# Aim High and Work Hard

## Building a World-Class Learning System in Estonia

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# Introduction: Key Qualities of the Estonian Learning System

The success of the Republic of Estonia in the Program for International Student Assessment (PISA) was a surprise both nationally and internationally and has led to several important questions. What are the reasons for these results? Which historical developments and recent decisions have allowed a small and not particularly rich country to build an education system that offers cutting-edge knowledge and skills in both the European and global contexts?

This study attempts to answer those questions by distilling insights into the Estonian learning system. First, we outline key qualities of the system that may have impacted the PISA results; next, we analyze six different parts of the system (goals, standards, curriculum, assessment, teachers, governance, and equity) providing a more detailed picture of Estonian education; finally, the report discusses the current challenges of the Estonian learning system, mapping the debates about future options and possible changes to teaching and learning practices.

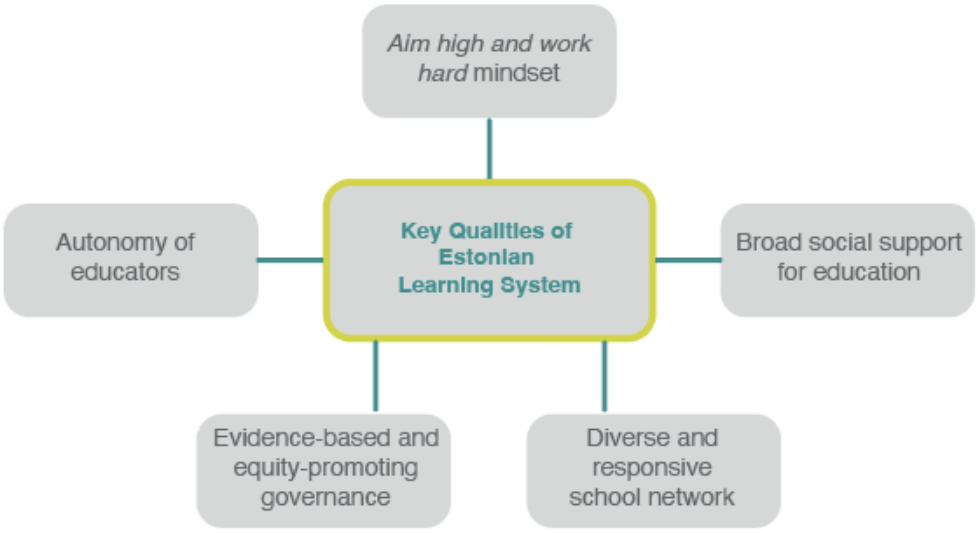
The report reflects the opinions and understanding of the authors, but the proposed key qualities of the Estonian learning system (see Figure 1 on the next page) were determined through a series of conversations among top educators across the country, as well as scientific analysis and research evidence.

### Historical-cultural Background—Aim High and Work Hard Mindset

Two powerful forces have shaped Estonia: a history of being a part of larger empires and a Protestant world view. Establishing and maintaining national identity in such a context has given education a special role and meaning in Estonian society. For most Estonians, education was the only way to escape from poverty and to claim a uniquely Estonian identity. The *aim high and work hard mindset* began to dominate our learning system as early as the 19th century and still underlies the system today. This mentality manifests itself in a demanding, discipline-based curriculum; high expectations for the teaching profession

and the academic preparation of teachers; and an emphasis on discipline in the learning process, including a focus on rankings and competitions among schools as well as the effective use of study time.

**Figure 1. Key Qualities of the Estonian Learning System**




## Broad Societal Support for Education

Historically, Estonians have had to cope in relatively poor economic conditions. Education has long been seen as the key path to both individual and national development, and as such has been broadly supported by all parts of Estonian society. Learning and teaching in Estonia are not only the concern of school and teachers, but of many others in society.

Estonia's attitude of "education is everyone's business" begins in kindergarten (for three-to-six-year-old children). Local municipalities run a well-established kindergarten system, where learning and teaching based on the national preschool framework curriculum starts. The Estonian hobby education system, established more than a century ago, offers exceptionally wide opportunities for additional education and self-development in music, sports, art, technology, etc. (For example, in the 2019-2020 academic year, 90 percent of students in comprehensive schools participated in some form of hobby education.) In addition, a wide network of NGOs supporting education has developed since independence, to which the private sector contributes significantly (including by publishing learning materials, software platforms, development programs for schools, etc.). The digital revolution in the Estonian educational system has been largely supported by private entrepreneurs in the technology field, who have invested significant

financial resources. Estonian families are also very involved in supporting their children in learning activities.

### Turning Point in 1990s—Autonomy of Educators

The 1990s were a major turning point for the Estonian learning system. After regaining independence from the Soviet Union in 1991, Estonia redesigned its education system to provide a much broader degree of autonomy for schools and teachers than had been the case under the Soviet system. As a result, Estonian schools have for nearly 30 years created school development plans, developed school-level curricula, established teachers' salary and professional advancement systems, hired teachers, and supported teachers' professional development. Within the broad frame of the national curriculum, Estonian teachers decide on the content, learning materials, methodology and assessment methods of each subject taught, and are free to integrate subjects as they wish.

### Governance—Evidence-based and Equity-promoting

Despite fast-paced changes in Estonian society over the last 30 years, the grounding principles of the post-1990's learning system have remained intact: decentralization of authority for decision-making and autonomy for teachers and schools. Overall, the system is inclusive and encouraging of local responsibility; there are no longer any kinds of external inspections for schools, and assessment and reporting requirements are not burdensome. Schools' self-evaluation is supported by systematically collected data made available to them (and, in part, to the public). Schools are encouraged to carry out data-informed monitoring of their learning processes and benchmark themselves against other schools.

The key focus of governance of the learning system in recent decades has been ensuring equity of access and opportunity in education. New policies aim to support low-income families or families facing other challenges that can hinder a child's development. To this end, Estonia provides free school lunches, learning materials, and extracurricular activities for all students.

Students with special needs receive additional support, subsidized by the state, and inclusive education is a principle embedded in the system from the preschool level. Regional counselling centers provide high-quality support to both students and the adults (teachers, parents) who care for them.

## Diverse and Responsive School Network

A learning system with autonomy for teachers and school leaders, rooted in evidence-based governance, has resulted in a diverse school network in Estonia. Schools develop their own identities, emphasizing deep learning and promoting student independence and choices. There are schools oriented around technology and schools focused on the humanities and languages. Increasingly, private schools are experimenting with novel pedagogical approaches such as integrated subjects and project-based learning. About a fifth of schools offer Russian-language instruction in basic schools, while several kindergartens and primary schools use English or French as a language of instruction. The varied school landscape and different approaches have not negatively impacted the overall quality of education: compared to the rest of the world, regional differences in student performance are low in Estonia. Thus, the Estonian learning system has managed to consistently provide high-level knowledge and skills to students across a variety of school models and cultures.

1

# Estonian Learning System: Context, Development and Strategic Goals

This chapter gives a brief overview of the historical, political, cultural and economic context for the formation of the Estonian learning system.

## Main Messages

- **The Protestant work ethic is a powerful force in Estonian culture, including the school system**. Students have always been expected to aim high and work hard; elements of competition have been part of educational efforts.
- **Throughout Estonia's history, education has been an important engine in creating and sustaining Estonian national identity**. Education has always been valued among ordinary citizens, who trust and support schools and teachers. A variety of institutions have historically contributed to educating Estonian people in addition to schools, especially those offering hobby education.
- **The Estonian learning system relies on a bottom-up approach to strategic planning and implementation**. National strategies are developed through a broad, multi-year, public and cross-government consultation process, which results in shared understanding and consensus around national policy and goals. This is coupled with an approach to implementation that relies on thoughtful piloting and action research by teachers and relies on the support of research universities.

## Political, Cultural, Economic, Demographic Context

### Political and Cultural Context

Estonia is a small country in the North-East of Europe. Estonia includes more than two thousand islands and islets. More than 50 percent of its territory is covered by forest, making its population density among the lowest in Europe.

Due to its history and geography, Estonia's culture has been influenced by the traditions of Baltic Germans and Slavs, as well as by its former ruling powers Sweden, Denmark, Poland and Russia. Estonia has been a contested area between western and eastern Europe for many centuries. The Republic of Estonia as an independent state was first established in 1918. After World War II, Estonia became part of the Soviet Union until 1991, when it regained independence.

Today Estonia is a parliamentary republic with a single-chamber parliament. The President, who is elected by the parliament for a five-year term, is the chief of state. The Constitution of June 1992 forms the legal foundation of the state. The legal system is based on a civil law system. As a member of the European Union, Estonia ensures its national law complies with the conditions of EU legislation.

Estonia is one of the least religious countries in the world, with only about 15 to 20 percent of the population claiming any religious beliefs. The Evangelical Lutheran Church is the largest denomination, although most Russians-speaking citizens belong to the Russian Orthodox Church.

### Economic Background and Demographic Context.

According to World Bank data, the GDP per capita in Estonia has gone up significantly since independence in 1991. In 2022, Estonia's GDP per capita was USD 27,944, ranking it 21st among nations in Europe and 41st in the world.

Salaries and wages have considerably increased during the last decade. Average monthly gross wages were about USD 800 in 2010; and about USD 1800 in 2022

The population of Estonia as of June 2022 was 1.33 million, comprising Estonians (69.4 percent) as well as a large minority of Russians (24 percent).

Estonia has seen a positive net migration during the last six to seven years, resulting in population growth despite a declining fertility rate. In 2019, 12,240 persons immigrated to Estonia (mainly from Finland, Ukraine, and Russia) and 7,210 persons emigrated from Estonia.

## Historical Educational Context and Formation of the Learning System

### Early History

For Estonians, living in a small nation on the borders of dominant cultures and large state powers, survival can never be taken for granted. Throughout history, education has played an essential part in the nation's survival and renewal strategies.

The first schools in Estonia were set up at cathedrals and monasteries in the 13th century after Estonia was conquered during crusades from Germany and Denmark. When the Swedish Kingdom started its rule of continental Estonia in the 17th century, the first gymnasiums (secondary schools) were established in Tartu (1630), in Tallinn (1632) and at the University of Tartu (1632). In keeping with its requirement that individuals be able to read the Bible in order to marry, the church started to teach the peasantry to read in the mid-17th century (Estonica 2020).

From 1684–1688, the first teacher training school, Forselius Seminary, began to prepare schoolmasters to teach in the parishes, ushering in the first generation of educated people in rural areas. At the beginning of the 18th century, Estonia fell under the domain of Russia. Girls started to attend school from the end of the 18th century, which led to a rise in mothers teaching children to read at home. The prospect of economic advancement encouraged peasants to acquire literacy on their own, though only a very small percentage of children attended school. For example, in 1835, only 1 percent of Estonian children went to school (Andresen 2002).

Following the reform of property ownership in the Russian Empire, Estonians had the opportunity to become landowners from the middle of the 19th century. Improved economic conditions following the land reforms coupled with increasing literacy rates led to a so-called "national awakening" in the mid 19th century when Estonians began to develop a national identity. By the end of the 19th century, Estonian literacy was the highest in the Russian Empire: according to the 1881 census, 94 percent of the population could read and 48 percent could read and write, on a level with the most advanced nations in the world. During the 1870-80s, the Russian Empire introduced three-year compulsory schooling, including within Estonia. Following industrial development, Estonians moved to towns from rural areas, and by the second half of the century all three local languages — German, Russian, and Estonian—were spoken in towns.

During the same period, a network of preschool and childcare facilities began to develop. The first childcare institution in Estonia opened in 1840, accepting children aged two to seven from poorer families. In 1862, Estonia established its first *kindergarten*. The task of kindergartens was to care for

children, teach crafts, provide religious education and teach children to read. The first Estonian-language instruction kindergarten opened in Tartu in 1905 (Torm 2000). During the 19th century, most Estonian kindergarten teachers were educated in Germany, and brought back home the pedagogical views of Fröbel, Montessori and other educational pioneers.

In the second half of the 19th century, an informal education system called "peasant schools" began to develop. These were not just academic schools; they offered reading, drama and music circles for the wider public. In 1906, the Estonian Society for Popular Education was founded with the desire to spread knowledge among the population. The main tasks of the society were to promote educational attainment through schools, choirs, museums, libraries and bookshops, and to issue books and organize lectures and workshops for adults (Laane 1994).

### Education During the First Independent Nationhood (1918–1940)

The Republic of Estonia was proclaimed on February 24, 1918. One of the first decisions of the new state was to establish an Estonian-language instruction basic school. Estonia introduced a compulsory four-year education program in 1919, which was extended to six years in the 1920s. Pedagogy influenced by Komensky, Rousseau, Pestalozzi and others spread rapidly in Estonia during this period, including mother-tongue instruction, emphasis on art, handicraft and physical education, developing each child's natural talents, and supporting children's extra-curricular activities. During the 1920s and 1930s, Estonian educationalists such as Käis, Põld and others, adapted those ideas to local contexts, adding their own views and approaches to key aspects of schooling.

The University of Tartu, which had relied on German-language instruction, re-opened in 1919 with Estonian-language instruction. The university included the faculties of theology, medicine, law, philosophy, mathematics and natural sciences, agriculture and veterinary science; teacher education was only added later.

A cornerstone of Estonian teacher education was the establishment of the Tallinn Teachers' Seminar in 1919, which was founded to prepare primary school teachers. This seminar is considered a predecessor of Tallinn University.

The vocational education system also took shape during the independence period. By the end of the 1930s, four types of vocational schools existed in Estonia: schools with an economic, technical or agricultural focus, and those studying home economics. The first school to educate kindergarten teachers

opened in 1920; by the end of the 1930s, there were 80 kindergartens serving 4,000 children in bigger towns and villages (Jürimäe and Treier 2008).

In 1936, Estonia passed the Youth Organization Act, which organized and regulated activities for young people outside of school. A youth department was established within the Ministry of Education and given the responsibility to organize youth activities.

Between the two World Wars, Estonian educator Johannes Käis rose to prominence and influenced the development of schools. His ideas resembled those of John Dewey, who was active in the US at the same time. Käis disseminated the ideas of reform pedagogy, which resulted in the reformational school movement and the publication of "School Reformer," a new educational journal. According to Käis, "the years of schooling are limited, but the education of the human spirit continues throughout … life. This education takes place through literature, theatre, cinema and life experiences, as well as participation in informal events – various courses, lectures, study trips." (Käis 1944/2018).

### The Soviet Period (1944 –1991)

During the Soviet period (1944–1991), the Baltic states (Estonia, Latvia, Lithuania) maintained some distinct features of their educational systems. In Estonia, these included use of the mother tongue as the language of instruction from primary through university-level education, as well as use of original Estonian textbooks for several subjects (in place of translations of Russian textbooks). In addition, Estonian secondary education was one year longer than Russian secondary school. Those features made the education system a crucial mechanism of cultural survival during the Soviet period.

Estonian compulsory schooling was extended during this period: a seven-year compulsory education was established in 1949 and extended to eight years in the 1960s. By the early 1980s, 99 percent of 18-year-olds had acquired upper secondary education (Ruus and Reiska 2010).

Participation in higher education also rose during the Soviet period. Between 1919 and 1939, the total number of graduates of the University of Tartu was only 5,751. By the mid-1950s, over 10,000 students were enrolled. In 1970, about 44 percent of students with a secondary education diploma enrolled in institutions of higher education. This was true even though the curriculum of the Soviet period was subject to political influence (it included a disproportionately large share of courses in Russian language, literature and history) and isolated from the intellectual developments in the rest of the world. Still, students were enrolled in an Estonian institution promoting Estonian language, culture and identity.

The period also saw the expansion of Estonia's kindergarten network and its vocational education system. While Estonia initially used a Soviet Union curriculum for kindergarten, starting in the 1960s Estonia developed its own subject-oriented kindergarten curriculum, with content adapted for the age group. Estonia paid particular attention to vocational education during the Soviet period in support of the planned economy, industrial mass production and large enterprise. It was during this period that Estonia developed a network of vocational education institutions and invested in a renewed infrastructure (Loogma 2020).

The Estonian Teachers' Congress of 1987 was a breakthrough event for Estonian education. As reforms emerged under Soviet perestroika, Estonian teachers at the Congress criticized the existing Soviet school system and demanded more independence for Estonian education. The Congress formulated a plan to establish a national curriculum for Estonian general education. It announced an open competition to design a new curriculum, which created huge national interest. Philosophers, writers, university lecturers, teachers, and even schoolchildren participated in nation-wide discussions about the future of Estonian schools. In 1989, Estonia adopted the new national curriculum and schools started to implement it.

### Independent Estonia

Educational reforms after regaining independence in 1991 may be divided into three stages (Ruus 2011):

During the first stage of change (the early and mid-1990s), rapid liberalization of the whole educational system took place. Old Soviet-type regulations were eased, but new ones were not yet established. This period involved a very loose legal framework and weak governmental regulation, on the one hand, and new initiatives, including establishing private schools and universities, on the other. This period provided opportunities to many new actors (like NQOs, private sector) in education, but also resulted in negative outcomes, such as the bankruptcy of some newly established private universities and the loss of money invested by students. Demands for the establishment of more quality control mechanisms in "liberalized" education began to gain more momentum.

The second period, starting in the late 1990s, involved a step-by-step "return of the state," including the introduction of a more sophisticated legal framework, with steps taken to institute strategic planning and management processes for education. It was during this period that Estonia introduced compulsory state exams for secondary school graduates and established the Examination and Qualification Center and the Qualification Authority; the Estonian Higher Education Accreditation Center also started accreditation of Estonian higher education. The government began to use financing tools, as well as quality control measures, more deliberately to shape the education sector. From 1999 to 2000, Estonia also made its first

attempts to create a national education strategy aimed at harmonizing a quite diverse learning system and principles. Ultimately they were not successful at creating a national educational strategy at that time but did establish a foundation for future efforts. However, after years of movement towards freedom in education, by the late 1990s elements of centralized control and strategic planning were back in place.

The third period, which began around the new millennium, can be called "networking with Europe and beyond." This stage involved harmonizing Estonian education with European standards and frameworks, including the Bologna process, following standards and guidelines in quality assurance, implementing a learning outcomes-based approach, and increasing student enrollment, staff mobility and the participation of researchers in EU framework programs. In addition, participation in international assessment of education performance (TIMSS, PISA, TALIS, etc.) enhanced the importance of analytical tools in Estonian educational decision-making and public debate.

Current national regulations for all levels of education (from preschools to universities) were developed step-by-step throughout these three stages of independence. The constitution of Estonia (1992) guarantees several important provisions for education:

> *Everyone has the right to education. Education for school-age children is compulsory to the extent specified by the law and is free of charge in general schools established by the national government and by local authorities. In order to make education accessible, the national government and local authorities maintain a requisite number of educational institutions … Parents have the deciding say in the choice of education for their children. Everyone has the right to be taught in Estonian. The language of teaching in national minority educational institutions is chosen by the educational institution. The provision of education is overseen by the national government. (Constitution of Estonia, 1992)*

As early as the 1989-90 school year, Estonia completed and implemented a new national school curriculum for Estonian-language instruction schools. Following input from many sectors in society, in 1996 the government approved an updated national curriculum for general education. In 2000, a second phase of the national curriculum development process started, which centered on the integration of cross-curricular themes and subjects and the relationships between the curriculum and extracurricular learning (school and home relationships, students' out-of-classroom and out-of-school activities, etc.).

