee/uldpadevustestid#opipadevustest). Pursuing a learner-centred approach, one of the main aims of the education strategy is also seen as potentially benefiting boys, by making learning more flexible and interesting, thus increasing their motivation.

3. Early childhood education and care

Participation in early childhood education and care increases with children's age, but remains somewhat below EU average also for older children (see figure 4). Participation of children between 3 years and the starting age of compulsory education (7 years) stood at 91.9% in 2020, somewhat below the EU average of 93% and the national target of 95% by 2035. Among children below the age of 3, 26.7% were enrolled in childcare in 2020 (EU: 32.3%), a decline of 5.1 pps compared to 2019. The participation decline was almost 3 times higher among children at risk of poverty or social exclusion (-11.1 pps) compared to more advantaged children (-3.8 pps). The reasons might partly be linked to the COVID-19 pandemic when fees were waved for parents who were keeping their children at home. The availability of places remains an issue: in 2020, 7% of children between 18 months and 3 years did not get a place (Lang, Sandre, Kallaste, & Sõmer, 2021). Whereas the number of children aged 0-7 is forecast to decline by 11.2% by 2030, which somewhat reduces the pressure to increase the available offer, newly arrived children from Ukraine also attend childcare (1 685 children were enrolled as of 12.9.2022). To support their integration, local governments receive financial support per child and early childhood education and care institutions are provided with training, advice and learning resources.

A reform aims to improve accessibility and quality of early childhood education and care. According to the draft act, the development of children's general skills will be based on a national preschool curriculum from age 3 onwards (currently from age 6). These general skills cover playing, cognitive and learning, self-regulation and social skills. Local municipalities must offer all 1.5-year-olds a place in childcare within 2 months after receiving a request from the parents. Kindergartens will have to appoint a coordinator for children with special educational needs who organises support services. By 2027, each child group in a kindergarten should have at least one Estonian-speaking teacher to ensure Estonian language learning. The reform also creates a single legal framework for the entire sector, previously fragmented across education, social care and healthcare (Riigikogu, 2022a). The Estonian Association of Early Childhood Education Managers welcomed the draft law and called for its swift implementation. However, it recalled that

Figure 4: Share of children from age 5 to the starting age of compulsory education participating in early childhood education and care



Source: Eurostat (UOE), [educ_uoe_enra20], [educ_uoe_enra19], [educ_uoe_enra18].

inclusive education requires skilled staff, which is difficult to find, also given the low salaries in the sector (EAHJÜ, 2022). The Ministry of Social Affairs is leading the development of an action plan on support specialists, after the national auditor found shortcomings in this area (Riigikontroll, 2020). In 2021/22, local governments received EUR 15 million to, inter alia, fund support specialists.

The long-awaited reform faced hurdles in Parliament. In April 2022, after several consultation rounds with stakeholders, the government submitted the Preschool Education and Childcare Act to Parliament. The draft law was rejected at first reading in June, amid the break-up of the governing coalition. Various Estonian teachers' and headmasters' associations expressed their dissatisfaction with the rejection of the draft law (Eesti Haridustöötajate Liit, Eesti Lasteaednike Liit, Eesti Koolijuhtide Ühendus, Eesti Alushariduse Juhtide Ühendus, 2022).

4. School education

Addressing early leaving from education and training remains a priority under the new education strategy for 2035, adopted in late 2021. The early leaving rate was 9.8% in 2021, up from 8.5% in 2020. While this rate is in line with the EU average (9.7%), it can be considered high in the Estonian context: early school leaving and drop-out remain stumbling blocks to solving skills shortages and reducing the gender gaps in education (see sections 2 and 6). The strategy's first goal is to address the problem of early leaving and drop-out from all levels of education and training. Supported by the EU's Structural Reform Support Programme, the Education Ministry and the OECD have prepared indicators to measure progress in achieving the strategy's goals. This should strengthen monitoring practices and steer school improvement by helping local and central governments to take data-based decisions (OECD, 2021).

