



REPUBLIC OF ESTONIA
**MINISTRY OF EDUCATION
AND RESEARCH**



Ministry of Education and Research summary of the annual analysis

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Introduction

Ministry of Education and Research annual analysis assesses the progress of strategic aims. The annual analysis also provides a more in-depth overview of the topics in focus of the ministry's areas of responsibility over the past years, by answering questions such as: why is this important, what is our current situation, which factors affect this, what have we done well and, if necessary, what more could we do.

In the analysis of 2016 we tackled the seven problems of education in Estonia: low participation rate of adults in lifelong learning, unattractiveness of the teaching profession, gender gaps in education, growing share of young people with lower education level, unpopularity of vocational education, modest results of the studies of Estonian as a second language and the school network not corresponding to demographics. Last year the focus was on the five strengths of Estonian education: good skills, salary increase of teachers, participation in youth work, learning STEM subjects in Estonian higher education and international students in Estonian higher education institutions. This year, a section is added to the indicator-based performance report, which discusses more thoroughly the educational pathways after basic school – transfers between different levels of education and to the labour market¹:

- What influences reaching upper secondary education in Estonia? Analysis based on information from the Estonian Education Information System (EHIS)
- Continuing studies after general upper secondary education
- Success of graduates on the Labour Market

In 2018, we will begin with the mid-term evaluations of the current strategies, which will help to give an evidence-based assessment on the effectivity and influence of their execution. In-depth assessment reports will be finished in 2019. The results of this annual analysis and mid-term evaluation will be used as input for planning the new education and research strategy for years 2020–2035.

¹ An analysis of teacher training graduates and new teachers will be added.

Main messages

The good news in education is that the **employment and salary of vocational education graduates has rapidly increased**, which shows an actual labour market need for specialists with professional skills. **Dropping out of vocational and general education is decreasing. At the same time, only 80% of young people acquire upper secondary education** and regional and gender-based differences play a major role in selecting the educational pathway after finishing basic school.

The share of young people with upper secondary education who do not continue in higher education in Estonia is increasing. Among those who continue their studies, there are fewer men, native Russian speakers and graduates of upper secondary schools further from the centrums. Only 9% of vocational secondary education graduates continue in higher education.

The share of STEM graduates in higher education is increasing, as well as the number and share of international students, especially in doctoral studies where every third student is a foreigner.

The participation of adults in lifelong learning has increased over the past two years; it is especially nice to see that the growth has been slightly faster among people with lower level of education.

Although the level of Estonian language skill is improving among the Russian speaking youth finishing upper secondary school, **achieving a sufficient Estonian language level by the end of basic school remains a challenge.**

The students, teachers and parents are, in general, happy with education. Bullying in schools is on the decline. The teaching profession is becoming more attractive.

Youth participation in youth work is on the rise and the level of youth satisfaction with youth work is high. The number of organised participation opportunities in local governments is a challenge.

There are several indicators in research that reflect the **good level of the work of Estonian researchers**. The research money won in the European Union (EU) research and development framework programme Horizon 2020 was 1.3 times more than the EU average per resident. **Estonian research is strong, however, cooperation with business and the innovative capability of companies remains low.** The ratio of RD investments coming from the public and private sector to the GDP has had a negative trend over the past five years, the contribution of the private sector has remained stable over the last three years.

The number of doctoral thesis defences has increased over the past years, which is the result of a high admittance rate around 2010. The growth is not sustainable because admittance to doctoral programmes is on the decline.

Estonian as a mother tongue skill remains stable, the skill of Estonian as a second language has not significantly improved. Learning Estonian abroad or creating options for that in Estonia is important to both create and maintain motivation for return, but also to make coping in Estonian society and schools easier for those returning. **Foreign language skill among upper secondary education graduates is improving, a major concern is the large gap between the English skill of people with Estonian and Russian native language,** because this skill is an important competitive factor on the labour market.

Performance reports summary

Education

- 1) **Share of children aged 4–6 has increased in preschool education** and was 93.6% in 2016². There is no central information on those not participating. It is believed that these children are either in day care, have not found a kindergarten place for themselves, are at home with parents or grandparents according to the parents' wish or have moved abroad with their families without notification to the population register.
- 2) **The share of young people aged 18–24 with a low level of education who are not studying** is 10.8% in Estonia (according to the Estonian labour force survey) and that has remained unchanged over the past years. The aim of the lifelong learning strategy is to reduce the share of these youth to fewer than 9% by 2020.
- 3) **Changes in student numbers vary greatly per region.** The number of basic school students has grown over the past decade only in Harju and Tartu counties, the largest decrease in the basic school student numbers is visible in Hiiu, Jõgeva, Võru and Põlva counties. According to the forecast, the number of full time students will continue to grow until 2023, the years of fastest growth are coming.

There are 530 general education schools operating in Estonia in academic year 2017/2018 – 351 elementary and basic schools, 164 upper secondary schools and 15 adult upper secondary schools. There are 12 state-owned upper secondary schools in 10 counties and the plan is to open 24 state-owned upper secondary schools by 2023.