To better integrate Russian-language instruction schools into the Estonian education system, amendments to the law on basic and upper secondary schools were introduced in 1997. These amendments required Russian-language secondary schools to begin the transition to Estonian language in 2007, with the aim to have at least 60 percent of the curriculum taught in Estonian by 2011.

During this period Estonia also focused on the modernization and improvement of vocational training, a process which included rapid consolidation: in 1990 Estonia had 78 vocational schools; by 2020 the number had decreased to 32 (including six institutions of professional higher education). Estonia significantly modernized the infrastructure of the remaining schools, primarily using European structural funds. Learning environments in vocational schools, in terms of the physical environment and the availability of technology and other infrastructure, have improved dramatically since the 1990s (Loogma 2020). Unfortunately, this has not led to a significant increase in the popularity of vocational education among young people.

The introduction of a higher education standard in 1996 and the signing of the Bologna Declaration in 1999 brought about a two-tier (3+2 years) bachelor-master's study structure beginning in the 2002-2003 school year. Teacher training became a master's level program at this time. In 1998, Estonia implemented the International Standard Classification of Education (ISCED) categorization of educational levels, and study programs were aligned to ISCED.

Starting in the 1990s, Estonia developed its lifelong learning system, with nearly 1,000 institutions providing in-service training. In 2017, for example, the government offered 74,000 adult education courses, with 373,000 participants. The participation of adults (aged 25-64) in training courses has increased steadily in recent years, with 12 percent of the working age population enrolled in 2011, and 19.7 percent by 2018.

The milestones of the formulation of the Estonian learning system are shown in Table 1, below.

### Table 1. The Milestones of the Formulation of the Estonian Learning System.

| | |
|---|---|
| 1600s | First gymnasiums were opened in Tallinn and Tartu, University of Tartu was opened<br>The Forselius Seminar began preparing schoolmasters |
| 1700s | Rural schooling, girls attending school, home schooling |
| 1800s | First childcare center opened<br>94% of the population could read, 48% of the population could read and write<br>Obligatory 3-year schooling |

| | |
|---|---|
| 1900-1950 | The Estonian Society for Popular Education was founded<br>University of Tartu was reopened and carried out instruction in Estonian<br>Obligatory 6-year education<br>The foundation of Tallinn Teacher's Seminar<br>The first school to train kindergarten teachers was opened<br>80 kindergartens with 4,000 children in bigger towns and villages were opened<br>Youth Organization Act was passed |
| 1950-1990 | Obligatory 8-year education<br>Kindergartens develop their own curriculum<br>43% of those who possessed a secondary education diploma proceeded to higher education institutions<br>Secondary level education became selective<br>Estonian teachers' congress took place<br>New National curriculum was adopted |
| 1990-2000 | Estonia became independent<br>Stage I of change: weak governmental regulation, contradictory legal framework, new initiatives and private sector entered education<br>Stage II of change: elements of centralized regulations and strategic planning were put in place<br>Stage III of change: networking with Europe and the world |
| 2000-2020 | Non-university type of higher education (ISCED 1997 5B) was introduced<br>Two-tier (3 + 2 years) bachelor-master's study structure was introduced<br>Qualification standards for vocational teachers were established<br>Secondary schools with Russian instruction language began the transition to Estonian language instruction<br>Lifelong learning system was created for adults |

## Inclusivity and a Bottom-up Approach to Strategic Planning

Strategic planning is typically initiated and led by key stakeholders, including non-governmental organizations and academic experts, and supported by politicians and administrators in the Ministry of Education. This bottom-up approach to strategic planning emerged as the young republic evolved. Strategic planning in Estonia can be divided into three periods: (1) mid-1980s to mid-1990s, (2) 1995 to 2004, and (3) 2004 to the present (Ruus 2011).

The first phase of strategic planning began with the 1987 Estonia Teachers' Congress, at which about 1,000 teachers strongly criticized the Soviet education system and demanded greater independence for Estonian education. The Congress mapped a series of proposed improvements for teaching and learning which resulted in a new curriculum in 1989—even before Estonia had regained its independence. Between 1989 and 1996, educators worked to refine the curriculum, making it more outcome-based and responsive to current educational issues. Finally implemented in 1996, Estonia saw its national curriculum as instrumental to a market-driven European society—a true departure from decades of Soviet communist rule. Estonia was one of the first countries to incorporate cross-disciplinary competencies such as learning to learn and social competence into the curriculum.

The second phase started with the formation of the Estonian Education Forum (a non-governmental institution) in 1994. The Forum encouraged expansive, bottom-up discussions of education involving a variety of stakeholders. During its first conference, in 1995, the Forum set three goals: 1) evaluate what has happened in education since 1987; 2) initiate an education development plan that takes into account socio-economic and political changes; 3) involve all parties with educational interests in society in the formation of education policy, including professional and trade unions and associations. Since that time, the Estonian Education Forum, the Estonian Cooperation Assembly, and other civil society organizations involving teachers, university lecturers, parents, etc., have actively participated in debates on the future of education and drafted visionary documents. In 1999, the Learning Estonia vision document laid out a very different vision for an education system–one that prioritized learning outcomes and the learning process, no matter where or how teaching takes place. The document depicted education as a sector with an ever-increasing diversity of learning environments, blurred boundaries between academic general education and vocational education, and different but equally valuable forms of formal and informal learning.

The third phase of strategic planning began when Estonia joined the European Union in 2004 and adopted EU laws and related norms. Participation in international initiatives such as TIMSS, PISA, and TALIS strongly influenced developments in the educational system, including putting a greater focus on strategic planning. A boom of strategic planning took place from 2005–2015, resulting in the Teacher Education Strategy 2009-2013; Vocational Education Strategy 2005-2008 and 2009–2013; and the General Education Development Plan 2007–2011, among others.

Estonia's Lifelong *Learning Strategy 2020* represents a significant movement away from a fragmented approach (strategic plans for different levels and forms of education) in favor of an integrated approach (a whole, cross-field strategy). Strategy development occurred in two stages. First, in cooperation with the

Estonian Cooperation Assembly and the Estonian Education Forum (both NGOs), the Ministry of Education and Research initiated the project "Five Challenges in Estonian Education – Education Strategy for 2012V–2020" (see Table 2, below).

### Table 2. Main Aims of Estonian Lifelong Learning Strategy 2020

The Lifelong Learning Strategy is a document that guides the most important developments in the area of education. It is the basis on which the government will make its decisions for educational funding for the years 2014-2020 and for the development of programs that support the achievement of necessary changes.

The general goal of drafting the Lifelong Learning Strategy is to provide all people in Estonia with learning opportunities that are tailored to their needs and capabilities throughout their whole lifespan, in order for them to maximize opportunities for dignified self-actualization within society, in their work as well as in their family life.

To pursue the general goal, five strategic goals have been established.

#### Change in the approach to learning

Implementation of an approach to learning that supports each learner's individual and social development, the acquisition of learning skills, creativity and entrepreneurship at all levels and in all types of education.

#### Competent and motivated teachers and school leadership

The assessments of teachers and headmasters including their salaries are consistent with the qualification requirements for the job and work-related performance

#### Concordance of lifelong learning opportunities with the needs of labor market

Lifelong learning opportunities and career services that are diverse, flexible and of good quality, resulting in an increase in the number of people with professional or vocational qualifications in different age groups, and an increase in overall participation in lifelong learning across Estonia.

#### A digital focus in lifelong learning

Modern digital technology is used for learning and teaching effectively and efficiently. An improvement in the digital skills of the total population has been achieved, and access to the new generation of digital infrastructure is ensured

#### Equal opportunities and increased participation in lifelong learning

Equal opportunities for lifelong learning have been created for every individual

Source: https://www.hm.ee/en/estonian-lifelong-learning-strategy-2020

Secondly, inspired by the vision of Learning Estonia, an academic council convened by the president initiated a broad, open-ended consultation process to develop a national education strategy. Experts from different sectors contributed, including the head of the Estonian Chamber of Commerce and Industry, the head of the National Student Council, representatives from other sectors such as the Ministry of Social Affairs and Ministry of Economics, and members of the public.

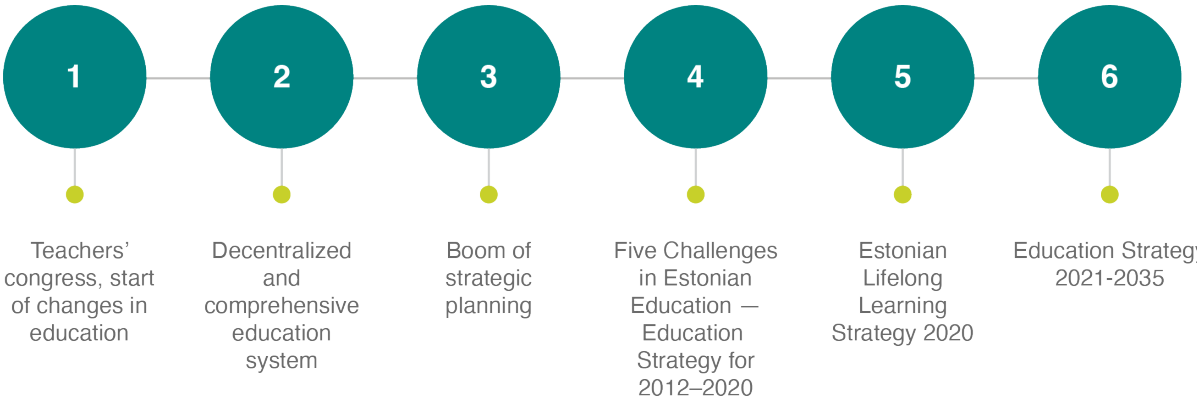
The Estonian government used the *Lifelong Learning Strategy 2020* as the basis for its decisions around educational funding for the years 2014–2020. The overall goal of the strategy was to provide all people in Estonia with learning opportunities tailored to their needs and abilities throughout their lifespan, in order to maximize their opportunities for dignified self-actualization in work, family, and civic life.

In 2018, Estonia embarked on the next phase of strategic planning, *Smart and Active Estonia for 2021–2035* (Ministry of Education and Research, n.d.b). The plan is moving in sync with other important strategic processes in Estonia, such as Strategy Estonia 2035, Estonia's long-term reform plan and the basis for determining the use of future EU funds.

In light of global changes and our current strengths and weaknesses, Estonia has formulated five main educational goals for 2035: (1) a "seamless" educational system that supports individual choices and smooth transitions between levels of education as well as between school and work life; (2) a system that promotes value for Estonian culture, language, and social cohesion; (3) development of new skills and better use of existing skills; (4) learning as collaboration, with the teacher as a guide; (5) research-based mindsets and top-level universities.

Major developments in the history of strategic planning for Estonia's educational system are presented in Figure 2, on the next page.

**Figure 2. Envisioning the Future of Estonia's Education System**




Education in Estonia is an important public issue. In addition to educators and administrators, learners, parents, and other stakeholders are engaged in future planning. Estonians perceive education as an important competitive advantage for the future. A growing number of NGOs are focused on critical debates in education and offer potential solutions, particularly those outside the traditional purview of education. In 2020, The Ministry of Education and Research allocated 4.3 million euros to 54 different

non-governmental organizations for improving education in Estonia. These organizations can be grouped into two categories: (1) organizations representing certain interest groups (e.g., Estonian Student Union, Estonian Association of Hobby Schools); and (2) organizations which anticipate and attempt to solve specific problems for the education system (e.g., Foundation for Bullying-free School or Teach for Estonia). The government's investment in these NGOs reflects its value for the diversity of the education system and the different ways educational actors are trying to improve the outcome of the system.

# 2

# Governance and Quality Assurance

This chapter presents a brief overview of the Estonian general educational system, including the objectives and values which drive the learning system, as well as its governance and quality assurance mechanisms.

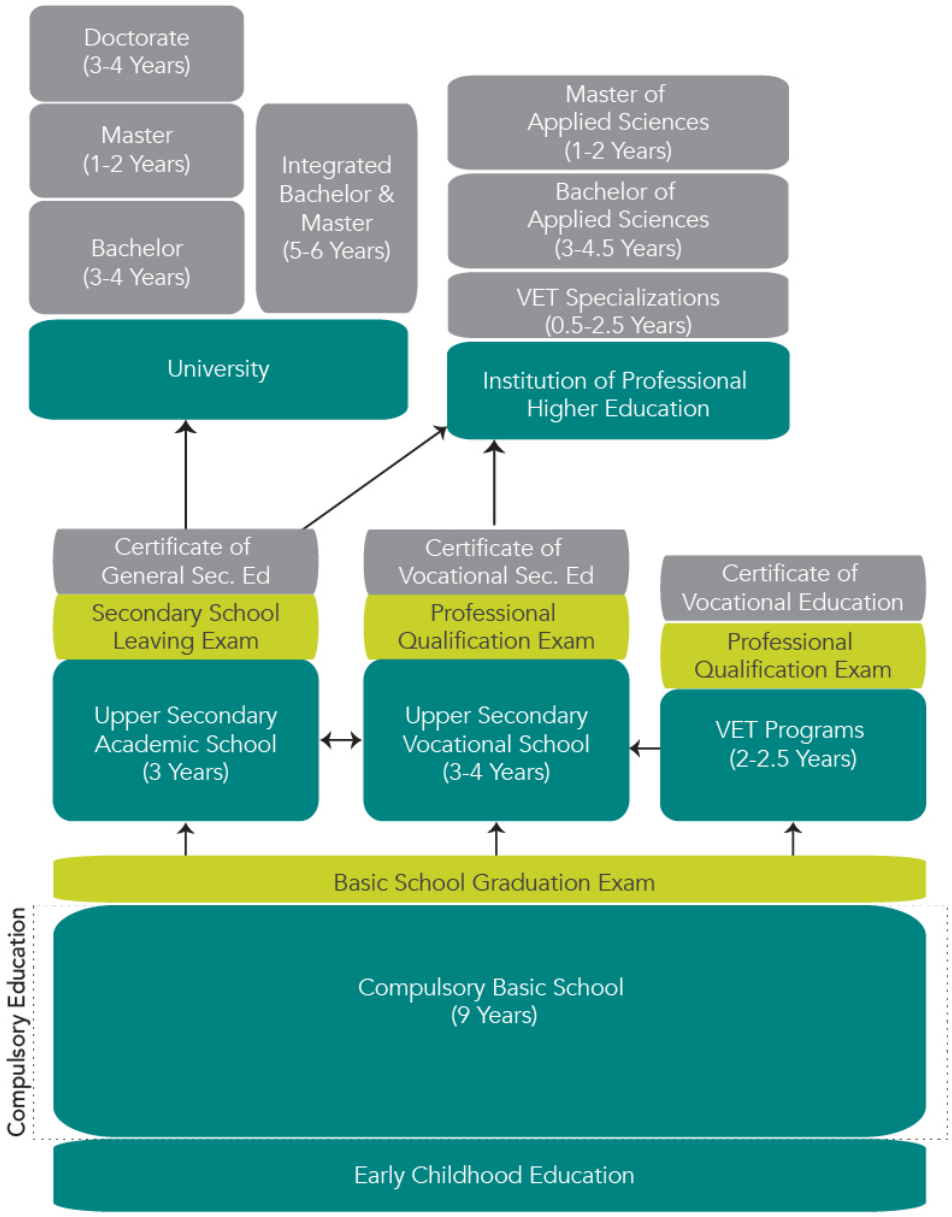
### Main Messages:

- **The Estonian education system is comprehensive**. Education is compulsory for all children permanently residing in Estonia. Basic education is the mandatory minimum for general education requirements. Students are required to attend school until they acquire basic education or turn 17.
- **Schools have a high level of autonomy**. Principals and teachers enjoy a high level of public trust, which has allowed them the freedom to develop their own approaches to teaching and school culture. The Ministry of Education and Research monitors a national database of student outcomes and only conducts school inspections in the case of complaints, rule violations, or, when appropriate, on the basis of specific, Ministry-led evaluations.
- **Evidence-based governance methods are increasing**. Schools are encouraged to rely on the results of their self-analysis and to use a variety of comparative data sets. The central government collects a vast amount of data to monitor the system's overall performance and regulations. Local governments and schools also collect data for self-improvement and accountability.

### Comprehensive Educational System

General education in Estonia is divided into preschool, basic and upper-secondary education (see Figure 3, next page)

**Figure 3. Estonian Educational System**




## Preschool Education

Preschool education is provided to children between the ages of 18 months and seven years in dedicated educational institutions. The main aim of the early stages of education is to support the child's individual growth and development. Local authorities provide preschool facilities to meet the needs of area families.

### Basic Education

Integrated primary and lower secondary education is the minimum general education requirement. Students attend either comprehensive basic schools (grades 1–9) or primary schools (grades 1-6) and secondary schools that serve grades 7-9. Graduating from basic school requires satisfactory completion of the curriculum, completing a creative work project that meets standards, and passing exams in Estonian language or Estonian as a second language, mathematics, and an exam on a subject of the student's choice. Following graduation from basic school, students have several choices for continuation on the educational path. They can pursue upper secondary education at upper secondary school, pursue vocational secondary education at a vocational education institution, attend adult upper secondary schools, or simply start work. Students are required to attend school until they acquire basic education or turn 17.

## Educational Levels and School Types

### General Secondary Education

General secondary education is provided by the upper secondary schools. Upper secondary education is designed to help students become creative, multi-talented, socially mature and reliable citizens who discover an occupation best suited to their individual interests and capacities. The curriculum for upper secondary schools is divided into mandatory and voluntary courses (1 course = 35 academic hours). Graduation from upper secondary school requires the student to complete, at minimum, a curriculum consisting of at least 96 individual courses passed at a satisfactory level, usually within three years. To graduate, students must pass three state exams: 1) Estonian language or Estonian as a second language, 2) mathematics and 3) a foreign language exam. They must also pass one school exam based on the student's choice and complete a research paper or other project during their term of enrollment.

In Estonia, all schools, regardless of the language of study, follow the same national framework curriculum. The length of the study period is at least 175 teaching days (35 weeks) and five school holidays. Attaining general secondary education entitles students to continue their studies at a higher educational institution or to pursue vocational education.

### Vocational Education

Vocational education is organized by vocational educational institutions and professional higher education institutions. The curriculum is organized by VET credit points (EKAP). One credit point

corresponds to 26 hours of study. Students are expected to earn 60 credit points each year. The full curriculum for vocational secondary education (ISCED 3) is 180 credit points. To graduate from vocational school, students must successfully complete the curriculum, including practical training, and pass all required assessments and a final examination. Completion of vocational education with upper secondary education allows students to continue studies at the higher education level.

There are also post-secondary VET programs (post-secondary non-tertiary education, ISCED 4), which are 120–150 credit points. In addition, people with unfinished basic education can enter initial VET programs, which are 15–120 credit points (ISCED 2).

### Governance of Schools

Most preschools and general education facilities are operated by local governments and most vocational schools are operated by the state. All municipal schools have designated service areas, meaning that the schools must ensure available space for all school-aged children living in their area. For more detailed information see Table 3 below.

