



Annual analysis by the Ministry of Education and Research 2015

Summary

This analysis, prepared at the beginning of 2015, assesses in particular the developments of 2014 while also looking back at the past five to ten years. The analysis compiles the statistics and the most significant research results of recent years, provides an assessment of the effectiveness of meeting the strategic goals of development plans within the area of responsibility of the Ministry of Education and Research (MoER), and presents the recommendations made by different stakeholders. Based on the analysis, it is possible to highlight the areas in which we have made marked progress, as well as problems and challenges in need of further analysis and new directions. The structure and contents of the analysis proceed from the sectoral strategies of the MoER and the long-term goals set out in them. The summary is divided in five parts: (1) areas where developments are very positive; (2) areas in which the development has been stable or good; (3) areas where progress does not meet expectations and where current activities need to be revised; (4) indicators we do not measure; (5) issues that need further analysis or research.

We are progressing in the desired direction as far as over one-half of the goals are concerned while having difficulties in meeting a third of them.

- (1) **Areas in which the developments have been very positive** and where we are about to achieve or have achieved either Estonian or European goals for 2020 five years ahead.
 - a. Good results of basic school level pupils: Results of the PISA test improved when last measured, the number of low skilled pupils in all measured areas (reading, mathematics, sciences) is below the EU average as well as the target of the EU for 2020. The most recent test was in spring 2015 and its results will be published in 2016.
 - b. The share of 30–34-year-olds with higher education has increased, exceeding 40% of this age group. This is the goal of both Estonia 2020 and Europe 2020.
 - c. The share of graduates majoring in STEM (science, technology, engineering, and mathematics) has been over 24% in the past two years, which is close to the 25% set as a goal for 2020.
 - d. We achieved the 2020 goal for the export of high-tech products and services in 2014. In the past four years such products and services have accounted for 14% of the total export (in 2014 – 16.3%) while in 2014 we were above the EU average. The weight of medium-high-tech sectors in the total share has grown from 5.7% to 7% in the past five years (2013) with the goal for 2020 set at 9%.
 - e. Publishing activity that shows the activity of scientists and a high level of research has been an upward trend. In the past five years, the number of high-level publications per million population

has been above the EU28 average in Estonia and our lead is growing (2014 – Estonia 1,522, EU28 1,140). This leads us to hope that the targets for 2020 (1,600 articles per million inhabitants) will be met.

- f. The unemployment rate among 15–24-year old young people has nearly halved in the past five years (from 33% to 15%), which is mainly attributable to a better labour market situation but is nevertheless a very positive development in the EU context. The target for 2020 is 10%.
- g. Participation of young people in youth work, i.e., the number of young people participating in recreational activities, work of youth centres and the like, is also clearly a positive trend: in 2010 – 37%, 2014 – 47% with the 2020 goal set at 60%. The regional accessibility of youth work, measured by the number of young people per hobby schools (492) and youth centres (1152), has significantly improved. The targets for 2020 are 400 and 1,100, respectively.

(2) Areas in which the development has been stable or good

- a. The share of adults (aged 25–64) with no professional or vocational training was under 30% in 2014, which is one of the goals of Estonia 2020. We have set a more ambitious 2020 goal of 25% in the lifelong learning strategy and more efforts are needed to achieve it.
- b. The share of early leavers from education (18–24-year-olds with a lower level of education and not involved in education) dropped below 10% for the first time in 2013, however, by 2014 it was back to 11.6%. The target of the lifelong learning strategy is to have less than 9% of such youth.
- c. The salaries of teachers have significantly increased, surpassing EUR 1,000 for the first time in autumn 2014, however, the national strategic goal continues to be that the average salary of teachers would be equal to or higher than the average salary of a higher education graduate employed person by 2020 (in 2013 it was 88%). In this area, another target is to have the share of labour costs in the education-related costs of the government sector at the level of 60% by 2020. In 2013, the labour costs were at their highest in the past five years – 58.6%; the share of teachers' labour costs also slightly increased in the general educational costs of the government sector.
- d. The share of 4–7-year-old (school-age) children in nursery school education remains at 90% and there is still work to be done to achieve the 2020 target of 95%. A majority (96%) of families whose children attend nursery schools are content with them. There were 12% of those who were not content with the accessibility of nursery schools (incl. 3% of those who were not at all satisfied).
- e. International cooperation and Estonia's ranking in the scoreboard of the EU Innovation Union are stable indicators in science. Our ranking in the previously mentioned list has been 13th–14th in the past five years; the goal for 2020 is to be ranked 10th.
- f. The targets set in the area of languages are close to the goals of 2020. More needs to be done to improve the Estonian-language skills of basic school graduates whose mother tongue is not Estonian as well as in the area of transition to partially Estonian-language tuition in vocational education; see below.
- g. In the field of archives, the availability of archival documents in the Web has trebled in the past five years, the number of archive managers has grown, as has the share of those managers whose documents within their main area of activity have been subjected to assessment. There are certain challenges regarding the share of archival documents preserved in proper depositories in the National Archive (2014 – 58%, the 2020 goal – 75%), however with the new building to be completed in 2016, this issue will be resolved.