Over the past ten years, the number of schools has decreased by 52, over the past year by 5. The decline has concerned mainly the municipal schools with upper secondary level – from the schools operating ten years ago, 2/3 still operate as upper secondary schools. At the same time, the number of upper secondary school students has decreased even further – by 40% on average in the counties, less only in Tartu and Harju counties. These changes create great expectations for continuation of the school network reform. The aim for 2020 is to organise the school network even better, so Estonia would have approximately 100 schools with upper secondary level.
- 4) **The distribution of basic school graduates between vocational and general upper secondary education** has not changed in the past 10 years. The aim for 2020 is division 35/65 but over the past five years 26–28% of basic school graduates have opted for vocational education and 72–74% have selected general upper secondary education. The data from EHIS shows, however, that a significantly larger number of young people find their way to vocational education within 3 years after finishing basic school – 37%. The “Success on Labour Market” analysis conducted last year shows that the salary after graduating vocational education has grown faster than that of those finishing higher education, which means there is hope that vocational education, too, will be valued more.

²Source: Estonian Education Information System (henceforth EHIS); EUROSTAT indicator goal for 2016 – 92.6%.

- 5) **The study and career counselling system** was fully launched in 2015 and the number of students who have had assistance from the programme has increased: nearly 90,000 children and young people got study counselling and career services between 2014–2017. The work of *Rajaleidja* centres in advising parents and education workers is also very copious and considerably more extensive than planned. *Rajaleidja* centres have reached most small schools. The number of students needing support is growing and although the number of support specialists is also on the rise, in academic year 2017/2018, still less than a third of schools had a psychologist and a special education teacher, and less than half the schools had a speech therapist and a social pedagogy specialist. The main hindrance of development in the area is the shortage of study counselling specialists, above all special education teachers and psychologists. A reform of the provision of career services is being prepared with the aim to join the career service systems of the Estonian Unemployment Insurance Fund and *Rajaleidja* centres.
- 6) The share of **people aged 30–34 with higher education** has increased, which in 2017 was 48.4% of the age group. The target for 2020 is 40% for both Estonia 2020 and Europe 2020. Rapid changes are ongoing among higher education students: the number of students is declining, the age is rising (within ten years the average age has gone up from 25 to nearly 27) and the group is becoming more international. The selections of subject areas have also changed: the ICT area is on the rise, the fastest decline has hit the number of graduates of social sciences, incl. teacher training.
- 7) **Short-term student mobility of Estonian higher education students** is low compared to the targeted 10% (2.2% in 2017) but has seen a stable increase over the last years. The number of **international students** has more than doubled in the last five years (academic year 2012/2013: 1,876 international students; 2017/2018: 4,394). International students already comprise 9.5% of all higher education students. The share of international students is 15% in master's and 17% in doctoral programmes. Hopefully the new **financing model** established in 2016, the aim of which is to motivate the higher education institutions to contribute more into reaching the strategic goals (incl. internationalisation) will help to increase the short-term migration and number of international students.
- 8) **The share of graduates in natural and exact sciences, technology, ICT, production and construction (STEM)** in higher education has increased over the last years and was 28.9% in 2017, which is also the goal set for 2020 (29%). Increasing the share of STEM graduates is an aim set for considering the needs of both replacing the labour force and increasing output. However, the differences between demand and supply are vast in STEM subjects. The demand is high for ICT specialists and the shares of students and graduates continue to grow. In the area of technology, several fields have a substantial shortages of specialists, but the numbers of graduates are declining. In several fields of natural sciences the demand on the labour market and the salaries are rather low, which means many graduates continue learning and do not enter the labour market.
The share of STEM graduates in higher education has been affected by speciality grants, IT Academy programme, incl. the companies of the sector supporting the programme, measures to popularise STEM and research and measures supporting internationalisation,

mobility and progeny of higher education. The selections of young people are surely also affected by the labour market perspectives.

- 9) **Teachers' salaries have increased by more than 60% over the last five years:** if the average gross monthly salary of a municipal school teacher was just over 800 euros in 2012, then by 2017 it had increased to 1,281 euros and comprised 105% of the average salary in Estonia. Increasing teachers' pay continues to be a strategic goal of the state. The aim is that by 2020, the average salary of a teacher would be equal to or higher than the average pay of an employee with higher education and 120% of the state average. Considering the growth of the state average, reaching this aim poses a challenge. The salary of preschool teachers is considerably lower. In 2016, the average gross salary of a municipal preschool teacher was 819 euros, which is more than 300 euros, or a quarter less than the state average. As of 2017, additional support is allocated to municipalities to motivate them to raise the preschool teachers' salaries. The local governments that have increased the salary of preschool teachers with higher education to 80% from the valid schoolteacher salary by 1 September receive the support. According to the initial data for 2017, the average gross salary of preschool teachers was 936 euros, which is 285 euros less than the state average. In relation to the same topic, a goal is set for the share of labour costs in the education expenses of the government sector to be 60% by 2020. In 2016 the labour costs were 67.4%, thus we have reached the goal.

A small positive change has happened with the competition for places in teacher training, which in 2016 was less than average of all curricula (average – 1.0, teacher training competition – 0.9), but reached the average level (1.0) in 2017. The competition increased on the curricula of preschool teacher training and on the curricula of general education and vocational education teacher training.

- 10) **The share of adults (aged 25–64) without professional and vocational education** was 28.6% in 2017 and has remained on this level for the past 3–4 years. Those with basic education or lower are the most vulnerable on the labour market. Such people form more than half of the people without professional and vocational education among people aged 25 to 40.