**Table 3. School Operator and Percentage of the Students in Each School Type, School Year 2019-2020**

| Type | Preschool institutions | Students served | General education institutions | Students served | Vocational schools | Students served |
|---|---|---|---|---|---|---|
| Local government | 556 | 95.3% | 428 | 88.9% | 2 | 12.4% |
| State | 0 | 0 | 33 | 4.3% | 31 | 86.1% |
| Private | 58 | 4.7% | 57 | 6.8% | 4 | 1.5% |

Source: Haridussilm, n.d.

According to the 2010 Basic Schools and Upper Secondary Schools Act, each school's operating costs will be covered by the school owner**.** Schools draw funds from a variety of sources: allocations from the state and rural municipality or from city budgets; contributions from private organizations; individual

donations; and income from extracurricular activities. These sources fund both municipal and private schools. The bulk of funding for public schools comes from state and local governments, whereas parents and private enterprises contribute to private schools, as well as the state.

### Local Governments

Local governments (rural municipalities or cities) must guarantee a spot at school for all students who reside in their administrative region. Local governments are authorized to maintain school buildings and grounds, and to establish, reorganize, or close general education schools as needed. Local governments track the number of children attending compulsory school, ensure school attendance control, and arrange school transport, the provision of school meals, and related functions (Riigi Teataja 2010a).

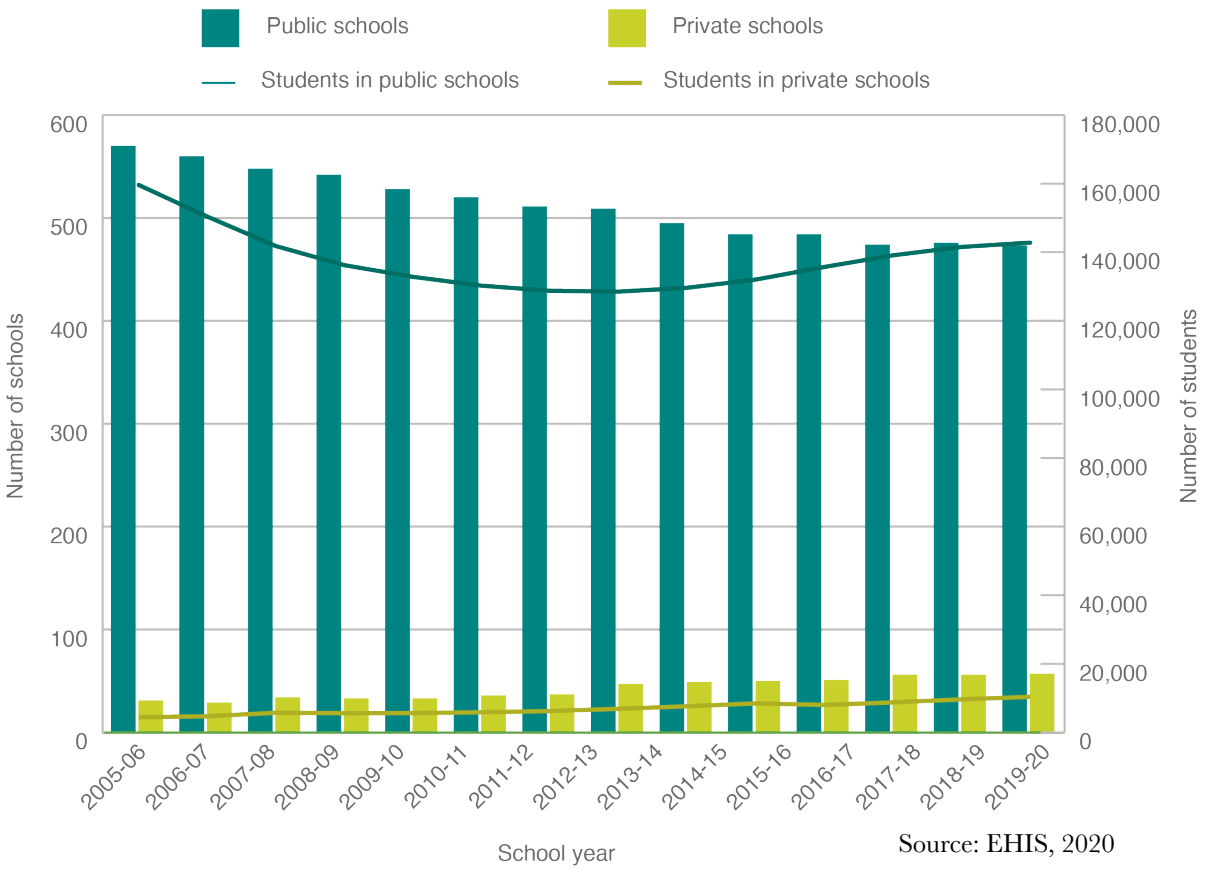
In general, there are no entrance requirements for students enrolling in first grade. However, local governments permit a subset of schools to select talented students through screening tests administered before first grade. These schools (mostly located in Tallinn and Tartu, the two biggest municipalities) are municipal schools; they are called "elite" by the media and the public. Their selectiveness creates competition for admission. In 2020, one applicant out of ten was selected to attend first grade in one "elite school" in Tallinn. The existence of these schools has inspired passionate discussions about equity and fairness among politicians and educational experts, but local governments are free to operate them if they wish.

The state allocates funds to municipalities depending on how many students are enrolled in municipal schools. State subsidies cover teachers' salaries, in-service training, learning materials (textbooks, ICT equipment, etc.) and school lunches (Riigi Teataja 2010a).

Similar subsidies also support private general education schools (Private Schools Act 1998). The state does not prescribe how the funds are to be used by schools. Local governments reserve the right (and the obligation) to finance schools based on actual needs.

In 2019–2020, 11 percent of general education schools were private. The number of students learning in private schools has been gradually increasing since 2005–2006 (Figure 4, next page). One possible explanation is that private schools are better positioned to provide targeted educational opportunities to families who value them. Private school curricula usually include alternative learning approaches and have fewer students per class, with more opportunities for individualized learning and family participation. Because private schools are largely subsidized by the state, families do not have to cover huge financial costs to enroll their children.

**Figure 4. Trends in Number of and Enrollment in Private/Public Schools**




Source: EHIS, 2020

## Schools and Principals: A High Level of Autonomy

### Governance

School governance in Estonia involves three levels of administration**:** 1) the central government, 2) local municipalities (rural municipalities and cities/towns) and 3) schools themselves.

The government and the Ministry of Education and Research are responsible for national education policy and overall strategic planning for the education system. The responsibilities of the Ministry include creating a legal framework and setting national development goals; the supervision and development of the education system; establishing the framework for student learning objectives; defining the levels and terms of funding; setting the requirements for the professional and pedagogical competence of educational staff; determining minimum salaries of teachers; and managing the register of schools which form the school network.

As part of their obligation to provide basic education to all school-age children in their area, local municipalities establish the hiring procedure for heads of schools and submit the procedure to the board of trustees for review. The contract with the head of a municipal school is administered by the rural municipality or city mayor (Riigi Teataja 2010a). Bigger cities such as Tallinn, Tartu, and Pärnu have greater capacity to organize an education department within their municipality, which can include quality assurance activities, overseeing collaboration among schools, and assisting schools with teachers' professional development.

Estonian schools are highly autonomous. Legislation and regulations set by the central government are not too detailed, which gives schools and municipalities opportunities to set specific rules geared toward local circumstances. School principals bear full responsibility for the quality of education, financial management, appointment and dismissal of teachers, level of teacher salaries (above a minimum), and relations to the school community and the general public. A board of trustees serves as an important advisory body overseeing the activities of students, teachers, school operators, parents, graduates and affiliated organizations. The board supports the school in planning and improving the teaching and learning process (Riigi Teataja 2010a). Parents who serve on the board can influence a school's development by guiding the school's curriculum, development plan, and approach to pedagogy. At schools where there is a student council, the board of trustees also includes a student representative appointed by the council (Santiago et al 2016c).

### Quality Enhancement and Accountability

While schools have significant autonomy, the central government sets performance indicators for monitoring quality across the system. Because the Estonian public is highly invested in its school system and pays close attention to performance, publicly available performance indicators are effective for benchmarking and act as a latent control mechanism for the system actors. In light of this, formal evaluation by the state is considered unnecessary in Estonia.

Schools are primarily responsible for improving the quality of learning opportunities for students. Schools use internal quality control mechanisms such as internal evaluation and annual developmental conversations with teachers to set the in-service training goals in line with institutional aims (Riigi Teataja 2010a). Schools should collaborate with teaching staff, students and parents on development plans. The development plan lays out the goals, objectives and paths for school development and establishes indicators to monitor progress. Each development plan covers at minimum a three-year term and includes an internal evaluation process to identify the school's strengths and weaknesses. While the results of

internal evaluation are used to inform future plans, evidence-based management has not yet been fully adopted in Estonian schools.

The main components of national-level external evaluation are (1) the external evaluation of learning outcomes (except preschool education); and (2) state supervision of specific issues that arise. The external evaluation of the school is carried out only in the case of complaints or violations of general regulations or legislation, which are uncommon (Riigi Teataja 2010a). State level supervision can result in sanctions, starting with a precept instructing the school to resolve an issue or meet certain requirements during a specific time frame (e.g., a school might be given two years to align its curriculum with the national curriculum or raise teachers' qualification standards). If the school does not comply with the order, the state may impose a penalty. If the precept and penalty do not work, the state's extreme and final step is to withdraw the school's permit. This happens very rarely. In general, Estonian schools monitor themselves efficiently. This self-evaluation reduces the need for routine state supervision without specific cause.

Recently, state monitoring of schools has been shifting away from monitoring standard school processes and towards needs-based supervision aimed at supporting schools at risk. The shift can be explained in part by an administrative reform of the municipalities in 2017. By increasing the size of local governments and improving their administrative capability, the state has been able to delegate monitoring to municipalities; the shift has also saved money, as when resources are limited, it makes sense to prioritize schools at risk. Once the state has identified an at-risk school (generally based on measures of student performance), it supervises the efforts of school operators to improve learning conditions and ensure improved outcomes.

According to the Basic Schools and Upper Secondary Schools Act (2010), there is also one preventive form of external evaluation: the schooling permit procedure for opening new schools. To receive a schooling permit, a prospective school must demonstrate the following: a curriculum aligned with the national curriculum, a sufficient number of qualified staff, a suitable school environment meeting all health and safety regulations, and adequate resources to maintain the school.

At the state level, the Ministry of Education and Research gathers and monitors information about the entire school system in order to identify areas for improvement. The state supervision system aims to (1) verify compliance with legislative requirements regulating study and educational activities, and (2) analyze problems in the implementation of legislation regulating study and educational activities (Riigi Teataja 2010a). The following two thematic analyses by the Ministry provide examples of state oversight: "An overview of the monitoring of the legality and relevance of the conditions and procedure for admission to

the upper secondary school," and "an overview of monitoring the exclusion of students from basic school and upper secondary school."

Each year, the Annual Overview of the Ministry of Education and Research and the Annual Overview of External Evaluation raise important issues about the education system and offer analysis that helps educational specialists at the state, municipal and school level to evaluate their own institutions. Additionally, the Ministry commissions frequent studies of the learning system from universities and think tanks, to look at such issues as how formative assessment is implemented in schools or how teachers' in-service learning is supported.

### Quality Enhancement in Vocational Education

Ensuring equal access to quality learning is an important aim of vocational education in Estonia. From 2011 through 2018, the Estonian Quality Agency for Higher and Vocational Education (EKKA) — reorganized in 2022 and named The Estonian Quality Agency for Education (HAKA)—undertook external evaluation and accreditation of vocational programs of study/curriculum groups in broad curriculum areas (e.g., environmental protection, horticulture, ICT, trade, etc.). The evaluation looked at several features of a study program, including the program's content and structure; whether learning outcomes are specified; entry and completion requirements; key competencies; principles for curriculum updates; and principles for recognition of prior learning and work experience. During accreditation, teaching effectiveness is assessed across five fields: (1) the teaching process; (2) leadership and organizational management; (3) human resource management; (4) cooperation with interest groups; and (5) resource management.

According to a directive from the Minister of Education and Research, schools are accredited to offer programs in a particular curriculum area/group and only programs that receive accreditation have the right to operate in a particular curriculum group. Accreditation takes place in four stages: (1) the school conducts an internal evaluation of the program of study and compiles a report; (2) the evaluation committee analyzes the program report, conducts an assessment visit and compiles an assessment report; (3) the quality assessment council for vocational education in EKKA makes an accreditation decision based on the internal and external reports and submits a proposal to the Minister of Education and Research; (4) on the basis of the proposal, the Minister of Education and Research decides whether or not to extend the right to conduct studies in the program group. If granted, the right to conduct studies is extended by three or six years (Table 4, next page).

**Table 4. Main Strengths and Challenges of Estonian Vocational Education Based on Accreditation Results, 2011-2018**

| STRENGTHS | CHALLENGES |
|---|---|
| Modern learning environment and technology | Resources are not used optimally. |
| Staff meet qualifications and teachers are committed and experienced, and practitioners are involved. | The VET teacher workforce is aging; teachers are overburdened; staff development, including internships, is not systematic. |
| Curriculum development is consistent and takes place in cooperation with employers. | The use of e-learning tools is minimal; learning and assessment methods are teacher-led with little input or feedback from students. |
| Work-based learning is being implemented. | Enrollment is declining and drop-out rates are high. |
| Leadership and management are systematic and inclusive. | Development visions and plans are vague; the division of responsibilities in management is unclear. |
| Employers cooperate and their interests are considered (curricula, electives). | In-service supervisors are not trained; internships are not assessed in advance; the organization and content of the internship are not in line with the learning objectives or learning outcomes; cooperation with employers is formal. |

Source: Kroonmäe, 2019

Both the accreditation report and the results of the internal evaluation are publicly available. Vocational education institutions use the results for strategic planning, improvement of curricula and teaching methods, etc., while the Minister of Education uses the evaluation results for strategic development of vocational education at the system level (Cedefop, 2017). Accreditation reports reflect expert opinion about such issues as resource planning, leadership and management, and staff compliance, and include a summary of each program's strengths and challenges. At the end of the 2011-2018 accreditation period, a clear set of challenges facing vocational institutions had emerged. Among these were planning and use of resources, especially as the number of students significantly decreased; the maintenance of the learning environment, including keeping technology and machinery up to date; and the recruitment of teachers.

Internal evaluation reports of schools also showed that school leaders had difficulty collecting feedback from students, teachers and other stakeholders, analyzing the results and using them in development work (Kroonmäe, Taimsoo, and Lauri 2020) (Table 4).

By contrast, curriculum development emerged as a strength. During that time, institutions made a shift to outcomes-based curricula, and development work with internal and external stakeholders to implement this curricula was intensive. An important emphasis in curriculum development was alignment with the requirements of the labor market and the expectations of target groups (learners, the labor market, the state, and society in general).

Since 2019, all vocational education institutions are required to be accredited at least once every six years. Ideally, this will promote alignment across institutions and ensure high-quality learning for all vocational students in Estonia. Currently, institutions are focused on the following goals:

1. **Developing strong programs of study** Study program development should be targeted, systematic and managed; programs should meet the needs of learners and the labor market; studies should be designed to take into account the uniqueness of the learners and the learning environment.
2. **Strengthening the teaching and learning process** Students' choice of specialization should be supported; the learning environment should support students in achieving their learning outcomes; program design should be adapted to student needs and interests; teaching content, methodology and evaluation should be based on learning outcomes; student support services should be in place and available to students.
3. **Improving the professionalism of teachers** Teachers should have all relevant qualifications; work volume and job positions should be planned in advance; the professional and occupational development of teachers should be informed by the programs of study, the needs of learners, feedback from the stakeholders and self-evaluation.

With these goals in mind, the state monitors performance of vocational education using the same indicators used by accreditors and by schools: (1) trends in admission (including in-service training); (2) trends in the share of early leavers (drop-outs); (3) trends in the share of graduates; (4) trends in the employment rate of alumni, including the share of those continuing in education and training; (5) trends in passing the vocational examination; (6) trends in student satisfaction; (7) other indicators, including students' mobility, taking part in competitions and contests, etc. (Estonian Quality Agency for Higher and Vocational Education homepage: https://haka.ee/en/external-assessment-vet-estonia/).

## Data-driven and Feedback-based Governance

During the last few decades, Estonia has shifted towards more data-driven and feedback-based governance of its learning system. This governance model has its roots in the early nineties, when Estonian schools (with the support of non-governmental initiatives as well as the Ministry) widely adopted the kind of organization management mindset usually seen in the business sector. While this approach is uncommon in the educational field, several initiatives like "Unique school" ("Omanäoline kool"), "Learning organization" ("Õppiv kool"), and "EFQM model for quality assurance at school" have promoted continuous organizational improvement and introduced the so-called Deming cycle for school leaders. This has enriched school culture and leadership practices in Estonian schools.

### Monitoring the System and Common Indicators for All Schools

Estonia collects a vast amount of data on its schools in order to monitor the education system's performance and adherence to regulations. The central government intervenes when it sees schools deviating from national standards or from their own development plans. Estonia makes school data available to the public, a practice critical to maintaining quality in a system where schools operate with significant autonomy.

The Ministry of Education and Research uses a range of tools to monitor two main aspects of the "health" of the school system: 1) how well schools are functioning and performing, and 2) how well schools are implementing national strategies (e.g., the Estonian Lifelong Learning Strategy 2020).

### Monitoring School Performance

Many steps are involved in monitoring an individual school's performance. First, information on student learning outcomes is collected from sample-based national standard-determining tests (see more in chapter 4) in grades 3 and 6 and from national examinations in grades 9 and 12 (see Table 5. Target groups of the Satisfaction and School Environment Survey 2017-2022 later in this chapter).

The Education and Youth Authority (*Harno)* analyzes the results of the assessments and supplies schools with detailed feedback on their students' performance. The information in the overview is drawn from existing EHIS information and "satisfaction questionnaires" completed by students, teachers and parents. The annual school overviews and general system-level reports are publicly available in *Education Eye* (haridussilm.ee). Every school can design its own report choosing indicators and years (to analyze trends) and compare its own performance with the national average.

In addition, the Ministry of Education and Research sets performance indicators (most recently in 2016) for basic and upper secondary schools. The indicators for basic schools are as follow: (1) share of 8th grade students satisfied with the school; (2) proportion of 8th grade students who did not experience bullying at school; (3) frequency of use of digital solutions in teaching and learning activities in the 8th grade; (4) proportion of unexcused absences among 8th grade students; (5) proportion of 8th grade students participating in extracurricular activities; and (6) alignment of the basic school final examinations and the annual school grades for respective subjects.

The indicators for upper secondary schools are as follow: (1) results of basic school final examinations for students entering the 10th grade of upper secondary schools; (2) proportion of 11th grade students who are satisfied with the school; (3) frequency of use of digital solutions in teaching and educational activities in the 11th grade; (5) alignment of scores on state examinations and school grades for subjects and the contribution of the upper secondary school to the progress of students (Act of the Minister of Education and Research 2016). Assessing a school's contribution to student progress is complex, as learning outcomes depend on many different factors, some of which can be controlled by the school (e.g., the structure of the learning process, teaching methods) and some of which cannot (e.g., students' previous knowledge, learning or extracurricular opportunities related to the location of the school).