An action plan aims to improve the working conditions, training and career progression of teachers, and the image of their profession. Teacher shortages and ageing continue and negatively affect teacher qualification levels. School heads can sign 1-year fixed-term contracts with candidates that have at least secondary education if no qualified teacher can be recruited. As a result, in 2020/21, 57% of beginning teachers did not meet the qualification requirements (Ministry of Education and Research, 2022e). These teachers need flexible pathways towards qualification while working. The new action plan takes a broad approach by focusing on: (i) the quality of management and the organisational culture in schools; (ii) initial and in-service training for teachers and support staff; (iii) career and development opportunities; (iv) support throughout the career cycle, including support for beginning teachers; (v) involvement of support staff; and (vi) the attractiveness of the teaching profession. The first activities launched in 2022 are to create additional study places in teacher education and to open a teacher academy (Ministry of Education and Research, 2021b). The academy provides flexible opportunities for initial and continuous teacher education, in cooperation with Tallinn and Tartu universities. The lack of such opportunities and support for novice teachers had been identified as a reason for early drop-out from the profession.

Box 1: Professional development of teachers and school leaders

An EU-funded project issued policy recommendations to strengthen the teaching profession in Estonia (British Council, 2021). It concluded that the roles of school leaders and senior teachers need to be strengthened to improve teacher recruitment and retention. The career and pay progression framework should become more transparent. Proposals to improve continuous training included organising more in-school training and implementing an impact evaluation system. Another core feature of the project was the development of an analytical tool that allows teachers to analyse their teaching, select specific action steps and practice them with a learning partner. The tool is

supported by an online platform. The project was funded with EUR 300 000 from the EU's Structural Reform Support Programme.

More information available at: https://www.britishcouncil.ee/en/programmes/education/improving-system-professional-development-teachers-and-school-leaders

Estonia swiftly put in place support for children who fled Ukraine. The government provided additional study places at all levels of education, seminars for teachers on integrating displaced pupils and information sessions to local authorities. Support for students with special educational needs, language support and psychological help as well as educational counselling are also available to Ukrainian pupils and their parents (Ministry of Education and Research, 2022a). The "Freedom School" in Tallinn opened its doors for several hundred Ukrainian pupils in autumn 2022 (Ministry of Education and Research, 2022c), teaching the Estonian curriculum partly in Ukrainian. The EdTech and the public sector provide Ukrainan language e-learning resources free of charge. Almost 16 525 Ukrainian children and youth under 19 are registered in Estonia, of which circa 7 272 are enrolled in school (19.9.2022)[9].

Measures to mitigate the pandemic's impact on learning outcomes and mental health continue, while first ideas emerge to maintain the education system's resilience. The Education Ministry supports schools to bridge learning gaps: additional funding covers individual consultations, new diagnostic tools to identify learning gaps, additional lessons and the hiring of assistant teachers. In cooperation with the association of school psychologists, a free helpline was opened for students, educators and parents (Ministry of Education and Research, 2022d) (Riigikogu, 2022b). The education system will have to remain flexible and resilient also after the pandemic. A study suggested specific ways to help achieve this: (i) EdTech data could be better used for monitoring and feedback (learning analytics); (ii) teachers must receive assistance in developing a hybrid or digital pedagogy; and (iii) schools should provide systematic opportunities to acquire socio-emotional skills, which are important for successful learning, as the pandemic showed (Mägi, 2021).

Efforts to improve the teaching and learning of Estonian continue. The education strategy and the Estonian language strategy (Government of Estonia, 2021b) set the framework for Estonian language development. The education strategy envisages that 95% of lower secondary school graduates with Estonian as a second language will have a B1 level by 2035 (in 2019, this was 67.8%)[10]. The government provides funding to: (i) support pupils to learn Estonian; (ii) develop teachers' skills in teaching in multilingual classrooms; and (iii) help minority language students to learn their mother tongue better. The new government's coalition agreement from July 2022 aims to complete the transition to an Estonian-speaking education system already by 2030.

Box 2: Digital resources for creative learning at primary school

Against the background of the COVID-19 pandemic, a European Social Fund project supported learner-centred and interactive teaching. New learning material was developed that supports students' creativity, science-based thinking and learning skills with the help of creative and research activities, focusing on ICT subjects. Between November 2021 and May 2022, video tutorials and worksheets for teachers and learners were developed, covering

[9] Figures are regularly updated and available under: https://www.politsei.ee/et/eestisse-saabunud-ukraina-sojapogenike-arv (refugee numbers); https://www.hm.ee/en/news (enrolment numbers).