To reduce the share of people without professional or vocational education, it is important to decrease the number of dropouts in formal education and raise the share of adults in vocational and higher education. A positive trend in recent years is the rapid increase of adults (25+) in vocational training: their share had increased to 37% or 8,866 learners by 2017 (compared to 23% or 6,101 learners 5 years ago in 2012). Similarly, the number of dropouts in vocational education, basic and general upper secondary education has decreased. The number of dropouts at the beginning of studies (last year 22%) has remained unchanged in higher education. The goal set in the lifelong learning strategy for 2020 is to reduce the share of adults without professional and vocational education to 25%, which is difficult to achieve.

- 11) **Adult (25–64) participation in lifelong learning** jumped last year and reached the highest level of all times. During the four weeks preceding the Estonian Labour Force Survey³,

³ The survey assesses the situation on the Estonian labour market. The gathered data is used to observe the economy and labour market and to assess the influence of state politics.

17.2% of adults were acquiring further education or participated in training in 2017; the share of participants year before that was 15.7%. Rate of participation in lifelong learning has increased mainly thanks to participation in informal learning. The participation rate has increased 30% in the past 5 years, more than average among people with lower education levels (basic education and lower), which is very positive. Greater participation of adults with lower education levels was definitely aided by the free training courses offered by the Ministry of Education and Research and funded by the European Social Fund. More than 13,000 adults acquired skills at the free courses in 2017 and 93% of them received a certificate.

- 12) **The share of Russian basic school graduates with at least B1 level Estonian skill** has slightly improved since 2011 (56% – 2011, 57% – 2017), but reaching the aim set for 2020 (90%) is unrealistic. To give a better overview of the Estonian language skill development of all children with a mother tongue different from Estonian, regardless of whether they learn in Estonian, Russian or language immersion programme, we also observe, in addition to the aforementioned, the Estonian skill of the basic school graduates with a **different mother tongue than Estonian** – in 2017, 65.7% of them achieved at least B1 level. Participating in the language immersion programme (in 2017, 86% of basic school graduates achieved B1 level Estonian in the language immersion programme) and acquiring education in an Estonian speaking environment (99%) provided great results. During academic year 2017/18, 30% of all full-time basic school students with a mother tongue other than Estonian are learning in language immersion programme or Estonian language basic school, during the last year, the number of students in Estonian language schools increased.
- 13) **After the upper secondary schools transferred to learning in Estonian language**, the Estonian skill of the upper secondary school graduates has improved. Before the transfer, 23% of graduates did not achieve level B2; in 2017, only 17% failed to achieve this level.
- 14) In academic year 2017/2018, Estonian schools employed nearly 15,000 teachers whose language skills meet the requirements⁴, in vocational education institutions 93% of the 2,062 teachers meet the language requirements and in preschool childcare institutions 91% of 7,909 teachers.

Youth affairs

- 1) When the current situation in youth affairs assessed, it is important to bear in mind that the number and share of young people among the population is on the decline. The number of young people living in Estonia in early 2012 was ca 303,000, but it had dropped to ca 279,000 by early 2017. According to the forecasts of Statistics Estonia, the share of young people among the total population will continue to decrease until 2020. Although the migration balance has been positive over the past years, the number of young people will not spike any time soon.

⁴ Teachers teaching in Estonian language or teaching Estonian language - at least C1, all other teachers - at least B2.

- 2) Results of youth work have been positive over the last five years. Participation of **young people in youth work** has increased, i.e. the proportion of young people participating in hobby education, camps, work camps or who participated in activities or participation councils of national youth associations that received annual support. In 2010, the rate was 37%, in 2017, it was 54% and the goal for 2020 is 60%. More than half of all hobby school students study in the field of sports, and almost a third in the fields of music and art. Participation in other fields is lower. The rate of participants in the fields of technology and nature is particularly small: only a little over 3% of all hobby school students. The **regional accessibility of youth work**, measured by the number of young people per hobby schools (428) and youth centres (996), has significantly improved. The aims for 2020 are respectively 400 and 1,000.
- 3) The number of organised participation opportunities (youth councils etc.) is a challenge. There were 70 of them in 2017 (the target for 2020 being 200), which is 20 less than in 2016. The reason is the merging of local governments.
- 4) In 2015, the level of youth satisfaction with youth work was measured for the first time. The average satisfaction rate was 86% for all activities (the share of those satisfied or very satisfied), more precisely **91% are satisfied (incl. 64% very satisfied) with hobby education activities**. The same survey conducted again in 2017 showed that the level of satisfaction has remained the same.