(3) Areas where progress does not meet expectations and where more attention is needed in the future

- a. Attractiveness of the teaching profession and indicators related to teacher training (age, gender, entry into teacher training). Although our teachers aged 40+ have relatively good skills and are committed to their job (as shown by PISA results among others), they are not being replaced by a new generation or

our (best) young people do not choose to teach. The surplus of teachers due to decreasing numbers of pupils (mostly in rural areas) is not likely to solve the situation although schools should have increased choice. Last year, the number of teaching positions in general education dropped though the number of teachers increased. It means that more teachers are working part-time. The 2020 goals regarding the share of teachers younger than 30 (12.5%) and that of male teachers (25%) have for years been contained within the level of 10% and 14%, respectively. The start-up support offered to teachers may have mitigated their scarceness in rural areas, however, all in all the share of young teachers has not been affected. Admissions to the fields of teacher training and education science are just 57% compared to the situation five years ago. Admissions have dropped in other areas too, however, the decrease has been by about half as much. The number of graduates from the teacher training and education science fields has also dropped. Approximately 60% of the graduates start working as teachers. Competent and motivated teachers are one of the five headline targets of the Lifelong Learning Strategy 2020 and hopefully the planned measures will achieve a breakthrough in this area.

b. The distribution of basic school graduates between vocational and general secondary education has not changed much in the past ten years. The goal for 2020 is to have the ratio of 35 to 65, however, in the past five years, 26-28% and 72-74% of basic school graduates chose vocational education and general secondary education, respectively. Increasing the share of those choosing secondary vocational education has been targeted for 10-15 years, however, never have more than 30% of basic school graduates decided in favour of vocational education. In 2014, there were 27.2% of graduates who preferred vocational education. The preferences in finding further education opportunities indicate five- to six-fold difference: about 10% of girls finishing Estonian-language schools in cities choose vocational education while this option is preferred by 60% of Russian-speaking young men in North-Eastern part of Estonia (Ida-Viru County). Our experience to date shows that the 35/65 goal is extremely difficult to achieve, especially since the number of graduates increases only in Tallinn and Tartu that traditionally do not have many young people to aspire towards vocational education. Looking at the employment rates and salaries of those that have graduated from vocational schools, the question arises whether this target justifies itself in Estonia's economic model. Estonian economy is characterised by an open and rapidly changing labour market, which necessitates retraining while employers are rather modest to contribute to training their staff. In order to be successful on such a labour market, one needs good general skills. This is witnessed by the fact that those with post-secondary vocational education earn, on the average, slightly more than basic school graduates, however, there is no salary difference with general secondary school graduates. Hence, the demand for vocational education is not reflected in salaries. Further to measures that support achievement of this goal, we are also contemplating to analyse whether the current target is reasonable in Estonia's current economic model.

c. Serious efforts are needed to increase participation of 25–64-year old adults in lifelong learning. Recent years imply that achievement of the target set for 2020 in the lifelong learning strategy (20%) might be more difficult than anticipated. In 2014, 11.5% of adults as opposed to the planned 14% participated in lifelong training (in the four weeks preceding the survey). In recent years, participation has remained stable or decreased a bit. At the same time, it is obvious that this is a broader challenge. Participation in lifelong learning is impacted, besides supply, by the demand on the labour market, meaning that people are driven to learn by more sophisticated jobs and MoER's actions alone cannot influence the trend. Various recommendations have been provided by the Estonian Employers Confederation and the PIAAC report on skills and lifelong learning.