[10] A B1 language user understands the main points of standard input on familiar matters regularly encountered in work, school, leisure, etc. and can produce simple texts on familiar topics.

various phases of creative work: finding an idea, time planning, recording the work process, self-management, academic integrity, self-reflection and presentation. The European Social Fund contributed EUR 18 000 to the project.

https://e-koolikott.ee/et/oppematerjal/32173-Pohikooli-loovtoo-protsessi-toetav-digitaalne-oppevara

5. Vocational education and training and adult learning

The education strategy addresses challenges in vocational education and training (VET), especially developing work-based learning and better integration of general and upper secondary education by 2035. In 2020, 39.9% of upper secondary pupils were enrolled in VET programmes[11] (compared to an EU average of 48.7%). The number of VET students doing apprenticeships is increasing: in 2020/21, around 9% of VET students and 15% of VET graduates had done apprenticeships (up from 12.4% of graduates in 2019; the target being 21% by 2025). The introduction of a compulsory professional exam developed by employers and valued by them might have helped to increase this share. Young learners can enrol in preparatory studies enabling a flexible and student-oriented choice of the professional curriculum. Newly arrived students from Ukraine are also frequently enrolled in these preparatory studies. The purpose of integrating general and vocational secondary education is to add flexibility to education and to develop skills needed in the labor market; a common secondary education standard will be developed. The national implementation plan of the Council Recommendation on VET is linked to the education strategy for 2035 and its VET-related priorities and targets.

Distance learning in VET during the pandemic was challenging for most learners, but offered some opportunities as well. A recent study found that the experience of distance learning motivated teachers to use digital tools, to improve their digital skills, and to collaborate more effectively. For learners, distance learning was challenging: it was less effective compared to classroom learning and made acquiring new skills more difficult (Loogma & Sirk, 2021).

The recovery and resilience plan helps develop digital and green skills in VET. The support provided to the digital transition includes the development of VET curricula and micro-credentials as well as the renewal of professional standards and skills profiles. Workers' knowledge and skills related to the green economy are strengthened by updating the content of higher education and VET programmes, in-service training and retraining, and by introducing new technologies. The planning for training and mapping the skills needed is based on the analyses by the jobs and skills forecasting system OSKA. Professional standards are reviewed to add green skills.

The education strategy also aims to increase adults' participation in learning. It will do so by providing flexible learning pathways and additional retraining opportunities. The continued monitoring of skills needs will ensure that the acquired skills meet the needs of the labour market and support high value-added activities (Government of Estonia, 2021a). The aim is that by 2030, 52.3% of adults participate in learning every year, contributing to the EU target of 60%. Additionally, Estonia set a target of 25% of adults having participated in learning in the last month (this was 20% in 2019), to be reached by 2035. Indicators will be developed to monitor participation in informal learning. In the short run, the main priority for Estonia will be to restore training participation levels across various societal groups.

The COVID-19 pandemic negatively impacted participation in learning. Among 25-64-year-olds, participation fell from 19.6% in 2019 to 16.6% in 2020 but recovered to 18.4% in 2021. According to Statistics Estonia, recovery is slower among men, younger age groups, non-Estonians and people with higher education. During the

[11] Eurostat (UOE), [educ_uoe_enrs05].

pandemic, more online learning opportunities were created (Rosenblad, et al., 2020). The courses offered by the Education Ministry were primarily targeted at low-skilled people or people needing reskilling (Ministry of Education and Research, 2021a).

Reforms and investments included in the Estonian recovery and resilience plan support skills development. Secondary legislation setting out the terms of support for the development of digital and green skills entered into force: both employed and unemployed people can upskill and retrain in ICT and have skills acquired outside formal learning recognised. The My First Job scheme and the Youth Guarantee action plan contribute to reducing youth unemployment.

6. Higher education

Tertiary education attainment is high, but men and those living in rural areas lag behind. In 2021, 43.2% of Estonians between 25 and 34 held a university degree (EU average: 41.2%), a 3.1 pps increase from 2020. Despite this relatively high rate, some disparities persist: in addition to the gender gap (see section 2), the rural-urban gap stood at 22.2 pps in 2021 (21.8 pps in the EU). A recent study found that making tuition free in 2013 did not attract more people from rural areas to higher education. Their lower participation might rather be the result of peer effects, information asymmetry and insufficient financial support: rural families have fewer peers who go to university and are less well informed about the benefits of higher education, and the available needs-based grants might be too low (Põder & Lauri, 2021). Another reason could lie in the challenge of combining work and studies: more than half of students worked regularly in 2018-2020, a share clearly above the OECD average (Arenguseire Keskus, 2022). While gaining experience can be a motivation for working, 45% of students said that they could not afford to study without their paid job (Hauschildt, Gwosć, Schirmer, & Wartenbergh-Cras, 2021).