Research and innovation

- 1) **Publishing activity**, which reflects the activity of scientists and the high level of science, has increased (to 1600 peer-reviewed articles per million residents in 2016). With this the aim set for 2020 (1,600 articles) is reached. The aim for 2014–2020 set in the Estonian research, development and innovation strategy (RDI) is to reach a level where 11% of high-level Estonian scientific articles would be among the top 10% most cited articles in the world. It has been 7.4–8.2% over the past five years and 8.0% in 2016 (European Innovation Scoreboard, 2017).
- 2) **The level of research and development (R&D) investments in Estonia** has been declining since 2012: from 2.31% of GDP (2011) to 1.28% (2016), incl. a decrease in business sector investments from 1.48% to 0.68%. The aim for 2020 is that the share of R&D expenses would make at least 2/3 i.e. 67% of the total R&D costs. Public sector's contribution (0.6%) has also reduced as a share in the GDP, which was 0.7–0.8% in previous years. Compared to 2015, R&D commissioned from the public sector by the business sector increased, representing 6.3% of the R&D volume of the public sector in 2016. The target for 2020 is 7%. The Estonian R&D system is highly project-based and characterised by a large share of foreign sources of funding (structural funds and Horizon 2020), especially in the case of research and development in the public sector.
- 3) In the last four years, **the share of export of high-tech products and services** has accounted for 14% of total export (2015: 15.4%) and in 2014, we surpassed the EU average as well as our own target for 2020: 15%. The share of high- and medium-high-tech sectors in total employment has grown from 6.7% to 8.3% in the past five years (2016) with the goal for 2020 set at 9%. Indirectly, the contribution of research into economy is indicated by the efficiency of companies per worker (% from EU average), which in 2016 was 71.8% and is behind the goal for 2020 (80%).⁵
- 4) **The number of doctoral graduates** was 253 in 2017. This is the highest indicator in the last five years, but the target set for 2020 (300 graduates per year) remains distant. One account for the rise of efficiency in doctoral studies could be the number and share of international doctoral students, which has increased over the past five years: In 2017, 17% of the doctoral students and every third student admitted to doctoral programmes were foreigners. Attention must be paid on how to use their potential after they graduate.
- 5) **Estonia's position in the European Innovation Scoreboard** has remained relatively stable over the last five years (13th–15th place). Estonia's position has although weakened somewhat, we have fallen to the medium innovators group and 15th place on the 2017 board is lower than in previous years. This can partially be attributed to the fact that board preparation bases and index calculation methods were amended in 2017. It is rather unlikely that Estonia would reach the 10th place set as an aim for 2020.

⁵ However, the efficiency growth forecast by Bank of Estonia for 2017 is positive, see <https://www.eestipank.ee/press/proгноos-eesti-majandus-joudmas-kasvutsukli-haripunkti-19122017>

Estonian language and way of thinking

- 1) The indicators of **native language skills** are stable or positive, e.g. the results of the final examinations in upper secondary schools and basic schools have seen stable improvement in the past years, although there was a minor fall-back last year.
- 2) Over the last years, **the number of students studying Estonian language** has been stable in foreign universities (academic year 2017/2018 – 950), the number of children learning Estonian abroad has increased (3,500), as well as the number of language courses taught in general education and Sunday schools, associations, preschools, child groups and language classes (80). Studies of Estonian language and culture is supported in 30 different higher education institutions, incl. nine with lecturers sent from Estonia. It is estimated that about 150,000–200,000 Estonians are currently living abroad. According to the data by Statistics Estonia, the number of migrants coming to Estonia, incl. those with Estonian citizenship and/or born in Estonia, has spiked since 2015. The survey of the returners ordered by the Ministry of Education and Research in 2017 highlighted that the major issues the returners have, according to themselves and the educational institutions, are related to the Estonian language skills of children.
- 3) **The share of non-Estonians who speak Estonian** has overall increased in the last 10 years but has remained at more or less the same level in recent years. The main improvement is visible with the Estonian language skill of people other than Estonians aged up to 30. In order to cope in the Estonian labour market, very good Estonian language skills are necessary. 41% of the people other than Estonians are active language users, however the amount of those with very good language skills is more than twice less (15% in 2012).
- 4) **Foreign language skill is improving but the gap between the English skill of Estonians and Russians is wide.** At the national examination, 57.4% of the youth achieved at least B2 level in 2017, which is 8 percent points more than in 2016 and more than the aim set for 2020. Improvement covers the skills of English, Russian and German. Learning a first foreign language is obligatory from third grade in Estonian general education schools. The number of children who start learning at least one foreign language in first grade (2017 – 11.9%) or second grade (2017 – 41.7%) has increased over the past five years.

In Estonian schools (just like elsewhere in Europe), English is a popular foreign language – more than twice as many students are learning it than the second most popular, Russian (2016/2017 academic year). The foreign languages skill influence survey completed at the beginning of 2018 showed that English is also useful in the labour market, very good English skill provides a considerable salary increase in most areas. Foreign language skill of citizens with other native languages needs attention. According to PIAAC, in the youngest surveyed group (16–24), those who do not have English language skills is only 4% among Estonians, whereas it is more than every fourth person (27%) among Russians.

Governance (archiving)

- 1) The historic change came along with **adopting the new National Archives main building Noora in 2017**. The archive is once again capable of accepting documents from institutions, the shortage of vault space that lasted for years came to an end. **Preserving conditions improved significantly, ca 85% of records are properly stored by now**. Several innovative work organisational and technical solutions were implemented in the area of use, which made customer service faster and better. Noora has made the entire organisation more compact and also visible. 2017 is marked as the year of strong development of archive pedagogics, opening Noora and other buildings to the students of general education school and university students.
- 2) In the area of archiving, the availability of records online has consistently improved (18.5 million images available, aim for 2020 is 20 million), over the last year, the number of archiving units that have delivered digital archives has increased (total 8, previously 5) and the share of those archiving units whose main activity documents have been assessed has increased (96.4%). It is realistic to achieve by 2020 that the main activity and management function documents of all archiving units have been assessed.
- 3) The preparatory works of establishing the Tallinn centre (film archive) have reached the phase of analysing cooperation possibilities with institutions that have similar tasks. Most likely, this process will reach its investment preparation phase in early 2018. **The aim for 2018 is to start the construction works of the Tallinn centre of the National Archives**.
- 4) The main challenge of 2017 was keeping different web services – different search and information systems in work and developing these, and offering software related solutions for accepting and preserving information that is created in digital form, the work continues in 2018.