Performance indicators are designed to give parents, communities, and the state a more complete picture of how well a school functions than learning outcomes alone can provide. Ideally, schools will use performance indicators to help them evaluate teaching, school climate, student well-being, and other factors, and to involve important stakeholders (including parents and students) in the evaluation process.

### Monitoring the Progress of Strategy Implementation

The Ministry of Education and Research uses several key indicators to monitor the progress of the Estonian Lifelong Learning Strategy 2020 toward strategic goals (Table 5).

## Table 5. Key Indicators of the Estonian Lifelong Learning Strategy 2020

| Indicator | Target level 2020 | Starting level 2012 |
|---|---|---|
| **Key indicators** | | |
| Participation rate in lifelong learning among adults (% of those aged 25-64 who stated they had received education or training during the four weeks preceding the survey) | 20% | 13% |
| Percentage of adults (aged 25-64) with general education only (no professional or vocational education) | Not over 25% | 30% |
| Early school leavers (% of the population aged 18-24 with not more than a lower secondary education and not enrolled in further education or training) | Below 9% | 11% |
| Top achievers in basic skills (the percentage of top performers) a) reading b) mathematics c) science | a) 10%<br>b) 16%<br>c) 14% | a) 8%<br>b) 15%<br>c) 13% |
| Employment rate of recent graduates (aged 20-34; one to three years after leaving education) | At least 82% | 74% |
| Digital competencies (% of individuals aged 16-74 with computer skills) | 80% | 65% |
| Comparison of general education teachers' salaries (ratio of salaries to earnings for full-time, full-year workers with tertiary education aged 25-64) | ≥1.0% | 0.64% (2011) |
| Stakeholders' satisfaction with lifelong learning (central, regular survey) | Satisfaction has increased | |
| **I-Change in approach to learning** | | |
| Low achievers in basic skills in a) reading b) mathematics c) science | a) 8%<br>b) 8%<br>c) 5% | a) 9%<br>b) 11%<br>c) 5% |
| Drop-out rate from lower-secondary compulsory education | <1% | 0.6% |
| Drop-out rate from:<br>a) vocational schools<br>b) general upper secondary schools<br>c) higher education schools | a) <20%<br>b) <1%<br>c) 15% | a) 26%<br>b) 1%<br>c) 21% (2011) |
| **II-Competent and motivated teachers and school leadership** | | |
| Percentage share of teachers who are aged 30 or below | >13% | 10% |
| Competition for study places in teacher education | Competition has increased | - |
| Ratio of female and male teachers in general education | 75:25 | 86:14 |
| **III-Alignment of lifelong learning opportunities with the needs of the labor market** | | |
| Share of tertiary graduates in mathematics, science and technology as a percentage of all tertiary graduates | 25% | 22% |

| Indicator | Target level 2020 | Starting level 2012 |
|---|---|---|
| Share of basic education graduates who passed career counselling | 100% | |
| Share of basic education graduates who continue their studies in vocational upper secondary education | 35% | 29% |
| Ratio of general and vocational upper secondary students | 60:40 | 67:33 |
| Student mobility | 10% | 3.5% |
| **IV-Digital focus in lifelong learning** | | |
| Share of students who use computers, digital and mobile personal devices for studies every school day | 100% | |
| Share of Year 8 students at digitally supportive schools | 100% | 33% |
| Share of Year 8 students in schools with virtual learning environment | 100% | 54% |
| Share of basic education graduates whose ICT basic skills are assessed and certified | 100% | |
| **V-Equal opportunities and increased participation in lifelong learning** | | |
| Tertiary education attainment, adults aged 30-34 | 40% | 39% |
| Participants in early education (aged 4 to compulsory starting age) | 95% | 89% (2011) |
| Share of Russian-language school graduates who master the Estonian language at B1 level | 90% | 57% |
| Share of labor costs of governmental education expenditures | 60% | 55% (2011) |
| Share of teachers' labor costs of governmental expenditures on general education | 50% | 38% (2011) |
| Optimization of the use of space in educational institutions (m2) | 3 million | 3.5 million |

Source: Estonian Lifelong Learning Strategy 2020

In 2020, the Ministry of Education and Research analyzed the implementation of the Estonia Lifelong Learning Strategy. The analysis shows that while significant progress was made not all progress indicators were met fully or partially (Ministry of Education and Research 2020c). The participation rate for lifelong learning (one of the key indicators in the analysis) grew rapidly, reaching 20.1 percent in 2019 for the population aged 25-64. This is 0.4 percent more than in 2018 and 3 percent more than in 2017. The participation of individuals with a low level of education (basic education or lower) rose sharply. In 2015, only 4 percent of 25 to 64-year-olds in this group participated in lifelong learning; by 2019 participation had climbed to 9.1 percent. Although participation rates in lifelong learning have increased mainly due to rising participation in non-formal learning such as in-service training, data also showed an increasing

interest among adult learners in formal learning, including both vocational and higher education offerings.

However, the share of early school leavers aged 18 to 24 has remained the same over the last six years, despite a brief decrease, and there is no clear sign of an upward trend in the level of education for this group. Gender imbalances remain a concern, as men still outnumber women among Estonians with low levels of education, and boys still outnumber girls among early school leavers.

The 2018 PISA survey focused on functional reading skills (for more information, see https://www.oecd.org/pisa/). The average score of Estonian students in reading was the highest score in Europe, 523 points (compared to the OECD average of 487). The number of top-level readers increased from 11.1 percent (2015) to 13.9 percent (2018); in 2018, the average number of top-level readers in OECD countries was 8.5 percent. The analysis also looked at PISA data to assess progress of young people in mathematics and science. Estonia's overall score in math was also the highest score in Europe, 523 points. The share of top performers in mathematical literacy increased from 14.2 percent (2015) to 15.5 percent (2019). The results of mathematical literacy differ by gender and language of instruction, however. The average score of boys in mathematical literacy was 528 points, while that of girls was 519. The average score of Estonian students in science literacy was 530 points, the highest score in Europe. The share of top performers in science literacy in 2018 was 12.2 percent, somewhat less than in 2015 (13.5 percent). The best results in science were achieved by students with Estonian as the language of instruction, with girls scoring 544 points on average and boys scoring 537. Boys and girls with Russian as the language of instruction scored an average of 500 and 499 points, respectively.

### Comparative Data for School Self-evaluation

Estonia has developed central data collection and databases in order to support school self-evaluation. The Center for Applied Social Sciences (CASS) of the University of Tartu (UT) piloted satisfaction questionnaires in 2016. The first survey of students, teachers, parents, alumni and employers took place in 2018 (Table 6). Currently, The Education and Youth Authority (*Harno*) conducts a survey annually and provides feedback to all educational institutions by compiling school-based reports. These reports include data for each school along with comparable data on similar schools (e.g., small rural schools, state gymnasiums, etc.). The focus of the Satisfaction and School Environment Survey can vary from year to year (see Table 6, next page).

## Table 6. Target Groups of the Satisfaction and School Environment Survey 2017-2022

| | Pre-primary Education | General Education | Vocational Education |
|---|---|---|---|
| Before 1991 | Teachers (including teaching assistants and assistant teachers)<br>Parents | Students in grades 4, 8 and 11<br>Teachers<br>Parents of basic school students<br>Students at adult upper secondary schools | Students<br>Teachers |
| 2018 | Teachers (including teaching assistants and assistant teachers)<br>Parents | Students in grades 4, 8 and 11<br>Teachers<br>Parents of basic school students<br>Students at adult upper secondary schools | |
| 2019 | | Students in grades 4, 8 and 11<br>Students at adult upper secondary schools | Students |
| 2020 | | Students in grades 4, 8 and 11<br>Students at adult upper secondary schools | Students |
| 2021 | Teachers (including teaching assistants and assistant teachers)<br>Parents | Students in grades 4, 8 and 11<br>Teachers<br>Parents of basic school students<br>Students at adult upper secondary school | Students<br>Teachers |
| 2022 | | Students in grades 4, 8 and 11<br>Students at adult upper secondary schools | Students |

Source: https://harno.ee.

In addition, anyone interested in their school's data or general education statistics can look up a "school report card" in *Education Eye* (haridussilm.ee). The report card is designed to provide comprehensive information on each school's learning environment, education process, and student performance for parents, school operators, the community and the state. This information helps the school with self-

evaluation and alerts the Ministry to any serious problems. Table 7 (below) shows what data are collected at the national level and what data are available for school self-evaluation and benchmarking.

### Table 7. National Level Data Collection

| | Data | For students | For teachers | For school, ECEC institution, VET school |
|---|---|---|---|---|
| 1 | Well-being and satisfaction survey in General education: 4th, 8th and 11th grade students, teachers and parents | | | x |
| 2 | Well-being and satisfaction survey in ECEC, teachers and parents | | | x |
| 3 | Well-being and satisfaction survey VET students and teachers | | | x |
| 4 | Baseline tests at the beginning of 4th grade in math and mother tongue (to monitor the achievements of 1st school stage) and at the beginning of 7th grade in math, mother tongue, English, German and science (to monitor the achievements of 2nd school stage) | x | x | |
| 5 | 2nd, 3rd, 6th, 8th grade diagnostic tests of general competencies of learning to learn skills, self-determination, communication skills | | x | |
| 6 | Self-evaluation by teachers of 2nd, 3rd, 6th grades around general competencies | | x | |
| 7 | 5th, 8th, 9th, 10th grade baseline (diagnostic) tests in math and mother tongue | x | x | |
| 8 | 5th, 8th grade baseline (diagnostic) tests in Estonian as second language | x | x | |
| 9 | 10th, 11th, 12th grade self-evaluation of entrepreneurship competence | x | x | |
| 10 | 8th, 11th grade digital competence test | x | x | x |
| 11 | 9th grade final exams (math, Estonian language, elective subject) | x | x | *Statistical overview is in open access |
| 12 | 9th grade math, Estonian language teachers' feedback questionnaire about examination | | x | |

| | Data | For students | For teachers | For school, ECEC institution, VET school |
|---|---|---|---|---|
| 13 | 12th grade state exams (math, Estonian language, foreign language) | x | x | *Statistical overview is in open access |
| 14 | School digital readiness and digitalization monitoring tool: digital mirror | | | x |
| 15 | PISA feedback | | | x |

Different kinds of support, research and monitoring are available from the Ministry and universities to help schools analyze their students' learning process. Tallinn University invites schools to participate in its school monitoring surveys, which focus on school climate and issues related to teaching (e.g., the leadership style of principals, the sense of empowerment among teachers, etc.). The surveys also include views on the work environment and teachers' well-being (Kõiv, Liik, and Heidmets, 2019).

Estonians value education and see it as an important investment in the future, so it makes sense that different stakeholders (e.g., students, parents, community members) hold schools accountable for their activities and results. Performance rankings are the subject of intense public interest and underperforming schools do not escape notice. Parents are motivated to find the best schools for their children and interest in private schools is increasing.

# 3

# Curriculum and Standards for Learning

This chapter discusses how Estonia's national curriculum sets standards for schools for the performance of all students. It includes an overview of curriculum design, learning expectations for students, and the contribution of extracurricular activities to formal education.

### Main Messages:

- **The schools develop their curriculum within the framework of the national curriculum**. Schools are encouraged to innovate, which fosters a sense of "ownership" of the curriculum and its outcomes. Teachers have a high level of autonomy in how they implement the curriculum and are encouraged to collaborate at the school and local level to create new learning approaches.
- **Expectations for learning are high, and the curriculum aims to promote deep conceptual understanding.** The curriculum aims to create a strong academic base for all students. To meet these high expectations, individualized support is offered to all students who need it.
- **Curriculum defines general competencies and cross curricular topics and encourages integration of subjects to prepare students for the demands of the future.** Schools provide opportunities for students to prepare for work and citizenship by focusing learning on broad competencies and addressing topics and issues from different perspectives.
- **Curriculum is regularly updated based on data about student progress and the learning process.** Progress on key indicators and national survey results help schools benchmark their performance. The national curriculum sets expectations for student learning. Attainment is monitored through standard-determining tests, which are sample-based and subject specific. The tests are low-stakes and their main aim is to inform stakeholders how effective the study process has been.

- **Outside-of-class learning complements formal school education.** Hobby school programs can be aligned with the school curriculum. Extracurricular activities including extended day programs have a long tradition and are subsidized by the government. Institutions such as nature centers, hobby clubs, and museums collaborate with schools to help students build stronger connections between different fields.

## National Curriculum as Framework for Schools to Develop Their Own Curriculum

### National Curriculum as a Framework for School Curriculum

Estonia has renewed its national curriculum three times since regaining independence, publishing the first version in 1996, the second in 2002, and the third in 2011. However, across these iterations, the curriculum has maintained consistency (see Table 8). At the beginning of the 1990s, the curriculum shifted to focus on students' learning experience. This approach, dominant in Nordic countries, is rooted in the works of the world-famous Estonian curriculum theorist and researcher Hilda Taba, who studied with John Dewey in the United States during the 1930s. Her book, *Curriculum Development: Theory and Practice* (1962), influenced the creation of the first Estonian curriculum after independence in 1991.

In Estonia, the national curriculum is a law. Until 2010, it consisted of a general section and subject appendices. As of 2011, the subjects have been replaced by broader subject fields, as part of an effort to better integrate learning in key areas. The general section describes the human values fostered by education, the goals for learning and education, and general principles for how to shape the learning environment, organize studies, conduct assessment, and establish graduation requirements. The national curriculum applies to all general education schools whether state, municipal, or private. Thus, all students must meet the same standards to graduate from school. Graduation requirements for basic and upper secondary school are based on the national curriculum of 2011, which aligns with the Estonian qualification framework, which, in turn, aligns with the European qualification framework through the Professions Act (2008). Curriculum development grounded in a competency-based approach has been consistent since the transformative period of the 1990s (see Table 8, next page). All three versions of the national curriculum since re-independence have utilized a competency-based approach by defining learning outcomes in subject fields and by levels.

### Table 8. Development of the National Curriculum

| | |
|---|---|
| Before 1991 | Content-based curriculum (Lehrplan) |
| 1991-1996 | Transformation period |
| 1996 | Release of the first Estonian curriculum with<br>• General and subject competencies<br>• Social constructivist approach to learning |
| 2002 | More decision-making authority for schools<br>More subject integration<br>Modified cross-curricular topics |
| 2010 | Separated primary and upper-secondary curriculum<br>Modified and extended general competencies<br>Subject fields created |
| 2011 | Decreased and renewed content<br>Modified general competencies including digital competence<br>Modified learning outcomes for subject fields |

The national curriculum of 1996 defined a suite of new general and subject competencies, which the 2002 curriculum expanded with explanations of the competencies. For the 2011 curriculum, Estonia implemented the European recommendations (European Parliament and Council 2008) for a general competence framework. Educational objectives are described as learning outcomes for each school level (grades 1-3, 4-6, 7-9 and upper secondary 10-12) in all three versions of the curriculum. This structure gives schools the freedom to decide how to divide learning outcomes across the grades. Since 2011, the common national curriculum has been separated into two curricula, one for basic school and one for upper secondary school. Learning outcomes have also changed over time. In the 1996 curriculum, learning outcomes were divided between knowledge and skills, whereas in the 2011 version learning outcomes are described as the ability to apply knowledge and skills to solve problems.

## Table 9. Example of Learning Outcomes of Mathematics at the End of Grade 3: 1996, 2002 and 2011

**1996** **At the end of the first stage of study, the student knows**

- Components and results of four arithmetic operations
- Sequence of natural numbers from 1 to 10, 000
- The representation of natural numbers in the decimal system
- The correlations among the units of measurement they have learned
- How to tell time and use a calendar (days, months)
- Basic planar and 3-dimensional shapes (circle, triangle, tetragon, square, rectangle, pentagon, hexagon, sphere, cube, tetrahedron, cylinder, cone)

**At the end of the first stage of study, the student can**

- Read and write natural numbers up to 10, 000
- Determine a number's place in a sequence of natural numbers
- Compare numbers orally and in writing
- Do mental addition, subtraction, multiplication and division within 100
- Add and subtract four-digit numbers in writing
- Multiply and divide two-digit numbers in writing
- Add and subtract single-named numbers
- Determine the sequence of operations in an expression
- Find the numerical value of a letter in an equation by finding connections between the data and the sought information
- Compose one operation text tasks
- Analyze and solve one and two operation text tasks
- Using a ruler or divider, draw a triangle, tetragon, circle and a line with a predetermined length
- Compare lines by measuring them and calculate the length of the line

**2002** **At the end of the first stage of study, the student knows**

- Components and results of four arithmetic operations
- Sequence of natural numbers from 1 to 10, 000
- The representation of natural numbers in the decimal system
- The sequence of operations in an expression
- The correlations among the units of measurement they have learned
- How to tell time and use a calendar (days, months)
- Basic planar and 3-dimensional shapes (circle, triangle, tetragon, square, rectangle, pentagon, hexagon, sphere, cube, tetrahedron, cylinder, cone)
- The multiplication table by heart

**At the end of the first stage of study, the student can**

- Read and write natural numbers up to 10, 000
- Determine a number's place in a sequence of natural numbers
- Compare numbers
- Do mental addition, subtraction, multiplication and division within 100
- Add and subtract four-digit numbers in writing

- Add and subtract single-named numbers
- Determine the sequence of operations in an expression
- Determine the numerical value of a letter in an equation by finding connections between the data and the sought information
- Find the numerical value of a letter
- Compose one operation text tasks
- Analyze and solve one and two operation text tasks
- Using a ruler or divider, draw a triangle, tetragon, circle and a line with a predetermined length
- Compare lines by measuring them and calculate the length of the line

---

**2011 At the end of the first stage of study, the student**

- Has respect for his or her family, class and school; is polite, keeps promises; knows that no one is to be humiliated, teased or mocked; is capable of listening to his or her peers and considering them
- Wants to learn, derives pleasure from knowledge and aptitude, is able to learn alone and with others, in pairs and groups, is capable of budgeting time for studying, hobbies, chores and rest
- Is aware of his or her ethnic identity and takes a respectful attitude to his or her people
- Is capable of adapting him or herself to an assignment and making sense of his or her actions in fulfilling the assignment; is able to prepare a schedule for the day and follow it
- Is capable of finding and understanding information in texts (including data, terms, characters, activities, events and their time and place) and presenting the information orally and in written form
- Understands and uses learned everyday expressions and simple phrases in a foreign language
- Calculates and knows how to use tools suitable for measurement and to solve age-appropriate assignments
- Acts in a prudent manner with regard to nature
- Knows how to notice and describe differences and similarities, knows how to compare objects and phenomena, categorize them on the basis of one or two characteristics, and to read a simple plan, table diagram and map
- Is able to use simple computer programs and technical devices used at home and at school
- Has respect for his or her hometown or region, homeland and the Estonian state, knows its symbols and complies with it rules of conduct
- Is able to notice and assess beauty, has an appreciation for creativity and takes pleasure in exercise, creative self-expression and activities
- Maintains cleanliness and order, looks after his or her appearance and health and has a desire to be healthy
- Is able to avoid dangerous situations and summon assistance in the case of danger, knows safe traffic practices
- Knows to whom to turn to with various problems and is prepared to do so.