High drop-out rates and low graduation on time pose challenges to the labour market – and to universities' finances. According to the education strategy, the population's labour market potential is not achieved due to high drop-out rates from higher and vocational education (Government of Estonia, 2021a). While drop-out has decreased in recent years, it is still high (the average drop-out rate during the first study year fell from 22.3% to 18.4% between 2016 and 2021 and the overall drop-out rate fell from 16.1% to 11.7% in the same period). Graduation within nominal time is one of the performance indicators that determine the amount of universities' funding. To prevent drop-out and increase graduation on time, the Education Ministry encourages universities to provide innovative teaching tools and pedagogies, student-centred approaches to learning, support services, in particular to newcomers, and flexible study arrangements that better allow students to combine work and studies.

Universities ask for public funding to increase to 1.5% of gross domestic product, from the current 1.1%. Public funding for universities has substantially decreased over the last decade (Bennetot Pruvot, Estermann, & Stoyanova, 2021). Since January 2022, universities have refused to sign their annual agreements with the state, asking for a substantial funding increase – an unprecedented situation. Government and higher education institutions are also discussing the indicators for the performance-based funding (20% of activity-based funding).

How to make higher education accessible to many, while ensuring high quality and low costs, is part of a wider debate. While the government does not envisage fundamental changes to the funding model, it is taking measures to create possibilities for universities to increase their revenues: in May 2022, it proposed to provide students with incentives to finish their degrees on time (Ministry of Education and Research, 2022g). Tuition fees can already be collected from students enrolled part-time or doing micro-credentials and for English-language

programmes. Some warn that this could lead to Estonian losing its importance as a research language, and that micro-credentials might be affordable only for some – even though flexible learning opportunities are urgently needed. The University of Tartu concluded that tuition should remain free, and that a large-scale, state-guaranteed, income-contingent student loan system should be introduced (state-guaranteed loans exist, but grants are more widespread) (Silm, Tiitsaar, & Valk, 2022). Already in 2019, the National Audit Office had concluded that the higher education funding model was unsustainable, and had called for a reform (Riigikontroll, 2019).

A PhD studies reform aims to offer attractive career paths to researchers and strengthen university-business cooperation. In 2022, Parliament adopted a doctoral studies reform, amending the Higher Education Act and the Study Allowances and Study Loans Act. PhD students will no longer receive grants; they will sign job contracts as junior researchers, which entitles them to social protection. They can also study for a 'transfer of knowledge doctoral degree' if they work for a company that has a partnership with their university. Such degrees should strengthen university-business cooperation and allow researchers to continue to work for the company after graduating. Pursuing a PhD without a research contract remains possible too. The reform also made the terms and conditions of student loans at private banks more favourable for students (Ministry of Education and Research, 2022b).

7. References

Anniste, K., Haugas, S., & Sepper, M. (2021). Preliminary analysis on gender mainstreaming in teacher education. Praxis. Retrieved from https://www.praxis.ee/en/tood/gender-mainstreaming-teacher-education/

Arenguseire Keskus (2022). Eesti kõrghariduse hetkeseis ja väljakutsed (Higher Education in Estonia: Situation and Challenges). Foresight Centre. Retrieved from https://arenguseire.ee/wp-content/uploads/2022/02/2022_korghariduse_tulevik_luhiraport_korghariduse_hetkeseis_ja_valjakutsed.pdf

Bennetot Pruvot, E., Estermann, T., & Stoyanova, H. (2021). Public Funding Observatory, Report 2020/2021, part 2. European University Association. Retrieved from https://eua.eu/downloads/publications/eua%20pfo%20part%202%20report.pdf

British Council (2021). Policy Recommendations for the Professional Development of Teachers and School Leaders in Estonia. Retrieved from https://www.britishcouncil.ee/sites/default/files/policy_recommendations_for_the_professional_development_of_teachers_and_school_leaders_in_estonia_eng.pdf

EAHJÜ (2022). Position of the EAHJÜ on the draft Act on Early Childhood Education and Care (579 SE). Estonian Association of Early Childhood Education Managers. Retrieved from https://www.riigikogu.ee/download/b2959a93-186e-46cf-92ae-5d5df3f4a576