Study pathways after finishing basic school: transfer between different study levels and to the labour market

What influences reaching upper secondary education in Estonia? Analysis based on information from EHIS.

Why is this topic important?

Currently, the number of people with at least upper secondary education is above that of the EU average. If in the EU, the average number of people with at least upper secondary education is higher among younger age groups than in older age groups, then in Estonia the picture is in reverse (see Figure 1). **The number of people without upper secondary education is increasing among younger age groups.** In order to cope in the fast changing world, it is necessary to have good cognitive skills⁶ with professional skills. Acquiring upper secondary education contributes significantly to developing the cognitive skills and supports acquiring the professional skills of next education levels, incl. professional skills. **Although the skills of young people with basic education are very good, not reaching the upper secondary education may mean more severe social risks in the longer perspective and not realising the potential of Estonian human capital.**

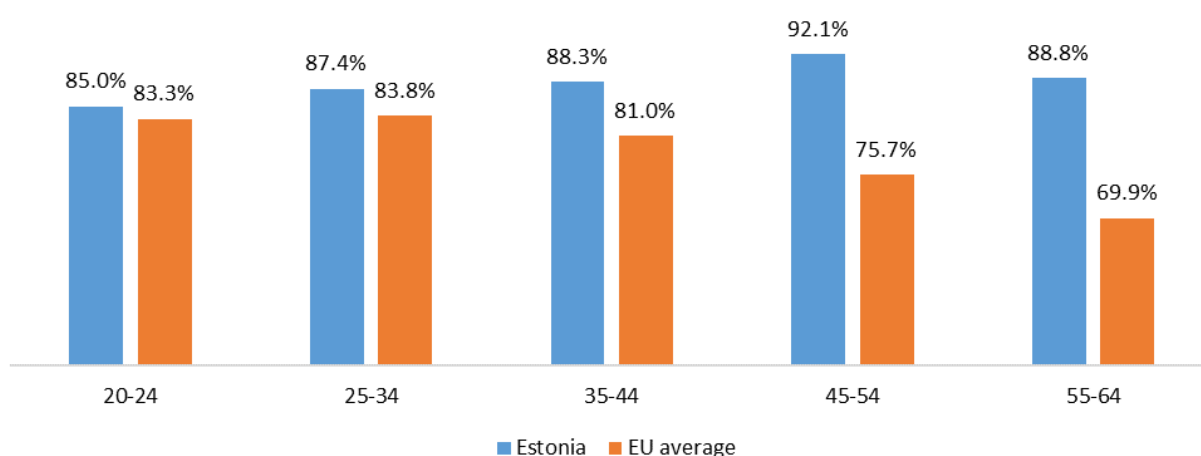


Figure 1. Share of people with at least upper secondary education in 2017 per age group in Estonia and in the EU on average.

Source: Eurostat (data updated on 06.06.2018)

⁶ Main cognitive skills are functional reading, mathematical literacy and problem solving skills, spatial thinking and logical thinking.

What is our current situation?

The number of people who do not continue their studies in the academic year after finishing basic school is small. **80% of those who continue learning acquire upper secondary education within four years.** In Estonia, regional and gender-based differences play a major role in selecting the educational pathway after finishing basic school: In Ida-Viru County 42% of the basic school graduates continue in vocational education, in Tartu County only 20%. Continuing studies in a vocational education institution after finishing basic school is favoured more by boys than girls. The gap between genders is the largest in Valga and Võru counties (31 percent points), the smallest in Tartu County (11 percent points).

Efficiency is higher in full-time general upper secondary education studies, which has been the popular choice for basic school graduates throughout the years. **Students with modest learning results in basic school also have a greater chance at acquiring upper secondary education if they continue as full-time general upper secondary education students** (see Figure 2). 90% of those continuing in general upper secondary education will acquire upper secondary education in four years, the number for those continuing in vocational secondary education is ca third less, that is 60%.

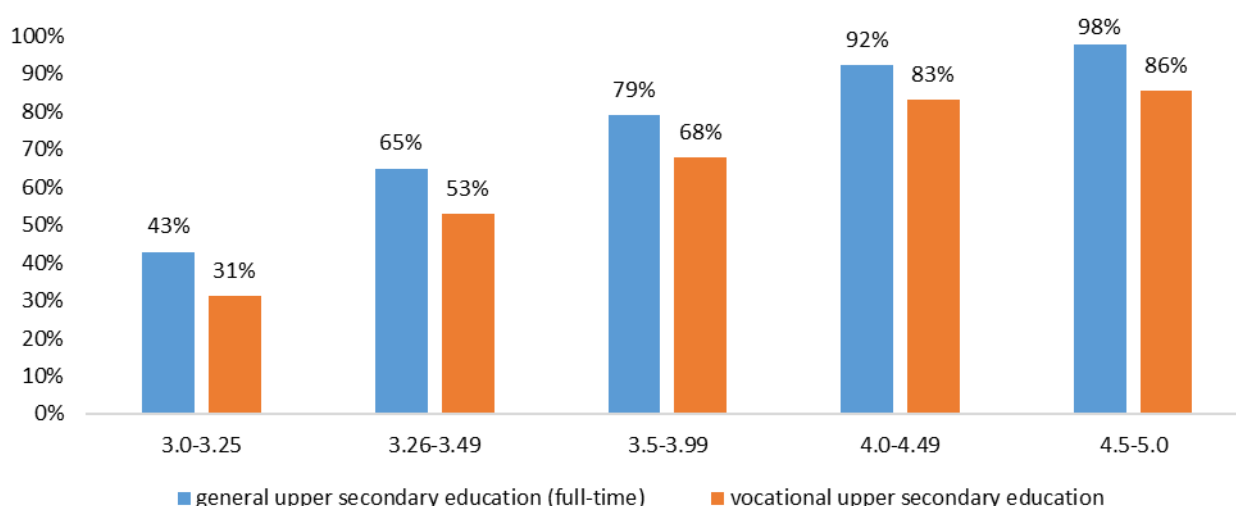


Figure 2. Share of those reaching upper secondary education four years after finishing basic school (national curriculum) based on the average grade in basic school and the selected educational pathway.