d. The short-time learning mobility of Estonian students or, to be specific, the number of mobility grants per all students (3.3%) has remained stable in recent years, however, we are very far from the 2020 target of 10%. On the other hand, the Erasmus programme has managed to significantly balance the number of students coming in and going out of Estonia and, in the past five years, the number of foreign students who stay here for the entire duration of their studies has trebled.

e. The share of Russian-language basic school graduates with proficiency in Estonian at the level of B1 (63.2%) has grown a little, however, more needs to be done to achieve the targeted 90% by 2020.

f. In the area of science, the level of R&D investments and the contribution of the private sector in that are the main challenges. In 2013, the level of R&D investments was 1.74% of GDP while the 2020 target is 3%. The goal for 2020 is for the private sector R&D costs to be at least 2/3, i.e., 67% of our total R&D costs. In 2013, the ratio of R&D investments between the private sector and the public sector was 48 to 52, meaning that the private sector contributed less than 50%. Moreover, R&D commissioned from the public sector by the business sector remains low, representing just 3.8% of the R&D volume of the public sector, i.e., two times lower than the 2020 target and two to three times lower than the respective indicator in developed OECD and EU countries.

g. Another target in the area of research whose achievement is difficult is the number of doctorate graduates that has fluctuated between 175 and 250 in the past five years (in 2014 - 213 graduates), however, the 2020 target of 300 graduates per year is still far away. The problem here is that a need for a doctoral degree is not perceived. Just 1% of the graduate respondents to the PIAAC survey said that they needed a doctoral degree in their current job.

h. The contribution of science to economy is indirectly demonstrated by the level of productivity of business entities per employee (% of the EU average), which in the past five years has been about 70% - below the 2020 target of 80% by ten percentage points.

i. The education costs of the government sector pose another challenge, being in 2013 at 6% one of the decade's lowest in the GDP. The costs, without own-produced-software and R&D capitalisation costs (added costs according to a new calculation methodology), represented 5.5% of the GDP that is the lowest level of the decade (in 2007 it was the same level) and lags behind the target set out in the Government of the Republic of action plan to achieve a stable share of education costs in the public sector costs at the level of 6 - 7% of the GDP.

(4) **Today we cannot monitor all of the indicators due to lack of measures**, in particular this concerns the approach to learning, digital focus on lifelong learning as well as satisfaction with teaching and learning options, and the status of career counselling. In these areas, development is planned for coming years with creating the monitoring methodology.

(5) **Research needs.** Taking a critical look at the current situation in education, more challenges can be identified that are not reflected as specific indicators but need further analysis. They complement the abovementioned challenges regarding teachers, choices made after acquiring basic education, and involvement in lifelong learning. The following topics should be analysed and researched in the future:

a. Boys. The dropout rate of boys in the 3rd level of basic school (Years 7-9) is double than that of girls. Traditionally there have been twice as many young male early leavers from education compared to females. In 2013, the relative share among young men was even as high as 13.6% compared to 5.8% among girls. Young men had worse state examination results in Estonian and English. At that, state examinations predominantly determine the choice of further education. More young men drop out from higher educational establishments and twice as many women than men manage to graduate from them.

b. Broader impact of regulating the school network. The reform of the school network significantly affects most of the previously described challenges in education. Among other things, the reform has influence on the distribution of students between vocational and general secondary education, number and attractiveness of teaching positions, quality of teaching and implementation of the new approach to learning, equal access, etc. Since the reform is still underway - in places, changes have been implemented in other areas important decisions are yet

to be made - we now have a good opportunity to analyse the potential effects of the school network reform and learn from the mistakes.

c. Attention is needed in connection with transition to Estonian-language tuition in vocational education, among other things the experiences gathered with general education schools must be taken into account so as to not be forced to correct mistakes.

d. In the past five years, the share of secondary school graduates who continue in a higher educational establishment has dropped by 10%. Three percent of secondary school graduates continue with vocational training. The remaining 7% are likely to have left to other countries. A question in itself is: Will they return and will the trend continue?