In addition to learning outcomes for basic and upper secondary schools, the national curriculum specifies a required number of lessons for compulsory subjects each week according to the stages of study. There is ongoing discussion among education stakeholders about which subjects should dominate the curriculum. For example, unions for traditional subject teachers might argue that their subjects should remain in the curriculum, while other stakeholders might lobby to add new subjects or decrease compulsory lessons. The national curriculum of 1996 stated only the range and overall number of lessons, but the more recent

versions specify a compulsory number of weekly lessons. Each school gets some choice of which lessons to teach, depending on its particular needs and values (Table 10, below).

### Table 10. Weekly Number of Lessons for Compulsory Subjects

| | 1996 | | | 2002 | | | 2011 | | |
|---|---|---|---|---|---|---|---|---|---|
| Stages of Study:<br>I: grades 1-3<br>II: grades 4-6<br>III: grades 7-9 | I | II | III | I | II | III | I | II | III |
| Estonian | 18–22 | 14-16 | 11-12 | 19 | 15 | 12 | 19 | 11 | 6 |
| Literature | - | - | - | - | - | | - | 4 | 6 |
| Foreign language A | - | 8-11 | 7-9 | 3 | 9 | 9 | 3 | 9 | 9 |
| Foreign language B | - | 3-4 | 8-10 | - | 3 | 9 | - | 3 | 9 |
| Science | 6-8 | 7-8 | 2 | 3 | 7 | 2 | 3 | 7 | 2 |
| Human studies | | 3 | 4-5 | 3 | 2 | 1 | 2 ↓ | 2 | 2↑ |
| Social studies | - | - | | - | 1 | 2 | - | - | - |
| Mathematics | 9-13 | 12-15 | 12-15 | 10 | 13 | 13 | 10 | 13 | 13 |
| Geography | - | - | 5-6 | - | - | 5 | - | - | 5 |
| Biology | - | - | 5-6 | - | - | 5 | - | - | 5 |
| Chemistry | - | - | 4-5 | - | - | 4 | - | - | 4 |
| Physics | - | - | 4-5 | - | - | 4 | - | - | 4 |
| Music | 6-8 | - | 3 | 6 | 4 | 3 | 6 | 4 | 3 |
| History | -- | 3-4 | 5-6 | - | 3 | 6 | - | 3 | 6 |
| Physical education | 8-10 | 6-8 | 6 | 8 | 8 | 6 | 8 | 8 | 6 |
| Art | 10-13 | 4-5 | 3 | 9 | 3 | 3 | 4.5 | 3 | 3 |

| | 1996 | | | 2002 | | | 2011 | | |
|---|---|---|---|---|---|---|---|---|---|
| Manual training, handicraft and home economics, technology studies | | | 5-6 | | 5 | 5 | 4.5 | 5 | 5 |
| Electives decided on school level | - | - | - | 7 (4)* | 10 (7)* | 4 (1)* | 8 (2) * | 10 (1)* | 4 (1)* |

*In schools that do not use Estonian as the language of instruction

How to determine the time allocations for different subjects has been a topic of debate. Nevertheless, the hours required for most subjects have remained relatively stable across all iterations of the national curriculum, and the most important decisions regarding the specific number of lessons are made at the school level. As such, the national curricula for basic and secondary school follow the principle that the purposes are decided at the state level whilst the methods are decided by teachers at the school level. According to the current version of the national curriculum for upper secondary school, only 63 courses out of 96 are specified as compulsory. The school has significant autonomy to decide on elective courses according to teacher specialization and historical strengths in subject areas. Teachers, with their interests and areas of expertise, play a crucial role in proposing electives.

The national curriculum for upper secondary schools requires schools to offer at least 11 elective courses (one course is equal to 35 academic hours). These courses can be arranged in collaboration with other organizations (e.g., hobby schools, vocational schools, NGSs, enterprises, etc.).

The national curriculum has some exceptions for schools where the language of instruction is Russian. The main difference is the requirement to study Estonian as a second language, in addition to studying Russian as the first language. There is no obligation to study an additional foreign language. In 2007, Russian-language upper secondary schools began to transition to Estonian as the language of instruction. Since 2011, all students in grade 10 have been required to take at least 60 percent of their course load in Estonian. This is quite demanding, as many students are not fluent in Estonian when they graduate from Russian-language basic schools.

Vocational education curricula are designed based on the Vocational Education Standard (2013) and the Vocational Educational Institutions Act (2013). The policy states that the curriculum should specify the goals, objectives and functions of vocational, professional and occupational training; the learning outcomes to be achieved; links with the qualifications framework established in the Professions Act (2008); the requirements for entry and completion of studies; detail on the specific modules that make up the

curriculum; learning outcomes and assessment criteria; and options and conditions for choosing modules and specialization opportunities. The standards established by each profession form the basis for determining which professional skills are taught in a course of study in that area. The national curricula are prepared in cooperation with social partners, based on the Vocational Education Standard (2013). The core studies modules are designed to meet professional standards, while general studies modules align with the national curriculum for upper secondary schools. There are VET framework curricula in 21 different curriculum areas for full-time studies. Vocational programs follow basic education and correspond to the qualification level 4 in the national qualification framework. Vocation programs are at least three years, and the study load is 180 Estonian vocational education credit points (EKAP). The vocational curriculum also includes general studies worth at least 30 credit points. There are 10 fields of study which align with professional standards and 44 curriculum groups. However, not all programs in all curriculum groups have secondary education (level 4) programs; some only have programs that follow general education (level 5) (See also in chapter 4.5).

As with general education, the national curriculum for vocational education provides a framework within which each school designs its own curricula to meet the specific needs of its students. In vocational education, this includes specialties and subspecialties. For example, the curriculum for Construction includes requirements for at least five specializations:

1. Mason-concrete worker,
2. Carpenter-log house builder,
3. Finishing work in construction,
4. Facility serviceman, and
5. Installation of building water supply, sewage, heating and ventilation systems.

The vocational education framework is developed at the national level in collaboration with employers; professional standards are renewed regularly every five years and study programs are updated accordingly.

### Schools Are Encouraged to Innovate, Fostering a Sense of Ownership of the Curriculum and Its Outcomes

The two national curricula (Riigi Teataja 2011a, Riigi Teataja 2011b) provide schools with the framework within which to create their own school curriculum. The requirements for the school curriculum are explained in the national curriculum and similar principles pertain to both curricula. All

teachers and support staff are required to participate in discussions about the school curriculum. The school is required to involve students, parents and other stakeholders in creating the curriculum. The head of school is responsible for preparing, implementing and developing the school curriculum democratically (Riigi Teataja 2011a). In practice, the head of school has a leading role in curriculum development, especially in creating the general part of the curriculum, and school staff voluntarily participate in these discussions. Working groups of teachers are formed to propose issues for discussion. Teachers are most interested in developing class syllabi, and participation among subject teachers is generally high. The role of other stakeholders, including students, is generally modest. Student input is most relevant to decisions around electives (Kõiv 2012). Overall, schools in Estonia have more autonomy than the OECD average, with a greater capacity to make decisions on the curriculum (Fraccola, Field, Figueroa, Peterka, Jankova, Golden 2016).

The school curriculum specifies all details and choices required by the national curriculum. With the consent of the school's board of trustees, regional and/or school context or identity can be taken into account when modifying compulsory subjects and cross-curricular topics, linking compulsory courses to elective ones, or changing the arrangement of teaching time, as long as the achievement of learning outcomes, general competencies and educational objectives stated in the national curriculum are assured. According to the national curriculum, the school curriculum should consist of a general section and syllabi. The general section of the school curriculum should include the following:

1. School values and special features, expected learning and educational outcomes of the school;
2. Organization of studies including information about the arrangement of teaching time by subject and year; implementation of cross subject topics and integration of subjects; elective subjects and foreign languages; use of languages of instruction other than Estonian; revision of subject titles or time allocations provided in the national curriculum and the reasons for these differences;
3. Activities planned for diversifying the learning environment, including those supporting the implementation of the curriculum, study trips and other such activities;
4. Procedure for selecting the subject, supervising preparation and grading of the creative project in the last year of basic school;
5. Organization of support and evaluating the development and learning of the students;
6. Principles of organizing the studies of students with special educational needs and procedure for implementing support services;
7. Organization of career studies, including career information and counselling;
8. Organization of informing and counselling students and parents;
9. Principles of planning cooperation and work by the teachers; and

**10.** Procedure for updating and supplementing the school curriculum.

Source: National Curriculum for Basic Schools 2011

This means a school's decisions regarding its curriculum include

- What learning outcomes should be achieved for each grade?
- What compulsory subjects and cross-curricular topics should be covered in each grade, taking into account the school's distinct identity, its organization of professional training, and the content of its language-integrated learning? The school is allowed to modify the list of compulsory subjects and the allocation of lesson hours set in the national curriculum, provided it can assure achievement of learning outcomes.
- What is the best way to organize learning and educational activities? This can be done in different ways: subjects can be learned throughout a school year or during a particular period of the school year; general learning can focus on specific topics without differentiating subject courses.
- What is the best way to organize elective courses and align their content with the study fields so that students can specialize in-depth in a particular subject area?

The syllabi within subject fields (e.g., math, science, Estonian, etc.) describe learning outcomes, subject content by grades, and the plan for the division of lesson hours by grades.

Schools' experiences and approaches to creating curricula have varied. The requirement is sometimes considered a bureaucratic task, and some have questioned whether teachers and students are engaged in meaningful discussions about the general part of the school curriculum (Erss 2020, Kõiv 2012). However, at some schools the responsibility to develop a unique curriculum has initiated deep conversations about their particular approach to learning, which the school curriculum ultimately captured and communicated to community stakeholders. Examples of schools with unique curricula are mostly private institutions with alternative pedagogies (e.g., Steiner Waldorf education); Christian schools; or schools with a specific, well-defined pedagogical approach (e.g., Open School, Emili School, Tartu Private School) (Kuurme 2020).

Other schools have a specialized focus that determines their unique curriculum. Since the Soviet period, talented students have attended specialized schools or classes. For example, in 1958 the first specialized Music class was opened at Tallinn Secondary School No 21; in 1960 the first specialized English class was created at Tallinn Secondary School No 7 (the present English College); in 1962 a specialized Art class was established at Tallinn School No 46 (the present Pelgulinna Gymnasium); and in 1963 a specialized

Chemistry class was formed at Tartu Secondary School No 5 (the present Tamme School). In addition to specialized classes, a few specialized schools were opened, such as Tallinn Music High School in 1961 and Nõo Secondary School in 1964, which accepted students specializing in science. Schools are welcome to develop this kind of specialization and can fit the necessary coursework into the framework of the national curriculum, but specialization is not widespread among schools.

### Teachers Have a High Level of Autonomy in How They Implement the Curriculum

Estonian teachers have autonomy to choose the appropriate learning materials, teaching and assessment methods to achieve required learning outcomes**.** The formal requirements for planning the learning process or reporting activities have decreased. The state-developed curricular materials supplied to teachers now function more as models for teachers to adapt than required texts to use. However, the handbooks for teachers put out by private publishers remain popular among teachers, as they give detailed suggestions for what to do in the classroom. On the national level there is a curriculum portal (https://oppekava.ee/) which organizes the guidelines and recommendations for teachers starting from curriculum development to learning resources for subjects. This is shown in the table of contents of the subject area handbook (see Box 1, next page).

A recent study (Erss 2020) confirms that Estonian teachers devote less attention to the general part of the national or school curriculum (including both their content and pedagogical positions) than to the more detailed syllabi. Overall, teachers are less interested in broad discussions about the pedagogical approach of their school and how to conceptualize general skills than in the more familiar syllabi for their course.

Teachers contribute to discussions about subject curricula via subject associations, which are involved in national curricular development. These associations include such active communities as the Mother Tongue Society, the Association of Foreign Language Teachers, the Association of Biology Teachers, and the Estonian History and Civics Teachers Association.

### Box 1. Example of National Guidance for Schools Provided in Each Subject Area

The table of contents in the subject area handbook

1. **Using the upper secondary school general curriculum and subject syllabus for foreign language**
    - 1.1. Subject Introduction
    - 1.2. Description of the subject syllabus and its connections to the general curriculum
    - 1.3. Integration
    - 1.4. Cross curricular topics in subject syllabus
    - 1.5. Recommendations for organizing foreign language syllabuses in schools
    - 1.6. Most important changes in upper secondary school foreign language study organization and subject syllabi
    - 1.7. Recommendations for designing a learning environment
    - 1.8. Reaching learning outcomes. Opinion study by Piret Kanne
2. **Materials by subject**
3. **Methodological writings and articles**
    - 3.1. "A Teacher's Professional Development – What and How?" by Eve Eisenschmidt
    - 3.2. "Adult Language Learner," by Kristiina Krabi
    - 3.3. "Fostering a Self-motivated Student in the Study of Foreign Language," by Annekatrin Kaivapalu
    - 3.4. "Special Needs Students as Foreign Language Learners," by Mare Valk

Source: https://oppekava.ee/

The current national curricula for Basic and Upper Secondary School reflect changes in the role of school and teacher. The content analysis of the recent versions (Erss 2020) reveals a shift from teachers' individual autonomy to collective autonomy. The national curriculum of 1996 highlighted the autonomy of individual teachers by using such expressions as "the teacher decides," or "the teacher chooses," in the context of evaluation criteria and forms, teaching methods, and subject integration. The teacher's role was described as the "planner, creator and encourager to learn." The rhetoric emphasizing teachers' autonomy has become more common since 2002, focusing mostly on teachers' duties, although these are expressed primarily from the student's point of view: "The student has to know [on] what and when [they] will be assessed…". Most of the text uses impersonal forms: "Situations will be created," "tasks will

be used," etc. Schools and collectives, instead of teachers, are increasingly referred to as the decision makers: "The school's task is to support the following field-specific competencies…" or "the school modifies its fields of study." Furthermore, synonyms such as "the school staff," "the school community," or "teachers' council," are often used in place of "teacher" or "teachers" (ibid).

### Box 2. Example of School Curriculum Subject Integration

Kiviõli I Secondary School promotes entrepreneurial values such as student initiative and responsibility through an integrated curriculum and real-life perspective. The aims of the curriculum are to be "more learner friendly, learner centered and connected to real life" which engage the community and partner more effectively with school work. The school is offering integrated courses at the lower and upper-secondary level, which combine different subject areas.

**Example 1:** History, art history, literature and practical Estonian language are co-designed and co-taught by three different subject teachers.

**Example 2:** Integrated geography and mother tongue classes are taught together by two teachers.

**Example 3:** Social studies and geography are taught by two teachers and a guest lecturer from the local community. Students have the freedom to work anywhere within the school, such as in the library, classroom or computer class.

Subject integration, which is emphasized in the current national curriculum, requires greater collaboration among teachers. In response, more and more opportunities for regular collaboration are provided in schools, such as scheduled weekly discussion time for teachers. Previously, teachers' cooperation was mostly about organizing school events; now, the cooperation has become more substantive, with teachers coordinating the integration of subjects, leading joint projects, designing learning materials, etc.

## The Demanding Expectations for Learning and the Strong Academic Base of the Curriculum

### Strong Academic Bases

The first national curriculum in 1996 was developed in close cooperation with the Finnish National Board of Education as a historically and culturally close country, and the final version was reviewed by Finnish curriculum experts. The experts concluded that the aim of the curriculum was to develop students' metacognitive skills, learning skills and self-assessment skills. They also noted that while the general part of the curriculum followed a socio-constructivist approach, syllabi of the subject fields developed by schools were academically oriented. In basic school, they found the Estonian mathematics syllabus more demanding than the Finnish one and Estonian students more likely to acquire deeper knowledge than students in Finland (Assessment of the Estonian curriculum 1999).

The Soviet period curriculum was thought to be too science-centered and teachers were criticized for their strong subject-orientation (Erss 2015). During the 1930s, J. Käis, the educational innovator and scientist, had already created an Estonian natural science methodology. He focused attention on the child and on practical knowledge and skills, as well as the need to take into consideration the individuality of the student and their experiences in the natural world (Käis 1992). Käis developed an integrated learning methodology (üldõpetus) where the topics were chosen from the child's everyday life, based on their observations, experiences and interests. Students' natural curiosity about the world would be accommodated and supported by active learning in outdoor settings. Käis' ideas were incorporated into the science curricula developed in the 1990s (Henno 2008). Educators strongly advocated for inquiry- and problem-based learning in natural sciences and created relevant teaching materials created to support educators (Pedaste 2006, Rannikmäe, and Laius 2004).

The syllabi of subject fields define the academic objectives or learning outcomes for each school stage (grade band) in the national curriculum. These are compiled in cooperation with active teachers, experts, and university researchers. This has led to a dissimilarity of syllabi, with the details and style of describing the learning content, learning outcomes, and assessment criteria differing from one subject field to another. Although a student-centered approach has been followed in all curriculum development, strong subject-orientation is still rooted in the Estonian national curriculum. For that reason, subject syllabi stand on strong discipline bases; this relatively strong "academism" of the science syllabi has been mentioned by curriculum designers (Henno 2008).

### Simplified Curriculum Based on Common Standards

The national curricula apply to all schools in the nation, but exceptions can be made based on students' needs. There is a parallel simplified national curriculum (Põhikooli lihtsustatud riiklik õppekava 2010) for students with mild, moderate, and severe and profound learning difficulties. For these students, an individualized study plan is developed, based on the student's developmental needs, that includes core values; learning and educational objectives; concept of learning; assessment principles; requirements for a safe learning environment; and rules regarding notification and counselling of parents and students as stated in the documentation. The simplified national curriculum differs in several substantive ways from the traditional national curricula. It focuses on acquiring practical skills and knowledge, with an emphasis on practical training rather than sciences (such as Physics or Chemistry) and foreign languages. Mastery of life skills and coping skills is also in the foreground. Remedial methods support students' development so they can cope with everyday activities at home, at service facilities, and in the workplace (National Qualification Authority 2016).

Every year a new individual study plan is created for students with learning difficulties comprising information about the student's pedagogical, psychological and health conditions; specific exceptions in the learning content and outcomes because of these conditions; applied special methods or special conditions for carrying out learning activities; and procedures to assess outcomes and development, including means and methods of assessment and means and methods of feedback concerning the student's development. Besides students with special educational needs, an individual curriculum can be arranged for students who reside abroad or choose home education.

Estonia has organized classes inclusively since re-independence. Students with special educational needs usually study in a regular class at their school of residence. Separate schools for students with special needs, which existed in Soviet times, have been eliminated.

## Curriculum Defines General Competencies and Cross-curricular Topics to Prepare Students for the Demands of the Future

### General Competencies, Cross-curricular Topics and Integration of Different Subjects Are Part of the National Curriculum

There are differences among the three versions of the Estonian national curriculum (1996, 2002, 2011) in the development of general competencies, cross-curricular topics and integration of different subjects.