Source: EHIS

The most influential aspect for acquiring upper secondary education is the **success of studies in basic school** – the better the average grade, the higher is the likelihood to reach upper secondary education.

Girls have more success in reaching upper secondary education. When finishing basic school, **the number of boys with modest learning outcomes, which affects their reaching upper**

secondary education, is much higher than that of girls. The boys' lower learning outcomes in basic school are not caused by different capabilities, but by attitudes towards studying, confidence concerning one's own skills, how the society's different expectations of boys and girls are perceived and much more. If the girls' skills are usually higher at the end of basic school and upper secondary education, then among adults, men usually surpass women (Valk 2016). In order to prevent lower results in basic school from hindering the future educational pathways for boys, it is necessary to pay more attention to gender related differences in basic school. It is positive, **that the language in which basic education is acquired does not influence the likelihood of acquiring upper secondary education.**

A considerable amount of those who acquire basic education in part-time studies do not continue learning. Men and Russian speakers are slightly the majority among those who do not continue. Those who continue to study prefer part-time general upper secondary education studies. Only 11% of those with basic education who continue in upper secondary education part-time and 19% of those who continue upper secondary level studies immediately the following academic year have acquired upper secondary education in four years.

What is already being done and what more could be done?

The main issue is dropping out of upper secondary level. The dropout rates are noticeably high in vocational secondary education. The problem was acknowledged a long time ago, different measures preventing dropping out have been applied in vocational education and thanks to these, the dropout rate in vocational secondary education has decreased slightly. Hopefully, the new vocational education financing model enforced in 2018 that increased the budget for support services, will help to establish and strengthen the support systems already in use in vocational education. It is important to continue with the activities that support selecting professions that meet the capability and interests of the student. Additional measures must be developed to support students who are less motivated already in basic school.

Based on this analysis, the most important factor that influences the reaching of acquiring upper secondary education are the basic school learning outcomes. International surveys have also shown that the learning outcomes at upper secondary level are best predicted by the student's academic results in basic school (e.g. Cook 2013). Thus, intervention once the student with modest results and low motivation has reached upper secondary education is too late. It cannot be said that no attention has been paid to students with low results in basic school until now. The measures taken for these students have been the best possible according to the current knowledge available. In order to improve the results of intervention, it would be relevant to gather additional data, that is to conduct additional surveys to find out which intervention measures could provide the best results in the Estonian education system.

Studies show that when it comes to developing skills after basic school, those education systems with more equally valued study pathways are more successful. Thus, it is important to move towards (a more extensive) application of comprehensive school principles also when planning

the study pathways after basic education and make an effort so that different study pathways would have more similar outcomes and would be equally valued in the society. It is necessary to find ways to make studying in vocational education institutions an interesting challenge also for gifted students. One possibility could be cooperation with higher education institutions in teaching speciality subjects and with upper secondary schools in teaching general education subjects.

The necessary measures are, however, those that would bring back to education those who have dropped out from acquiring upper secondary education. Support mechanisms must be based on what caused the dropping out.

Continuing studies after general upper secondary education

Why is this topic important?

Several analyses have shown that if young people remain only with general upper secondary education and do not acquire vocational or higher education, then they are left in a weaker position on the labour market (Järve et al., 2016, Anspal et al., 2014). In addition to direct connection of education with career and income, the length of educational pathway also affects people's social and cultural environment (OECD EAG 2017). Thus, continuing one's educational pathway is definitely important from the perspective of each individual and the society, and is also valued from the perspective of educational politics based on lifelong learning ideology.

What is our current situation?

The data from the Estonian Education Information System (EHIS) shows that in the past ten years, **the share of upper secondary education graduates** who continue their studies in the academic year after graduation **has decreased by more than 10 percent – from 67% in 2007 to 56% in 2017**. At the same time, the share of young people continuing in vocational education has not increased, but of concern, the number of those young people who do not continue their studies after acquiring upper secondary education has increased. The share of people with vocational secondary education who continue in higher education is still very small: on average, 9% of the graduates of one year: a quarter of these continue in bachelor's studies and three quarters in professional higher education institutions. **The non-continuation** of upper secondary education graduates in higher education **emphasises the aging and shrinking of the student body due to the decreasing population even more**.

The number of **men** is smaller among those who continue studying. If the male-female ratio is rather equal in general upper secondary school (share of males is 48%), then in higher education the males make up 43%. Since men drop out of higher education more frequently, the scale is tipping towards women already among the people who have acquired higher education and the number of men is more than ten percent lower (in 2010, 42% of those continuing studies are men, in 2013 the number is 31%). In the age group up to 34, the share of women with higher education is more than 50%, the indicator for men in the same group is ca 42%.