Eesti Haridustöötajate Liit, Eesti Lasteaednike Liit, Eesti Koolijuhtide Ühendus, Eesti Alushariduse Juhtide Ühendus (2022). Haridustöötajate avalik pöördumine seoses alushariduse ja lapsehoiu seaduse eelnõu (Public address of educators on the draft Pre-primary Education and Child Care Act). Retrieved from https://www.riigikogu.ee/download/074341b3-9885-41c6-9ec2-edddc935f751

Government of Estonia (2021a). Education Strategy 2021–2035. Retrieved from https://www.hm.ee/sites/default/files/haridusvaldkonna_arengukava_2035_kinnittaud_vv_eng.pdf

Government of Estonia (2021b). Estonian Language Strategy 2021-2035. Retrieved from https://www.hm.ee/sites/default/files/htm_eesti_keele_arengukava_2020_a4_web_en.pdf

Government of Estonia (2021c). Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021-2035. Retrieved from https://www.hm.ee/sites/default/files/taie_arengukava_kinnitatud_15.07.2021_211109a_en_final.pdf

Government of Estonia (2021d). Noortevaldkonna arengukava 2021–2035 (Youth Strategy 2021-2035). Retrieved from https://www.hm.ee/sites/default/files/noortevaldkonna_arengukava_2021-2035_kinnitatud_12.08.2035.pdf

HaridusSilm (2022). Retrieved from https://www.haridussilm.ee/ee/tasemeharidus/haridusliigid/uldharidus/uldhariduse-lopetajad

Hauschildt, K., Gwosć, C., Schirmer, H., & Wartenbergh-Cras, F. (2021). Social and Economic Conditions of Student Life in Europe. EUROSTUDENT VII Synopsis of Indicators 2018–2021. Retrieved from

https://www.eurostudent.eu/download_files/documents/EUROSTUDENT_VII_Synopsis_of_Indicators.pdf

Lang, A., Sandre, S.-L., Kallaste, E., & Sõmer, M. (2021). Alushariduse ja lapsehoiu uuring (Pre-primary education and childcare survey). Retrieved from https://centar.ee/failid/alushariduse_raport/

Loogma, K., & Sirk, M. (2021). Eriolukorrast tingitud distantsõppe kogemused ja mõju kutseharidusele (Experience of distance learning in an emergency situation and its impact on vocational education). Tallinna Ülikool. Retrieved from https://www.hm.ee/sites/default/files/tlu_raport_distantsope_kutseharidus_2810.pdf

Mägi, E. (2021). The school year 2020-21 in Estonia (Country report). Luxembourg: Publications Office of the European Union. Retrieved from http://dx.doi.org/10.2760/52883

Ministry of Education and Research (2021a). Haridus- ja Teadusministeeriumi arengukavade ja programmide 2020. aasta täitmise analüüs (Analysis of the implementation of the development plans and programs of the Ministry of Education and Research in 2020). Retrieved from https://www.hm.ee/sites/default/files/htm_arengukavade_ja_programmide_2020_aasta_taitmise_analuus.pdf

Ministry of Education and Research (2021b). Next Generation of Teachers Action Plan - Activities in 2022. Retrieved from https://www.hm.ee/sites/default/files/opetajate_jarelkasvu_tegevuskava_detsember_2021.pdf

Ministry of Education and Research (2022a). A Ukrainian-language school psychologists' helpline was opened in Estonia (press release). Retrieved from https://www.hm.ee/en/news/ukrainian-language-school-psychologists-helpline-was-opened-estonia

Ministry of Education and Research (2022b). Amendments to Act reforming doctoral studies receives approval of Riigikogu (press release). Retrieved from https://www.hm.ee/en/news/amendments-act-reforming-doctoral-studies-receives-approval-riigikogu

Ministry of Education and Research (2022c). 560 young Ukrainians begin their studies at the Freedom School of Estonia (press release). Retrieved from https://www.hm.ee/en/news/560-young-ukrainians-begin-their-studies-freedom-school-estonia

Ministry of Education and Research (2022d). Koolid kasutasid õpilünkade tasandamise toetust sihipäraselt (Schools used the support in a targeted way, press release). Retrieved from https://www.hm.ee/et/uudised/koolid-kasutasid-opilunkade-tasandamise-toetust-sihiparaselt