### General Competencies

The first national curriculum (1996) included four cross-subject general competencies (see Table 11, below); the next version of the national curriculum (2002) included the same general competencies but added subject domain competencies. The third version of the national curriculum (2011) introduced eight general competencies to be developed across all subject fields. An interdisciplinary approach to teaching was introduced to help students attain these competencies. Competence is defined as a compilation of knowledge, skills, values and attitudes that ensure readiness to engage in lifelong learning and an ability to attain results in a chosen field.

### Table 11. General Competencies in Three Versions of the National Curriculum

| | | |
|---|---|---|
| **1996** | **Competencies:**<br>• communication competence<br>• operational competence (including learning to learn)<br>• value competence | |
| **2002** | **General competencies:**<br>• learning to learn competence<br>• operational competence (e.g., setting goals, making plans, working with others)<br>• value competence<br>• self-determination competence | **Domain specific competencies:**<br>• nature competence<br>• social competence<br>• reflection and interaction competence<br>• communication competence<br>• technological competence<br>• cultural competence<br>• mathematical competence |
| **2011** | **General competencies*:**<br>• cultural and value competence<br>• social and citizen competence<br>• self-management competence<br>• learning to learn competence | • communication competence<br>• mathematics, natural sciences and technology competence<br>• entrepreneurship competence<br>• digital competence |

*The domain specific competencies are described in the appendices of subject areas.

Learning to learn competence is part of all three versions of the national curriculum. It is defined as the ability to organize the learning environment and procure the information needed for learning; to plan how to study and follow the plan; to use learning outcomes, including skills and strategies, in different contexts and to solve diverse problems; to analyze one's knowledge and skills as well as one's strengths and weaknesses, and, on that basis, one's need for further learning (Riigi Teataja 2011a, Riigi Teataja 2011b).

### Cross-curricular Topics

Since the first national curriculum in 1996, a set of cross-curricular topics in different subject fields (see Table 12) have been included. Cross-curricular topics are a means of integrating general and subject field competencies; subjects and subject fields are considered when modifying the physical environment of the school. As Table 12 shows, cross-curricular topics span numerous subjects and fields that are priorities for society. These topics are intended to develop both the individual and society as a whole, supporting the pupil's capacity to apply his or her knowledge in different situations through the synthesis of diverse facts and perspectives. A school's curriculum should include all possible cross-subject activities whenever the integration of different subjects and subject fields can take place.

### Table 12. Cross-curricular Topics in Three Versions of the National Curricula

| | | |
|---|---|---|
| 1996 | • Traffic<br>• Choice of a profession<br>• Informatics and ICT | 2011 • Lifelong learning and career planning<br>• Environment and sustainable development<br>• Civic initiative and entrepreneurship<br>• Cultural identity<br>• Information environment<br>• Technology and innovation<br>• Health and safety<br>• Values and morals |
| 2002 | • Environment and sustainable development<br>• Professional career and career planning<br>• ICT and media<br>• Safety | |

Source: National Curriculum for Basic School and Upper Secondary School: 2006, 2002, 2011

Cross-curricular activities can be organized in a variety of different ways: as an interdisciplinary course at school (e.g., IT, career, media); as an extra-curricular course (e.g., cultural identity); as an elective course (e.g., first-aid, career planning, cultural studies); as a thematic week (e.g., traffic week, nature week, foreign languages week); or as a homeroom activity led by the teacher. To encourage and carry out cross-curricular activities, schools use coordinators in addition to relying on cooperation between teachers. For example, schools sometimes appoint career coordinators, who are responsible for collecting and sharing information as well as coordinating activities and analyzing the work done concerning professional careers. In order to organize health promotion, schools have formed health boards and hosted special events.

**Integration of Subjects**

Curricula stresses the importance of collaboration and integration of subject fields. Subject specific curricula make provisions for opportunities for combining subject-specific and inter-disciplinary approaches by organizing learning activities around cross-curricular topics and using shared approaches to assessment (see https://www.hm.ee/en/activities/pre-school-basic-and-secondary-education).

Integration is a goal because it allows teachers to develop students' general competencies together with subject specific competencies. Integration of studies is achieved by following common thematic emphases through diversely structured learning activities, subject lessons, internal school projects, cross-curricular topics, and study assignments and methods. To succeed in integration, the school's task is to shape the learning environment and foster cooperation between teachers in a manner that enables a cross-disciplinary approach: specifying competencies, setting learning objectives and determining common problems and terminology for various subjects (Riigi Teataja 2011a).

Schools take a variety of approaches to integrating teaching. First, some schools integrate all subjects at the first school level (grades 1-3, or even up to grade 6). For example, they might focus on certain topics like "Our Neighborhood," "Living Together," "Travelling to Europe," "Hiking in the Countryside," etc., rather than conventional subject lessons like math, science, history, etc.

### Box 3. Examples of School Plans for Subject Integration

**Haabneeme Basic School**

At the beginning of each school year, new project ideas—including projects with other schools—are generated and added to the school's work plan. Every project has a project manager whose task is to define the project objectives regarding developing general competencies with the project team. The project must have a clear objective and fixed time frame. After the project has ended, outcomes are analyzed and recommendations

for improving the project activities in the future are planned. After the project has ended, an analysis of the outcome is carried out and suggestions for the future about improving the project activities are planned.

Source: Haabneeme 2015

**Tartu School**

Integration takes place in the following ways:

- Integration within the subject where one topic leads to another and complements the whole
- Trans-disciplinary learning
- Integration within a subject where teachers of the same subject cooperate and plan integrated activities together (e.g., Estonian language and literature)
- Using the same learning activities —projects, literary reports, research, creative work, essays or portfolios — across classrooms
- Parallel teaching of the same content in different classrooms over a specific time period (e.g., proportional relationship in physics and mathematics, runic song in music and literature),
- School projects and thematic weeks covering cross-curricular topics
- Grade projects where every grade has a specific task, e.g., grades 7-9 organize and manage school events
- Thematic days and weeks connecting learning outcomes to real life
- Contests between classes or grade
- Outdoor learning camps
- Topic-centered integration where a theme is investigated in three different ways during one school year (cross-curricular topics, interdisciplinary projects, outdoor learning camps)

Source: Tartu Erakool 2015

### Links to Community in General Education

The board of trustees is a valuable partner for the school when developing the curriculum, as it represents students, teachers, owners, parents, graduates and organizations supporting the school. In theory, the board helps to link the learning process with the local community. In reality, however, this resource depends on the often limited capacity of board members to contribute.

One vehicle to establish connections and offer joint activities with the community is cross-curricular topics. Increasingly, schools have involved the broader community in designing activities focused on these topics and identifying partners to help teach them (Jaani and Luisk 2011).

#### Box 4. Examples of Cross-curricular Joint Activity with Local Authorities and Regional Hobby Schools

**Haabneeme Basic School Curriculum**

In 2019, 135 years had passed since the birth of General Laidoner. The school theatre brought the story of Maria and Johan Laidoner and the foundation of the Republic of Estonia to the stage. In addition to the workers of the Laidoner Museum, a music school and a hobby center helped to compile the story about actual events. The roles of the general and his wife were performed by alumni of the school. All other members of the cast were students. The audience consisted of students and all the people interested in the play. The local authorities invited the play to be performed at the Independence Day celebration held for honorary citizens.

Source: Tiisvelt, 2011

### Links to Future Work Life in Vocational Education

In vocational education, relationships with industry groups are prioritized so that the needs of the labor market are reflected in the curriculum. The inclusion of social partners in curriculum development is prescribed by the Vocational Education Standard (2013): "The national curriculum shall be prepared in cooperation with social partners on the basis of the Vocational Education Standard, corresponding professional standards and the national curriculum for upper secondary schools." As a result, vocational

schools have established close cooperative ties with representatives of relevant industries in the professional world. Cooperation with professionals is also a key aspect in quality assessment of vocational education. The curriculum is designed to integrate theory and the application of theory. The modules in vocational education curricula are not focused only on the acquisition of knowledge, but also on the development of the skills needed to apply knowledge.

OSKA (a system for forecasting labor requirements, see: https://oska.kutsekoda.ee/en/) provides valuable input for curriculum development in vocational education. OSKA conducts applied research surveys on sectoral needs for labor and uses a combination of qualitative and quantitative research methods to analyze professional qualifications across all levels of education. Five economic sectors are examined each year. Additional information on employment, skills and qualifications is collected from personal interviews with sectoral experts and group discussions. The interviews focus on future economic trends and the resulting changes in the needs for workers, skills, education and training in each sector, and solicit input with suggestions for improving qualifications. Sectoral expert panels also assess labor market needs in numbers of jobs and training capacities broken down by key professions. An OSKA general report on changes in labor requirements, labor market developments and trends likely to influence them over the next 10 years is prepared annually. A study on application of the OSKA system (Melesk, Haaristo, and Haugas, 2018) found that its methodology successfully monitors and forecasts the need for labor and skills in Estonia. The study further found that vocational schools need curricular flexibility in order to make efficient use of the results.

To better meet the needs of the labor market, workplace-based study programs were implemented in 2002. These programs constitute a special form of vocational education where practical assignments to companies or institutions make up at least two-thirds of the course work (Vocational Educational Institutions Act 2013). The student achieves the same learning outcomes described in the curriculum by completing tasks in the workplace. Estonia currently considers school-based workshops that simulate a workplace as a form of workplace learning experience (OECD 2020a). The remainder of the studies will be undertaken at school. When these experiences take place in a workplace, the employer must compensate students for tasks performed to the amount agreed upon in an intern contract. Wages must not be less than the statutory minimum wage established by the government. In 2017, further guidelines were developed for the implementation of work-based learning and provided training for supervisors and additional transportation and accommodation to support students in VET education. The number of students in workplace-based studies is growing and has reached 1,700 students (almost 7 percent of VET-students). The graduates from workplace-based studies have pointed to the practicality of the studies as the main positive aspect. The feedback from graduates also highlights some shortcomings, which include

contradictory information from the school and the company and provision of only low-level learning tasks in the workplace (Melesk, Koppel, and Michelson, 2017).

Work-based learning (in the workplace or in a school workshop) makes up at least one-half of the curriculum of all vocational programs (Vocational Educational Institutions Act 2013). The school must guarantee the student an internship place in industry as well as preparation for practice and supervision and assessment of that work practice.

Despite efforts to better connect programs to jobs, government studies on vocational education (conducted in 2008, 2013, and 2018) show a decrease rather than an increase in the share of secondary or upper secondary school graduates opting for vocational education in recent years. There are also considerable gender and regional gaps in vocational education, with men and students from rural areas both overrepresented.

## Curriculum Updated Based on Data about Student Progress and the Learning Process

### The Curriculum Is Continuously Revised Based on Societal Expectations and New Knowledge

The national curriculum receives input from many sources. At the Ministry of Education and Research, the Preschool and Basic Education Department compiles and develops the basic school curriculum, while the Secondary Education Department is responsible for the upper secondary curriculum and for vocational school curricula. The national curriculum is approved by the Government and vocational education curricula are approved by the Minister of Education. Within the Ministry, the curriculum development process is coordinated by the governmental Education and Youth Board (*Harno*), established by the Ministry of Education and Research. Experts from the University of Tartu and Tallinn University are closely connected to these processes. The first version of the national curriculum, in 1996, was prepared by the project team of Tallinn Pedagogical University (Tallinn University's predecessor). In 2000, preparation for what would become the 2011 version of the national curriculum began, and one of the concept papers was proposed by the Center for Curriculum Development at the University of Tartu. Furthermore, key studies by university researchers have contributed to curriculum development, such as "Best practices in implementing cross-curricular topics in Estonian schools" (2010), "Development and implementation of the school curriculum" (2012), "Assessment-evaluation practices used in Estonian general education schools" (2018), etc.

In 2016, the Ministry initiated the most recent update of the learning outcomes of the national curriculum. The process began with the analysis of the content and scope of the subject syllabi as well as a collection of proposals for reform by interest groups. The Ministry piloted revised learning outcomes compiled by subject field teams in seven Estonian schools.

The implementation of curriculum revisions has been facilitated by other reforms introduced to schools. These include, among others, the introduction of school development plans and self-evaluations (see chapter 2); prioritizing formative assessment (see chapter 4); and introducing digital tools for curriculum implementation, record keeping, and feedback to students and parents (ekool, stuudium) (see chapter 4).

### The Attainment of Curricular Learning Goals Is Monitored Nationally

Standard-determining tests monitor student progress toward learning goals. These tests map pupils' knowledge at the end of the first stage (grade 3) and second stage (grade 6) of studies. These low-stake tests are not assessed and are not used for formal monitoring of schools but aim to help teachers improve and organize the teaching and learning process. Teachers in low-performing schools are given in-depth feedback on the extent to which students have mastered the competencies being assessed and where there are difficulties (see also chapter 4). In addition, these tests aim to generally evaluate the achievement of general competencies, subject field competencies, cross-curricular topics and learning outcomes. Standard-determining tests serve as a valuable source of information for the Ministry when making decisions about educational policies and the development of the national curriculum.

The standard-determining tests take place in:

- The 1st stage of school at:
  - Grade 3: Estonian (in schools with Estonian as the language of instruction or Russian (in schools with Russian as the language of instruction)
- The 2nd stage of school at:
  - Grade 4: natural sciences and mathematics
  - Grade 6: Estonian (in schools with Estonian as the language of instruction or Russian (in schools with Russian as the language of instruction)
- The 3rd stage of school at:
  - Grade 7: natural sciences and mathematics
  - Grade 8: digital competencies
- The upper secondary stage of school at:
  - Grade 11: digital competencies

Since 2016, all standard-determining tests are electronic tests on the platform EIS (examination information system). The same platform provides samples of the tests for schools.

## Hobby Education and Extracurricular Learning Complements Formal Education

### The Formalization of Hobby Education

In Estonia, hobby education is an important complement to general education. Participation is voluntary and the activities are shaped by young people's interests and initiative. Acknowledging young people's individuality and personal strengths should be priorities in teaching extracurricular activities (Standard for Hobby Education 2007). Teachers should create an open and positive environment and encourage students to find joy in the activities, which also promotes learning and creativity. These kinds of experiences make students more secure (Huviharidusstandardi infoteatmik 2007).

According to the Hobby School Act of 2006, hobby schools are independent institutions operating in five subject areas:

1. Sports
2. Technology
3. Nature
4. General culture, including ethnic schools
5. Music and arts

Hobby school curricula are regulated by the Standard for Hobby Education (2007) and approved by the Ministry of Education and Research. All students are registered in the national database every academic year. In the 2019/2020 school year, there were 782 hobby schools (310 sport schools and 146 music and art schools) with 4,546 curricula, enrolling 146, 691 students (almost 90 percent of all students). Of the students, 43 percent were between 7 and 11 years of age and 31 percent were between 12 and 18 years (Education Eye, n.d.).

The integration of non-formal learning into students' more formal schooling is growing in importance in Estonia. The national curriculum for basic schools gives schools the authority to consider extracurricular learning, such as hobby schools and after school activities, as a part of a student's curriculum. These decisions should be based on an agreement between the parent or student and the principal (or another person authorized by the principal). The main criterion for evaluation is whether the student achieves the learning outcomes set out in the school curriculum or individual curriculum (Riigi Teataja 2011a). The

school establishes all processes and requirements for grading and transfer of credits from other institutions; there are no other guidelines from the state or municipality.

It is more common in upper secondary schools to offer electives in cooperation with hobby schools as a part of a student's individual learning plan. In basic school, every student is considered as an individual case: the student reports on his or her hobby school activities to, for example, a music or sport teacher who then evaluate the activities and recognize them as a part of the curriculum if they meet with approval.

Current educational strategy strongly endorses a flexible individual learning and community approach to education and promotes diverse learning opportunities for students of every region. By this approach, a variety of traditional and non-traditional sites can be linked together as learning environments, including general education and vocational schools, adult education institutions, cultural and youth institutions, civic organizations, local businesses, workplaces, etc. Individual learning paths are developed by combining these options and considering learning in different environments (Smart and Active People 2035, 2019).

### The Integration of Extracurricular and Work-based Learning

In addition to hobby schools, general education schools organize extracurricular activities. The organization of extracurricular activities in schools is governed by the Hobby Schools Act (Riigi Teataja 2010a). Teachers or outside experts in the field lead the extra-curricular activities.

Local municipalities get support from the state budget for hobby education (at hobby schools) and for extracurricular activities such as choirs, art, sports, robotics, etc., offered by school hobby clubs, usually at the same school where the student learns (Financing of Municipal Schools from the State Budget: Conditions and Procedure for the Distribution and Use of the Support Fund Assigned to Local Government by the State Budget Act 2015). Offering extracurricular activities at school makes them easily accessible to students aged seven to 19 years; this is especially important for students from a low socioeconomic background, who cannot afford to pay the fees at hobby schools (which are actually quite low and more a symbolic token of commitment).

Schools also create extended day programs to offer students supervision, instruction and guidance in managing spare time, doing homework, pursuing hobbies and developing extracurricular interests.

Since the 1990s, every Estonian school has employed a recreation manager. The position is funded by the local municipality and oversees a variety of tasks: managing the school's community relations; creating and improving the school's traditional celebrations (e.g., the school's anniversary); organizing school events; fostering community; organizing clubs; and supporting students' talents, interests and initiatives. The recreation manager helps schools move away from the idea of formal education as something very structured or focused on professional training, and towards the idea of education as a fully immersive experience with diverse forms of student-led learning (Education and Socio-Economic Status - Estonian Case 2018).

### Box 5. Example of School Schedule for Ninth Grade Student from Pelgulinna Gymnasium

> The students in ninth grade can participate in a whole day of school activities:
>
> 8:30-13:00 – learning activities in the classroom (transdisciplinary learning, physical activities).
>
> 13:30-14:30 – "hobby" classes. There is a choice among different activities: swimming, gymnastics and dancing, folk dance, singing and choir, puzzles, computer skills, robotics, computer coding, nature and environment protection, art and manual skills, crafts, recycling, board games, economics.
>
> 14:35-15:00 – lunch (for additional fee, approximately 1-1.50 euros)
>
> 15:00-16:30 – outdoor activities
>
> Students have to choose new activities for both school semesters (except choir, folk dance, gymnastics, and swimming). Taking part in activities after 13:00 is not compulsory for students. All the activities are free, except for lunch. These whole day school days are held only on certain days of the week.
>
> Source: Pelgulinna Gymnasium Website

About 40 percent of Estonian youth (approximately 106,650 people aged seven to 26 years) participate in hobby education (Villenthal, Kaunismaa, Veemaa, Talur, Žuravljova, Varblane 2016). The most popular

activities include sports and music, while the least popular ones relate to mathematics and technology. Of the participants, 33 percent engage in extracurricular activities on school premises, 25 percent at youth centers, 15 percent at hobby schools and 11 percent at other cultural or social institutions. Activities offered at school are often more accessible for students in rural regions. There are only two local municipalities that do not offer on-site after school programs and that is due to the small number of students. The role of schools in making extracurricular activities accessible is clearly very important (Villenthal, et al 2016). For example, in Tallinn municipality, approximately 50 percent of students ages seven to 18 participate in extracurricular activities after school. Some students not only go to hobby school (for music, acting or sports), but also participate in afterschool programs at their general education school.