Those finishing upper secondary schools **further from the centrums** are less likely to continue in higher education. Over the past decade, the native Russian speaking youth has also continued in higher education less than the Estonian speaking youth: the share of Russian speaking youth continuing in higher education immediately after finishing upper secondary education has been on average 4% less than among Estonian speaking youth, and adding those who continue in higher education slightly later, the share of Russian speaking youth who continue in higher education is 6% lower than the average of Estonian speaking youth. More Russian speaking general upper secondary education graduates reach vocational education – that is especially

prominent in Ida-Viru County, where in the period 2008–2017, on average 9–17% of Russian speaking youth headed to vocational education immediately after finishing general upper secondary education (Estonian average is 9–12%). Compared to the average, Russian speaking youth also prefer private professional higher education institutions.

Nearly 10% of those who do not continue in higher education immediately after finishing upper secondary school do it 1–2 years after acquiring upper secondary education, additionally approx. 3–4% at least three years after finishing studies. It is possible that postponing higher education studies is becoming more popular in Estonia. From the graduates of 2015, by 2017, in addition to the 59% who continued their studies immediately, another 12% of the graduates have continued their studies after finishing general upper secondary education.

Statistical analysis confirms **that the lesser number of upper secondary school graduates continuing in higher education is due to going abroad (incl. to study) and due to starting work.** As of 2008, 0.9%–3.2% of all general upper secondary school graduates in Estonia are known to have started studying in some European Union country the same year of finishing general upper secondary education. If we add those who leave for studying abroad later, their share increases to 4.5–6.8% of graduates of one year. The share of Russian speaking graduates leaving to study abroad is up to twice as large as that of Estonian speaking graduates (4–13% of Russian speaking graduates of one year). The share of youth (who receive income) who have entered the labour market a year after acquiring general upper secondary education has increased over five years (during 2011–2015) from 52% to 62%. However, this may not mean that the youth not continuing studies are the cause of this increase. Since working parallel to studying is spreading also among students of higher education institutions, there is grounds to believe that at least some of the so to say lost 10% head to the labour market.

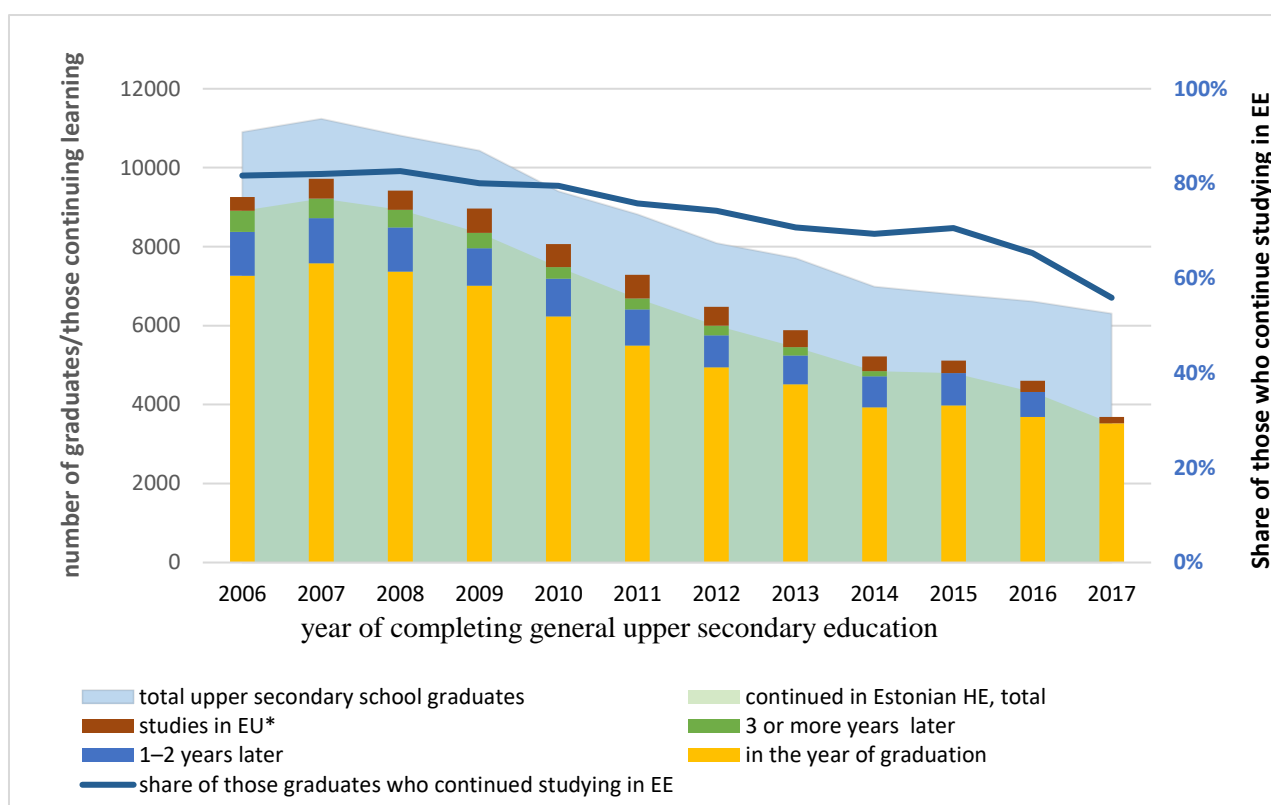


Figure 3 Total further studying of those who acquired general upper secondary education in Estonia in 2006–2017 and who continued learning in Estonia and abroad (applied for health insurance to study in Europe) by 2017.