Ministry of Education and Research (2022e). Õpetajate järelkasvu arengusuunad kuni 2026 (Development trends for the next generation of teachers until 2026). Retrieved from https://www.hm.ee/sites/default/files/jarelkasvu_arengusuunad_aastani_2026_mai_2021.pdf

Ministry of Education and Research (2022f). Ministeerium korrastab eestikeelse õppe ja eesti keele lisaõppe toetusi / Ministry organises grants for studies in Estonian and additional Estonian language studies (press release). Retrieved from https://www.hm.ee/et/uudised/ministeerium-korrastab-eestikeelse-oppe-ja-eesti-keele-lisaoppe-toetusi

Ministry of Education and Research (2022g). Proposed legal amendment prompts students to choose specialisations wisely (press release). Retrieved from https://www.hm.ee/en/news/proposed-legal-amendment-prompts-students-choose-specialisations-wisely

Ministry of Social Affairs (2016). Welfare Development Plan 2016-2023.

OECD (2019a). PISA 2018 Results (Volume II): Where All Students Can Succeed (Chapter 7 Girls' and boys' performance in PISA). Paris: OECD Publishing. Retrieved from https://doi.org/10.1787/b5fd1b8f-en

OECD (2019b). TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners, TALIS. Paris: OECD Publishing. Retrieved from https://doi.org/10.1787/1d0bc92a-en

OECD (2021). Enhancing data informed strategic governance in education in Estonia. OECD Education Policy Perspectives, No. 47. Retrieved from https://doi.org/10.1787/11495e02-en

Papp, Ü., & Kütt, R. (2022). Elukutsevalik algab lasteaiast (Professional choices start in kindergarten). Retrieved from https://opleht-ee.translate.goog/2022/03/elukutsevalik-algab-lasteaiast/?_x_tr_sl=et&_x_tr_tl=en&_x_tr_hl=de&_x_tr_pto=wapp

Põder, K., & Lauri, T. (2021). The Paradox of State-Funded Higher Education: Does the Winner Still Take It All? Education Sciences 11, no. 12, 812. Retrieved from https://doi.org/10.3390/educsci11120812

Riigi Teataja (Official Journal) (2004). Gender Equality Act. Retrieved from https://www.riigiteataja.ee/en/eli/ee/507032022002/consolide/current

Riigikogu (2022a). Alushariduse ja lapsehoiu seadus 579 SE (Pre-primary Education and Childcare Act). Retrieved from

https://www.riigikogu.ee/tegevus/eelnoud/eelnou/fa9e8969-7a92-4870-934d-185c9f69ac43/Alushariduse%20ja%20lapsehoiu%20seadus

Riigikogu (2022b). The Riigikogu received an overview of the developments in education and research (press release). Retrieved from https://www.riigikogu.ee/en/sitting-reviews/the-riigikogu-received-an-overview-of-the-developments-in-education-and-research/

Riigikogu (2022c). Riigikogu concluded the first reading of the Bill on supplementary budget (press release). Retrieved from https://www.riigikogu.ee/en/sitting-reviews/riigikogu-concluded-the-first-reading-of-the-bill-on-supplementary-budget/

Riigikontroll (2019). Outcomes of reform for transition to free higher education are patchy. Retrieved from https://www.riigikontroll.ee/tabid/206/Audit/2489/language/en-US/Default.aspx

Riigikontroll (2020). Availability of education support services. Retrieved from https://www.riigikontroll.ee/DesktopModules/DigiDetail/FileDownloader.aspx?FileId=14731&AuditId=2516

Rosenblad, Y., Tilk, R., Mets, U., Pihl, K., Ungro, A., Uiboupin, M., & Leoma, R. (2020). COVID-19 põhjustatud majanduskriisi mõju tööjõu- ja oskuste vajaduse muutusele (Impact of the economic crisis caused by COVID-19 on changes in labor and skills needs). Tallinn: SA Kutsekoda, tööjõuvajaduse seire- ja prognoosisüsteem OSKA.