### Support for Schools by Other Institutions

The national curriculum states that studies may be organized outside the school premises (e.g., in the school yard, natural areas, museums, archives, environmental education centers, companies and institutions) and in virtual study environments (Riigi Teataja 2011a). Museums are particularly rich education sites, offering programs in accordance with the national curricula. Museum pedagogy is based on cooperation between school and museum and as such is also part of teacher education programs. The national program *Interesting school (2020-2025)* has focused on this type of integration of formal and informal learning. Under the program, schools collect their initiatives and innovative strategies to arrange learning processes and share them with other schools (see more in Chapter 5).

Museums have a wide selection of educational activities for students of different age groups and school stages. They offer both museum lessons and tours for students at all school levels and for adults as well. These activities take place both in museum classrooms and unique museum environments such as exhibitions and thematic rooms. The educational program offered by museums supports the acquisition of learning goals in the national curriculum. Local municipalities fund the participation of students and assure the availability of the program to rural schools. The museums are also transferring their lessons and tours to digital platforms.

For example, the program "Me, superorganism" explains how bacteria and people live together. Students learn how the microbial community of the human body affects people's health and wellbeing. Schools are encouraged to arrange whole class visits to museums to study certain topics in these rich environments, with the support of educational program coordinators in museums.

Tartu municipality has taken a systematic approach to developing programs created in partnership between schools and other educational institutions, launching the *Learning can happen everywhere* program. The aim of this program is to enrich learning with both short-term and long-term projects through the integration of formal and informal education, i.e., involving cooperation with museums, higher education institutions, vocational schools and enterprises.

Universities offer training and enrichment for talented young people. These are courses that prepare students for university and offer them opportunities to develop or broaden the mind. Talented students are offered these courses starting at age 12, but the main focus is high school students. For example, the Youth Academy of the University of Tartu offers students of basic and upper secondary school opportunities to learn different subjects in-depth, prepare for subject contests, and prepare for university studies. Participation in the courses also develops independent work skills. Students can take part in e-courses, use study materials and spend quality time at science camps. Schools can request programs from research labs or workshops for physics, chemistry and biology and may even carry out experiments. Teachers are offered in-service training and can use materials in their school lessons (University of Tartu 2020).

# 4

# Assessment, Reporting, and Qualifications

This chapter discusses how student assessment is designed to support every student's development and inform the learning process at schools. Estonia uses diverse assessment mechanisms and issues reports at the school and governmental level.

### Main Messages:

- **The assessment of learning outcomes is diverse in Estonia.** Since 2011, the focus of reform has been moving away from prioritizing summative assessment to rely more on formative assessment alongside summative assessment, based on each school's individual approach. According to principles of assessment at both the national and school level, the teacher is responsible for choosing suitable assessment methods (including formative assessment), timing, tasks and tools.
- **The assessment and reporting balances the need to provide useful information for multiple audiences and to support the learning process.** The external assessment of learning outcomes includes final examinations for basic school and state examinations at the upper secondary level. The number of graduation examinations has decreased from five to three in recent years. Estonia aims to balance internal and external assessment, involving both teachers at school and assessors outside the school.
- **The results of the assessment are of public interest.** A school's reputation traditionally depends on how well its upper secondary graduates perform on state examinations. Some educational scientists and experts at the national level have criticized this reliance on only one measure of school quality and are seeking alternative sources of performance data to create a more balanced approach. For example, complementary data on student progress can be gathered from extracurricular activities, competitions and events that foster talents related to academic subjects, as well as practical competencies, to provide a richer profile of a school.
- **There are new approaches to monitoring schools at the national level.** Estonia's strategic aims in education call for a shift from external evaluation and inspection of schools toward schools´

self-evaluation. Teaching and learning are the focus of monitoring and evaluation. New reporting mechanisms and sources of data are being developed at the national level to better inform schools on how to create a better learning environment.

- **Estonia sets clear national standards and allows diverse assessment strategies at the school level to measure progress towards them.** In addition to traditional examinations, graduates must pass assessments of their general and practical competencies, such as creative projects in basic school and a research paper in upper secondary school. Due to the national qualification framework, variety among schools' teaching and assessment approaches has not resulted in barriers for transitions within the educational system.
- **A clear national assessment framework that accommodates and encourages a variety of approaches at the school level** has fostered a coherent but flexible learning system for Estonia's students.

## Diverse Assessment of Learning Outcomes

In Estonia, assessment is defined as a systematic gathering of information about student development; analysis of such information; and subsequent feedback. Education law stresses the importance of using assessment data to inform ongoing revisions of curriculum and education policies.

### From Traditional Summative Assessment to Individualized Formative Assessment

Estonia's national approach to assessment reflects a widespread understanding of the objective of assessment in the learning process, which is to support the overall development of students. This includes giving feedback on the academic achievement of students; encouraging and guiding students to study with purpose; fostering the self-esteem of students; and guiding and supporting students in making their future education choices. This view of assessment also includes objectives for teachers and schools: to support learning and development of individual students and prepare them to move on to the next level of school and ultimately to work and further education (Riigi Teataja 2010a).

Summative assessment has been in place in Estonia since the 19th century (Värä 2020). Estonia applies a system of grades that are in the National Curriculum. The grades are used in evaluating a student's achievements in learning outcomes during an observed period or for an observed topic:

- The grade 5 or "very good" is used if the achieved learning outcomes are fully in accordance with, or exceed, the required learning outcomes that are the basis for the student's study.

- The grade 4 or "good" is used if the achieved learning outcomes are generally in accordance with the required learning outcomes that are the basis for the student's study.
- The grade 3 or "satisfactory" is used if the achieved learning outcomes enable the student to continue studies or graduate from the school without having substantial problems managing continued study or future life.
- The grade 2 or "poor" is used if there has been development for the student in these learning outcomes, but it is insufficient for the student to manage without substantial problems in continued study or future life.
- The grade 1 or "weak" is used if the achieved learning outcomes mean not being able to manage without substantial difficulties in continued study or future life, and if there has been no development for the pupil in these learning outcomes.

The National Curriculum (2011) also prescribes the 5-point grading scale, to which teachers can make their own exceptions. Thus, grade 5 is awarded to students who have achieved 90–100 percent of the maximum possible number of points, grade 4 for 75–89 percent of possible points, grade 3 for 50–74 percent, grade 2 for 20–49 percent and grade 1 for 0–19 percent. Students are awarded grades as part of ongoing studies, as period or course grades, and as yearly grades. Debate about the use of the 5-point scale with two negative grades was most active at the beginning of Estonia's restored independence, with heads of schools being the chief objectors to reform of the grade scale (Värä 2020).

Summative grades are based on the comparison of the students' knowledge and skills in a subject with the expected learning outcomes established in the subject syllabus. At the school level, assessment principles are described in guidelines which often include types of grades (see box 6, next page).

To support teachers in the assessment process, The Education and Youth Authority (*Harno*) develops e-task sets and diagnostic tests in all subject areas in primary and basic schools. The aim of these tools is to encourage teachers to use a range of assessment methods to support the assessment of learning outcomes established in the curriculum. E-task sets are prepared for topics which would be more easily acquired with the help of plentiful visual interactive materials. These e-task sets have been published for teachers since 2018. Every set also has a diagnostic test aimed at determining the extent of the students' previous knowledge and skills as well as gaps in previously acquired knowledge within a specific narrow topic (Jakobson, Liiv, Lausing, Meesak, Shipova, 2018).

### Box 6. Example of School Guidelines on Grading from Rahumäe Basic School

The numerical assessment of learning outcomes is divided into four parts:

1. A processed grade (test, group work, re-telling, discussion, etc.) covers small-scale materials and is aimed to be an interim assessment of learning outcomes. Students do not have to be given prior notice when their work will be assessed with a process grade.
2. A summative work grade (test paper, essay, project, presentation, etc.) covers substantial materials and is aimed at assessing the achievement of learning outcomes. On one school day a student may only have one summative assessment which the subject teacher marks in the test plan in e-School.
3. A trimester grade is awarded on the basis of at least three graded works.
4. A yearly grade is awarded on the basis of trimester grades.

Source: Legal act for assessment in Rahumäe Basic School

On the school level, the use of a different grading system can be decided in the school's curriculum. In addition to the 5-point system, schools can use other assessment systems. For instance, a 5-point system where grades are specified with "+" and "–"; verbal (descriptive) assessment (mainly in the 1st class, often in the entire 1st stage of study and in some schools also in the 2nd stage of study); summative numerical assessment together with descriptive assessment; letter-based (A to F) assessment (more frequently in the 2nd and 3rd stages of study; also referred to as the 6-point system); undifferentiated assessment such as pass/fail (mainly in art subjects, personal, social and health education, and electives in the upper secondary level) (Vool and Jürimäe 2019).

The use of different grading systems varies by the stage of study and subject as well as the size and location of the school. Verbal descriptive assessment is preferred in primary school classes and schools with small classes, while a numerical grading system (including the letter-based system) is preferred in basic school and upper secondary school, and undifferentiated assessment in creative and elective subjects.

In order to make the teachers' work easier, schools have standardized descriptive designations for each grade (see Box 7, next page). Verbal feedback is used in the 2nd stage of study, often followed by a transition period where both numerical and verbal assessments are used—for instance, a numerical grade is accompanied by a written comment. In addition, all these formats allow the use of the principles of assessment for learning, or formative assessment, to a greater or lesser degree (Aksen et al 2018).

### Box 7. Example of School's Standardized Verbal Assessment

I commend you for motivated and consistent studies!

I commend your teamwork skills!

I commend your independent work skills!

I commend your discussion and analysis ability!

I commend your skill of formulating and asking questions!

I see that you could be more motivated and consistent in your studies.

I see that you could contribute more to teamwork.

I see that you could contribute more to your independent work.

I see that you could dedicate more to developing your discussion and analysis ability.

I see that you could polish your skill of asking question. Dare to ask questions!

Source: Rahumäe Basic School

The diversity of the grading systems highlights a flaw in the Estonian approach: it is difficult to ensure that school grading is comparable and aligned to the national curriculum. At the end of the 2nd stage of study (grade 6), or if a student leaves a school before then, the verbal assessments of the current academic year must be converted to the nationally applicable grade scale, as these form the basis for the transfer of the student to the next class (Riigi Teataja 2010a). Conversion may prove difficult for schools, which is why guidelines and tools have been developed on a school level (Aksen, Jürimäe et al 2018).

The consequences of low grades for students are additional opportunities to improve the grade. Students have an opportunity to get extra help by participating in support classes and/or retaking an assessment task if they have received a low grade or no grade at all. These extra help and re-assessment classes are planned after school. If a student's yearly grade in a subject is "weak" or "poor," the school may assign the student additional studies in that subject, which means the student performs extra tasks under the direct instruction of a teacher, in order to acquire the knowledge and skills required in the curriculum.

These additional studies are conducted after the end of the last semester and before the summer break. Repeating a year, which was previously the common consequence of low grades, has since 2006 been a very exceptional measure. In Estonia, fewer than 4 percent of students have repeated a grade at least once in primary, lower secondary or upper secondary school, below the OECD average of 11 percent (OECD 2016b). According to the national curriculum, if a student's yearly grades in three or more subjects are "poor" or "weak" and it is not expedient to use an individual study program or other support systems, the teacher's council may assign the student to repeat a year in order to achieve the learning outcomes required in the curriculum.

The use of formative assessment is the most topical challenge for Estonian schools. Formative assessment is understood to mean assessment performed during studies based on the national curriculum to analyze a student's knowledge, skills, attitudes, values and behavior. The goal is to provide feedback to students on the results that can help encourage and guide the student in planning for further studies. Formative assessment is above all focused on comparing the student's development with his or her previous achievements. Feedback provides a timely and precise description of the student's strengths and challenges and contains proposals for further activities which support the student's development. There is an increasing effort to use formative assessment alongside the traditional assessment system (Vool and Jürimäe, 2019). Feedback from formative assessment is provided verbally or in written form or even by using a set of emoticons and symbols. There are also different interpretations of verbal feedback—a common example is to replace a numerical grade with a brief verbal comment (e.g., 5 is "very good"; 4 is "good," etc.). Implementing formative assessment is demanding and depends on teachers' readiness to apply an approach different from that in which they were initially trained (Aksen et al. 2018).

The assessment of student development also varies by subject. In subjects such as physical education and art, it is easier to compare the student with his or her own earlier results and thereby allow the development of the student at his or her own pace. However, in subjects where state examinations and standard-determining tests are held, teachers must determine that all students have achieved the outcomes established in the national curriculum by the established time. Schools rethinking their approach to learning must consider how to assess student growth within the context of progress toward a specific benchmark or standard (Aksen et al. 2018).

### Teacher as a Main Actor in Assessment

In Estonian schools, teachers make the choices related to the classroom assessment of students. Indeed, a key part of the Occupational Qualification Standard of Teachers (2020), states that the teacher

"…systemically applies various feedback and assessment methods that support learning, including digital technologies, based on the learner's specifics and the documents that regulate assessment; prepares assessment models/criteria and assesses learners on the basis thereof; supports learners in the development of self-assessment skills; agrees on the principles and arrangement of feedback provision with learners and parents." Estonian teachers have traditionally made choices related to assessment and above all relied on the assessment practices of their subject area (Aksen, Jürimäe et al., 2018). However, schools are growing more focused on how to create their own approach to assessment and are using the national curriculum to help define general principles of assessment in their own curriculum as well as harmonize different teachers' approaches across schools.

Collaboration among teachers in planning classroom assessments has increased recently. Teachers understand that collaboration is important in assessing general competencies. The most common way to shape and assess general competencies is to organize cross-subject projects and events outside school (e.g., theme days or excursions), which are focused on a specific general competency or on the integration of two or more subjects. The criteria for assessment are set by the school and usually the project is assessed by supervising teachers or by a committee of subject teachers (Aksen, Jürimäe et al., 2008).

Subject teachers from different schools collaborate on assessment via subject-specific associations (OECD 2001). It is common practice for teachers to collaborate on the design of state examinations as well as on exam evaluation. This process allows teachers to harmonize their approaches to test design and evaluation criteria.

## National Level Assessment of Student Performance

### Assessment at Key Points

Uniform, national assessment of student performance takes place only twice during general education in Estonia; more frequent assessment is arranged by schools or teachers and is designed to inform teaching and learning practice. Students must meet national requirements for graduation, but these are generally met through school-set criteria (e.g., school examinations, creative work, research projects) not national examinations (Table 13, next page).

### Table 13. Graduation Requirements for Basic School and Upper Secondary School

| Basic school graduation requirements | Upper secondary school graduation requirements |
|---|---|
| Basic school is completed by students:<br>• who have achieved a grade of at least "satisfactory" in all subjects in the most recent year;<br>• who have carried out creative work in the third stage of study; and<br>• who have scored at least a "satisfactory" result in the state final examinations in Estonian language, mathematics and one subject of the student's choice. | The upper secondary school graduation certificate is given to students:<br>• who have achieved grades of at least "satisfactory" for the stage of study or "satisfactory" or "pass" for elective courses;<br>• who have scored at least a "satisfactory" result in the state examinations in the Estonian language, in mathematics and in a foreign language corresponding to the required study load in the subject;<br>• who have scored at least a "satisfactory" result in the school examination of an upper secondary school;<br>• who have during upper secondary school studies conducted a research project or a practical assignment, except in the case of graduation from the school as an external student. |

Source: National Basic School Curriculum, National Upper Secondary School Curriculum, 2011

The objective of basic school final examinations is to provide an overview of the knowledge and skills the graduate has acquired. In order to compare the effectiveness of schools across the country, to identify schools that need assistance, and to assess the added value of various programs, every student takes three mandatory examinations with uniform tasks. In the case of students with special educational needs (SEN), the final state examinations with uniform tasks may be replaced with a school developed examination. A school may issue a basic school graduation certificate with distinction to recognize high achievement.

A missing element of the subject-specific system of final examinations is assessment of general and area-specific competencies. Recently, the Ministry of Education and Research has prioritized the role of schools in determining whether students should graduate basic school, and possible changes to the current, state-level requirement are under discussion (Ministry of Education and Research 2015). In 2019, the Ministry also initiated a draft amendment to abolish basic school final examinations. One of its main arguments was the need to reduce stress among students related to final examinations and students applying to upper secondary schools based on their grades before the final examination. The basic school final examinations with their uniform questions do not allow the assessment of differentiated studies in the

case of learners with special educational needs (SEN final examination 2019). Ultimately, the amendment was not approved due to strong opposition from different stakeholders and debates continue. Public discussion related to the amendment touched on student stress and anxiety during the examination period; parental fear that students would lose the motivation to study without the impetus of exams; concern among politicians over losing a state-level overview of school quality; and subject teachers' concern with lowering the standards for subject-related knowledge.

The aim of upper secondary school final examinations is to provide an overview of the knowledge and skills the graduate acquired in upper secondary school. As of 2014, the results of the state exams no longer determine whether students graduate from upper secondary school. Some upper secondary schools award students with high learning outcomes a gold or silver medal, as determined by school-based assessments. The number of state and school examinations required for graduation from upper secondary school has been steadily decreasing in Estonia. When state examinations were first introduced in 1997, some suggested they were too challenging and raised concern that students and teachers spent too much time preparing for them (OECD 2001). Still, evidence from empirical, international studies shows that students from countries with external exit examinations perform significantly better on international student assessments. Externally defined assessments can clearly signal to students and teachers the standards expected of all students (OECD 2015,148).

For these reasons, Estonia chose not to eliminate exit exams. It has, however, implemented reforms. As of 2014, the number of state examinations at the end of upper secondary school was reduced from five to three: mathematics, mother tongue, and foreign language. This allows teachers of other subjects more autonomy to decide what to teach and how to evaluate the outcomes. The Ministry also plans to modify the state exams to better evaluate the competencies achieved and not focus as much on factual knowledge (Ministry of Education and Research 2015).

For students engaged in vocational studies, assessment is part of the study process; students take fair and unbiased assessments to determine if their competencies match the learning outcomes described in the curriculum (Vocational Educational Institutions Act 2013). One difference between vocational and general education is that a threshold is defined as a level of describing learning outcomes. Passing a vocational examination or a professional final examination is a precondition to completing vocational studies. It is a single examination, which may be complex and comprise various parts. Students studying in languages other than Estonian must either take the state examination in Estonian as a second language or take the vocational examination or the professional final examination in Estonian. In other cases, taking the state examinations is voluntary.

Pursuant to the Professions Act, the vocational examination determines whether students have acquired the competencies necessary for their chosen profession. The examinations have been considerably updated in order to reflect the evolving requirements of the workplace. The proportion of students who pass the vocational examination has grown steadily in recent years and indicates increasing efficiency of vocational schools.

### Multiple Actors in Assessment

Estonia uses internal and external assessment to ensure objectivity. The assessment of students' learning outcomes involves various parties who share roles and responsibilities. Pursuant to the national curriculum, assessment has three components: 1) a systematic gathering of information about the student's development, 2) an analysis of the information, and 3) the provision of feedback. Assessment is the basis for planning further studies. In the case of internal assessment within the school, teachers familiar with the student are the assessors, while in the case of external assessment, assessors have no relation to the student (OECD 2015).