Sources: Estonian Education Information System, Health Insurance Fund

What is already being done and what more could be done?

One important aim of the higher education reform conducted in 2013 was increasing the equal opportunities in higher education, incl. extending the access for youth with weaker socio-economic backgrounds. At the moment, it is impossible to entirely assess whether the reform has fulfilled its aims but at least it can be confirmed that the share of youth from rural areas and Russian speaking youth in higher education has not decreased faster or more within the general decline than average. Share of males in higher education has rather increased over the past years.

A considerable number of those who start higher education studies do not finish these. Dropping out is a subject in focus both in policy making and in higher education institutions. Constant work is done with prevention (development of support systems and study counselling, flexible solutions) and with developing ways to continue cancelled studies (for example, the *VÕTA* system (process considering previous studies and work experience)). **More attention to study counselling and career planning.**

It is necessary to support the **transfer from vocational education to higher education** by bringing these education types closer to each other. Both this analysis and international surveys have shown that the people who reach higher education later tend to be those whose parents do not have higher education and who are financially independent. Also, there are more people who have left a more than 2-year gap between upper secondary and higher education in professional higher education institutions and from speciality fields in education. Thus, **when organising the studies, it would be wise to consider the changed needs of students and the groups less represented in our higher education.**

How successful are the graduates on the labour market

Monitoring the further activities of the vocational and higher education institution graduates enables to analyse and assess the quality and relevance of the education the graduates have obtained. The main aim of the monitoring system “Success on the labour market” is to analyse if and how successfully have those graduating vocational and higher education since 2005 entered the labour market – what is their income like and the general employment. Gathered information enables the students, employers and policy makers to understand the outputs of the specific professional education on the labour market, how balanced are the acquired education and the work, and what kind of value is created by the education both for the graduates and the society. The monitoring results will also help to understand **if and to what extent can the education system keep up with the changes in economy and on the labour market.**

The reports of the previous years (2016 and 2017) have focussed on education level, field of study and gender connection with income and employment, also the surveys have focussed on how have the incomes of the graduates increased and how has the income been affected by cancelling studies. The 2018 **analysis focusses on higher education** in which case it is observed, what is the salary of the future graduates before admittance and during the studies, and also what is the salary before cancelling the studies of the ones dropping out.

Main conclusions

- **More than two thirds of vocational and higher education graduates are employed in 2016.** In 2011–2016, the employment of people with vocational education has increased the most, reaching from 68% to 73%. Employment of those with higher education has been on average 80% throughout the years.
- Post-graduation salaries of those who finished vocational and higher education is growing. **Salary one year after graduation has increased the most among vocational education graduates:** Those finishing vocational education in 2015 received a salary 55% higher in 2016 than those who graduated in 2010 in 2011. Post-graduation salary of higher education graduates has grown by 40% in 2011–2016.
- The OSKA analyses show that by 2025, the need for employees in software development, telecommunication, timber industry, administrative and assistant tasks and, due to the aging population, also in health care and social work will be needed the most. Labour market success analysis shows that already now, **technical specialities ensure a higher pay on the labour market:** the salaries of graduates of technical studies are higher. Salary chart is topped by the incomes of ICT, technology, security services and architecture and construction studies graduates, those graduating from health studies also have higher incomes.
- **Dropping out from the first level of higher education is a bad choice in terms of further education and coping on the labour market, because it means lower income.** Higher income is directly related with finishing one’s studies. Thus, the salary

of bachelor programme graduates is 10% higher than that of who dropped out. Every year, 15–20% of first level students cancel their studies.

- **70% of bachelor and 80% of master's students work parallel to studying.** Working while studying is related with a higher income later on – the graduates who worked while studying earn higher salaries: work experience adds on average 150 euros to a bachelor graduate and 360 euros to a master's graduate.
- **The gender pay gap is not disappearing: the lower the education, the wider the gap** and vice versa. Often, the pay gap is also due to selected speciality. There are no significant changes compared to 2015: then the pay difference of men and women was 21%, in 2016 it was 20%.
- On average, 15% of students cancel master's studies. **The salary of those who finished master's programme continues to be extraordinarily lower than that of those who cancelled the studies.** This can be explained by the higher age of the students and significantly higher than average salary during the studies and before cancelling. In addition, there is a greater demand for some specialities on the labour market and simultaneous studying and working may lead to dropping out in these specialities.

References

Anspal, S., Järve, J., Jürgenson, A., Masso, M., Seppo, I. (2014). *Oskuste kasulikkus tööturul (Usefulness of skills on labour market)*. https://www.hm.ee/sites/default/files/jarelevalve/oskuste_kasulikkus.pdf

Cook, W. (2013), *How Intake and other external factors affect school performance: Rise review*, Research and information on state education.

Järve, J., Seppo, I., Räis, M.-L. (2016). *Põhikoolijärgsed haridusvalikud (Post-basic school educational choices)*. Estonian Centre for Applied Research CentAR. https://www.hm.ee/sites/default/files/haridusmin_pohikoolijargsed_haridusvalikud_30112016.pdf

OECD. *EAG 2017*. DOI: <http://dx.doi.org/10.1787/eag-2017-ne>

Valk, A. (2016), *Soolised lõhed hariduses (Gender gaps in education)*, Tartu: Ministry of Education and Research