Silm, G., Tiitsaar, K., & Valk, A. (2022). Kõrghariduse rahastusmudelid ja nende muutmise võimalikud mõjud - Teaduskirjanduse analüüs (Funding models for higher education and possible implications for change - Analysis of the scientific literature). Tartu Ülikool (University of Tartu). Retrieved from https://ut.ee/sites/default/files/2022-04/K%C3%B5rghariduse%20rahastamise%20muutuse%20v%C3%B5imalikud%20m%C3%B5jud.pdf

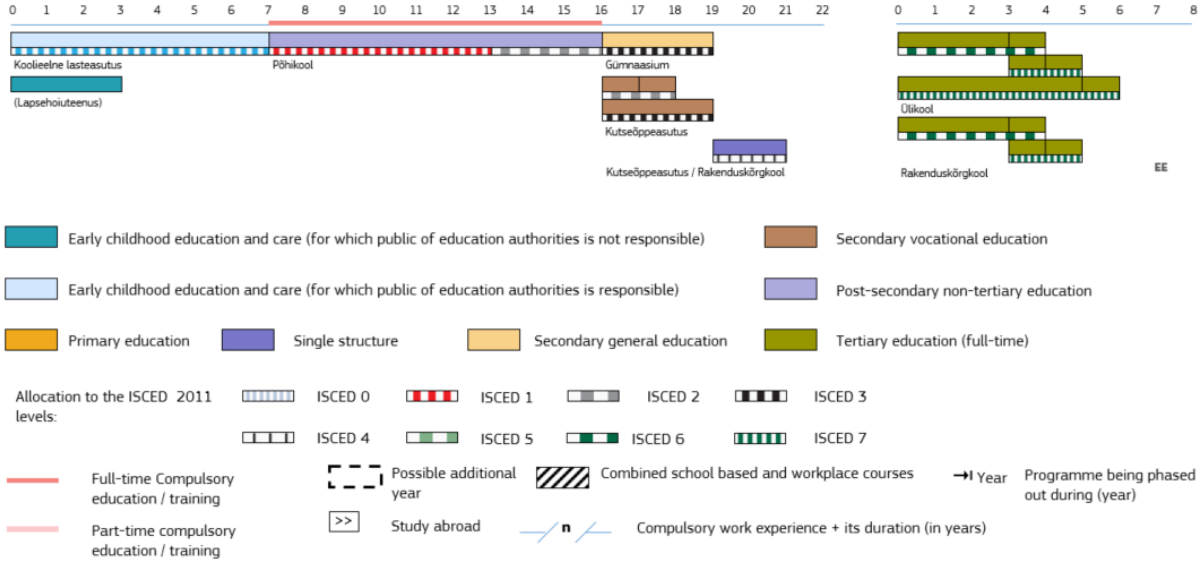
Staring, F., Donlevy, V., & Day, L. (2021). Study on gender behaviour and its impact on education outcomes (with a special focus on the performance of boys and young men in education) : final report. European Commission, Directorate-General for Education, Youth, Sport and Culture. Retrieved from https://data.europa.eu/doi/10.2766/509505

Valk, A. (2017). Soolised lõhed hariduses (Gender Gaps in Education). Ministry of Education and Research. Retrieved from https://www.hm.ee/sites/default/files/haridusmin_soolised_lohed_hariduses.pdf

Annex I: Key indicators sources

Indicator	Source
Participation in early childhood education	Eurostat (UOE), educ_uoe_enra21
Low achieving eighth-graders in digital skills	IEA, ICILS
Low achieving 15-year-olds in reading, maths and science	OECD (PISA)
Early leavers from education and training	Main data: Eurostat (LFS), edat_lfse_14 Data by country of birth: Eurostat (LFS),edat_lfse_02
Exposure of VET graduates to work based learning	Eurostat (LFS),edat_lfs_9919
Tertiary educational attainment	Main data: Eurostat (LFS),edat_lfse_03 Data by country of birth: Eurostat (LFS),edat_lfse_9912
Participation of adults in learning	Data for this EU-level target is not available. Data collection starts in 2022. Source: EU LFS.
Equity indicator	European Commission (Joint Research Centre) calculations based on OECD's PISA 2018 data
Upper secondary level attainment	Eurostat (LFS),edat_lfse_03
Public expenditure on education as a percentage of GDP	Eurostat (COFOG), gov_10a_exp
Public expenditure on education as a share of the total general government expenditure	Eurostat (COFOG), gov_10a_exp

Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2022. The Structure of the European Education Systems 2022/2023: Schematic Diagrams. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Please email any comments or questions to:
EAC-UNITE-A2@ec.europa.eu