Teachers are responsible for decisions related to internal assessment. They are generally not required to submit a report to school administrators on their chosen assessment methods. They do, however, have to prepare a workplan describing how they used formative or summative assessment. Schools are required by law to keep records of learning outcomes in a student register. The record contains aggregated data including yearly or course grades, transfer examination grades, and stage of study grades (Riigi Teataja 2010a). Teachers use a class journal to record data on student grades, participation/absence, lesson content, and homework. Ever more frequently, schools manage and administer data related to students in information systems (e.g., an electronic diary, eSchool, Studium).

Basic school final examinations are a hybrid form of internal and external assessment. The Ministry's Education and Youth Authority (*Harno)* prepares and compiles the tasks which make up the examinations, while subject-specific committees of acting teachers and university lecturers develop the examination paper, the assessment guidelines and the correspondence table. Guidelines on conducting examinations are also made available to schools. A final examination committee at each school is responsible for the organization, conduct and assessment of examinations. The composition of this committee is approved by the school principal; the number of members is established at the national level, depending on the number of students taking the examination: there must be at least one committee member per every 20 students taking the examination.

Final examinations for vocational students are also a hybrid form of internal and external assessment. At the completion of studies, a vocational examination assessment committee evaluates students' final exams, according to criteria established in the Professions Act (2008). The committee must consist of at least three members. No more than a third of those members can be affiliated with the student's educational institution, and no more than a third can be from the same institution as the student's prospective employer. It is common practice in vocational schools to engage representatives of professional associations in vocational examination assessment committees.

Assessment is external in the case of state examinations. The state examinations taken upon completing upper secondary school are prepared and organized by the Education and Youth Authority (*Harno)* and conducted by a committee formed by the principal, but the examination papers are graded by a committee formed at the national level. Student responses that must be subjectively assessed are reviewed by two or three assessors.

Local governments and school administrators tend to have a smaller role in choices and decisions related to assessment. However, there are exceptions. The 2015 quality agreement of Tartu basic schools, for example, stipulates principles according to which assessment for learning is used in all stages of study; undifferentiated assessment is used in skill-based and creative subjects, and only verbal feedback is used in the first stage of study.

## High Public Interest in School Performance

### Demanding Audience of Assessment and Reporting

The Estonian public takes a strong interest in education, particularly the results of state examinations in upper-secondary schools. The exam-based ranking of upper secondary schools attracts significant public and media attention. The Education and Youth Authority (*Harno)* prepares summaries of state examination results, highlighting changes and trends from year to year. Based on these summaries, media companies and journalists compile ranking lists of upper secondary schools, which are published under titles such as "Find your school among this year's state examination results!" or "Check out the ranking of your school in this year's state examination ranking list." The so-called elite schools of larger cities are usually the highest ranked. Although experts argue that a ranking based on state examinations is not a true indicator of a school's quality (given that student performance is often influenced by circumstances outside an individual school's control), parents still use the ranking list as an important selection criterion for choosing a school. However, fewer and fewer upper secondary schools are invested in these rankings

in any case, as research from other countries has shown negative effects of external exit exams. These include an excessive focus on test preparation, narrowing of the curriculum, taking repeated practice tests, training students to answer specific questions expected to be on the exam, and allocating more resources to the tested subjects (OECD 2015, 148).

In order to provide broader information about school quality, the Estonian government conducts a survey on satisfaction with the school environment (see also Chapter 2). Schools or local municipalities used to carry out similar satisfaction surveys, but these did not provide comparable information (Lukk et al 2016). Since 2017, national surveys have been used to record how students, teachers and parents feel about their school's social and physical environment. Feedback from the survey is intended to help individual schools with planning and development but is also useful for local governments (Põld 2019).

In an effort to further broaden measures of school quality, the Ministry of Education and Research has developed a performance indicator to characterize each school's added value to upper secondary school learning outcomes. Since 2016, factors under school control such as the education program, teaching methods, study materials and selection of personnel, have been factored into this indicator. Consideration is also given to factors beyond the school's control, such as the knowledge and skills of the students when they entered secondary school, the earlier knowledge of the students, their age and gender, the size of the school, the choice of language of study, and the capability of the local government, as well as other location-related aspects. The Ministry plans to create similar indicators for evaluating the contribution of basic schools to learning outcomes. The data characterizing the contribution of upper secondary schools show that the Estonian education system is fundamentally good and that the differences between schools in supporting the development of students are rather small. The starting level of students has a great impact on learning outcomes, while the generally equal opportunities in acquiring education among students of different genders, in schools of different sizes, and in regions with different opportunities have a small impact in the assessment of contribution (Ministry of Education and Research 2016).

### Appreciation of Students' Broader Capabilities

The Estonian education system also includes various ways besides grades for students to demonstrate their abilities and receive recognition. These opportunities were initially developed mainly for gifted or talented students, but more recently new formats have emerged, such as the incubation of student business or vocational competitions, that allow a broader range of students to participate and demonstrate practical skills and teamwork.

Students can test themselves, show their knowledge and skills, expand their networks and discover new opportunities at subject-specific competitions called Olympiads. Estonia holds Olympiads in diverse subjects (e.g., biology, languages, mathematics) as well as general competitions of learning skills where the main emphasis is on identifying and using relevant information. Olympiads are a long-standing tradition—the first Olympiad in exact sciences was held in Estonia in the academic year of 1953/54. In addition to the traditional Olympiads (biology since 1961, geography since 1966, languages and informatics since 1988), new Olympiads have been introduced more recently, including the personal, social and health education Olympiad in 2011, and the art Olympiad in 2013 (School of Exact Sciences of the University of Tartu, n.d.). Today, the School of Exact Sciences of the University of Tartu organizes national and international Olympiads held in Estonia and arranges for the participation of Estonian students in competitions abroad. The Estonian Olympiad system consists of multiple-round Olympiads and open subject-specific competitions. Olympiads are held in Estonia in about twenty subjects, both in sciences and humanities. Olympiads are organized by universities and academic associations (e.g., the Personal, Social and Health Education Association, the Society for Education through Art, etc.) (School of Exact Sciences of the University of Tartu, n.d.). Since 1992, when Estonia started participating in global Olympiads, Estonian students have achieved very good results, bringing home medals every year. Universities may take the results of Olympiads into account upon admission and give advantages to applicants who performed well. In addition to the Olympiads, the Estonian Research Council holds the Estonian National Contests of Young Scientists and Young Inventors for students (Estonian Research Council 2020).

Vocational students can test the accuracy and speed of their theoretical and practical skills at vocational competitions. For spectators, the competitions offer a chance to see young professionals from different schools working in a variety of professions. Employers can also scout potential future employees. Innove has organized vocational competitions for young professionals in Estonia since 2006. Over 20 competitions are held at the Young Professional skills festival. Young people can also take part in the international competitions EuroSkills and Worldskills (Innove 2020b).

Through the Estonian business studies program Junior Achievement Estonia, students can showcase their entrepreneurial skills in student companies (for upper secondary students) and mini companies (for basic school students). These companies are led by an instructor who has completed training and is certified to teach in the program. In a student company, at least three students work for one school year. Each spring, the best Estonian student company is chosen to represent Estonia at the European student company competition (Junior Achievement Eesti 2020). Both competitions are covered in local and national media.

## New Approaches to Monitoring Schools

### Reconceptualizing the External Evaluation of Learning Outcomes

As part of the Lifelong Learning Strategy 2020, the role and tasks of the Estonian external evaluation system have been reconceptualized. In countries with high levels of school autonomy, external evaluation generally focuses on assessment of student learning outcomes (OECD 2015) and that is what Estonia is designing its system to do (Ministry of Education and Research 2015). Thus, the current aim of the external evaluation is to give students, parents, schools, administrators and the government the most objective and comparable feedback possible on student achievement of the learning outcomes in national curricula, as well as on the effectiveness of different schools in helping students achieve these outcomes. Evaluation feedback also guides education policy making.

The national system of external evaluation includes the following parts:

- a uniform set of tests and tasks to assess the objectives of the national curriculum, prioritizing the general competencies and the cross-curricular topics;
- uniform basic school final examinations, primarily used to inform admission to upper secondary schools rather than determine graduation from basic school;
- state examinations at the end of upper secondary school;
- international and national surveys, which are planned in consideration of all the objective areas of the curriculum: general competencies, subject areas, and cross-curricular topics.

Source: Ministry of Education and Research 2015

The electronic examination information system (EIS) has improved the efficiency of all parts of the external examination system. EIS conducts and administers tests; assesses tests electronically; provides feedback on performance; displays assessed tests for teachers/students; and provides access to and stores electronic tasks in a bank which teachers and students can access. In addition to its usefulness for students, teachers and parents, it is also useful to organizers of state examinations and basic school final examinations. EIS public data is generalized, or anonymized (Innove 2020a).

External examinations have also been redesigned to better support school principals and teachers in making decisions necessary to achieve the objectives of the national curriculum. For example, an increasing number of indicators used to assess the efficiency of schools now focus on teaching and learning, and more mechanisms are underway to allow schools to compare themselves with other schools.

External assessment is also used to identify and commend progressive and efficient educators. "Estonia Learns and Thanks" recognizes educators for outstanding innovative activities in ten categories. See Chapter 2 for more information about school evaluation and monitoring.

### Assessment Is Combined with Monitoring

The achievement of the objectives of the national curriculum is assessed using low-stakes tests, or standard-determining tests. The state now sees these tests as serving a dual purpose: informing the Ministry about student achievement across the county and also evaluating literacy skills of individual students to help teachers better target their teaching (Ministry of Education and Research 2020e).

In light of this additional purpose, standard-determining tests are now held in the autumn semester instead of the spring, so that teachers can gather information about what their students know at the start of the school year. Students, teachers and parents are informed they do not need to study or otherwise prepare for standard-determining tests. The tests give feedback to help students identify areas of academic strength and weakness. For instance, the feedback for the test in nature studies provides an overview of the levels achieved by the student (basic, medium, high and top levels) with recommendations in four areas: knowledge, analysis skills, planning skills and interpretation skills. If necessary, the teacher may "annotate" the feedback sheets to help the student interpret the results. For example, a teacher might use the terms "skilled," "familiar" or "study more," for each of the assessed topics (computation, geometric shapes, measurement, and word problems) on the standard-determining test in math.

The national tests are combined with additional data to support decision-making at both the national and school level on how to better support learning. Since 2015, background surveys of students and their teachers have been conducted alongside the basic school final examinations. The surveys aim to determine how a school's learning environment relates to the learning outcomes of students and to provide individual feedback to subject teachers concerning their 9th grade students (Põld 2019). The background surveys are administered to students in the final year of basic school and to their subject teachers in mathematics, Estonian language, and Estonian as a second language. The surveys give teachers information about whether their class activities support learning outcomes. The survey feedback helps teachers compare their teaching methods and student examination results with the other teachers and students in the country (Innove 2020c).

Teachers consider the feedback useful and report they have used information from previous surveys to analyze and organize their work (Põld 2019). An analysis of the results of final examinations gives schools

feedback on the efficiency of their programs of study and the contribution of the school. The Ministry of Education and Research receives an analysis of grade 9 learning outcomes across the nation, as well as the contribution of individual schools to the progress of students. Proposals for updating study methodology and study literature and amending the national curriculum based on this analysis are also presented.

## Alternative Assessment Strategies

### Variety in Assessment Methods and Tools

Many Estonian schools have long required student research and practical projects. Students at schools where study areas include art, music, economics and others have the most experience in preparing and defending practical projects. Research projects have become a tradition at many schools, as they foster the ability of students to identify and seek solutions to complex problems (Soll 2011).

At the end of basic school, students carry out a creative project based on a cross-curricular topic or one that integrates subjects they have studied; the completion of the creative project is a requirement for graduation from basic school. The creative project may be a survey, a research study, an invention, a work of art, a performance, a video, or a piece of music (Raudsepp 2019, The Basic Schools and Upper Secondary Schools Act 2010, the National Curriculum for Upper Secondary Schools 2011). There are no detailed assessment criteria for creative projects at the national level; schools decide how to assess these projects.

In order to set up students for success, the Estonian Research Council recommends that every school should have a creative project coordinator to organize work and oversee the completion of all the creative projects and research papers. The coordinator bears general responsibility for the work process and develops the school's guidelines, gathers topics for creative projects and research papers, is familiar with previous projects and papers, and counsels, supports and trains students. The Estonian Research Council assists school coordinators across the country to promote best practices, share students' research papers as examples and assist schools in developing guidelines. Still, schools have had various issues in preparing research papers. For instance, identifying suitable and reasonable topics has been challenging, as has hiring enough instructors with the necessary competencies for supervising research papers. There is also some concern that schools have paid too much attention to the formal presentation style of the papers, as opposed to their content (Väljataga 2018).

### Box 8. Example of School Guidelines for the Assessment of Creative Projects

At Tartu Hansa School, grading of creative projects is weighted as follows:

1. Process (20%)
2. Content of work (40%)
3. Format of the work (20%)
4. Creative work defense meeting (20%)

Work process is graded by the advisor and includes:

1. Sticking to the schedule: Work stages and parts were finished on schedule. Deviations were caused by objective reasons. Student presented the work on time for the creative work defense meeting.
2. Student motivation: Student cared for the creative work, was in contact continuously with the advisor, and took the recommendations of the advisor into consideration.
3. Advisors' assessment of the creative work: Work was fully compliant with demands.
4. Student growth in the work process: Student learned new work methods, skills and knowledge. Student's work skills have increased and confidence grown.

Source: Tartu Hansa School

In addition to subject knowledge, students' behavior and commitment to learning are also assessed formatively. For example, at the end of a term of study, a school might gather expert evaluations from all teachers and make decisions collaboratively. These assessments usually include feedback on student learning outcomes, motivation and social skills (Aksen, Jürimäe et al., 2018).

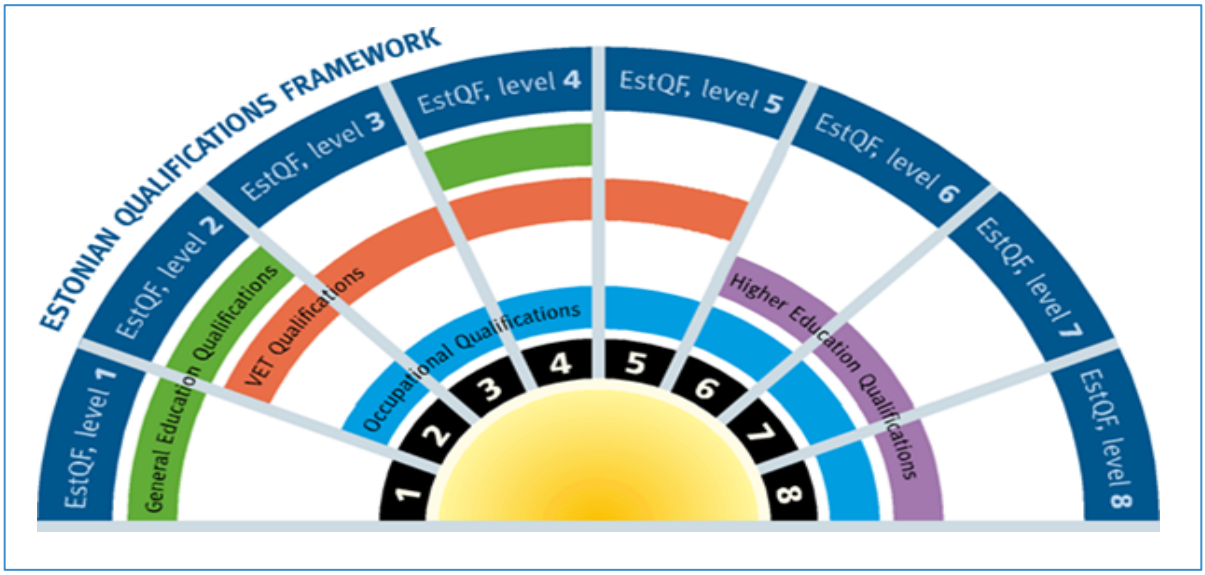
Since 2011, schools have been required to hold development interviews with students, teachers and parents once per school year to plan future studies and set development objectives for the student (Riigi Teataja 2010a). Organized entirely at the school level, development interviews give teachers the opportunity to explain their assessments, highlight areas for more work, and plan further steps in cooperation with the student and the parent (Aksen, Jürimäe et al., 2018). Schools share information with parents about grades, absences, class assignments and homework via an electronic information system.

In some cases, parents have resisted alternative forms of grading. This is usually the case when parents feel that numerical grades are clearer than descriptive feedback they may receive about their child's progress. However, such resistance tends to fade over time as parents get used to the alternative approaches (Aksen, Jürimäe et al., 2018). For students, numerical grades are still thought to be clearer and more meaningful than descriptive feedback (Aksen, Jürimäe et al., 2018).

### A Standards Framework Provides Clear Pathways

All academic and vocational schools in Estonia align their programs to the Estonian Qualifications Framework (Figure 5, below), which is identical to the European Qualifications Framework (2008). The framework includes qualifications awarded by institutions in the formal education system (general education qualifications, vocational qualifications and higher education qualifications) as well as vocational qualifications awarded by nationally recognized organizations (professional associations, etc.) that award professional degrees (National Qualification Authority 2016).

**Figure 5. Estonian Qualifications Framework**




In 2005, Estonia began its effort to link its 5-level vocational Qualifications Framework to the framework created in Europe. Major employer and employee organizations, the Estonian Chamber of Commerce and Industry, the Ministry of Social Affairs and the Ministry of Economy and Communications contributed to the development of a new, 8-level Estonian Qualifications Framework, which was established by the Professions Act of 2008. The Estonian general education system has four types of qualifications that are part of this framework:

- the basic school graduation certificate
- the basic school graduation certificate under the simplified curriculum
- the basic school graduation certificate under the curriculum for students with moderate learning difficulties (see earlier in Chapter 3)
- the upper secondary school graduation certificate.

The basic school graduation certificate notes which of the three basic curricula the student followed, as the differences in the level of studies are significant.

Basic school education is the prescribed minimum level of general education in Estonia; once completed, the student is entitled to pursue secondary education (Riigi Teataja 2010a).

Everyone has an equal right to compete for admission to upper secondary school. Although all students take basic school final examinations, nearly half of upper secondary schools also hold admission tests as a way of differentiating candidates according to criteria specific to their school curriculum. Admission criteria must be objective and transparent (Riigi Teataja 2010a).

The upper secondary school final examinations fulfil two functions: graduation from upper secondary school and admission to a higher education institution. After the introduction of state examinations in 1997, universities accepted them as a replacement for admission examinations; the 2001 OECD report confirmed a correlation between the results of state examinations and the learning outcomes of the first year at a university. The importance of state examinations in admission to higher education institutions has varied over time. Universities have tried various admission procedures, particularly in specialized fields with tight competition (e.g., law, economics, etc.), admitting students solely based on their state examinations rankings, or, alternatively, admitting all students who passed a threshold on certain state examinations. The competitiveness of admissions varies by study program and according to changes in demographics. As low graduation rates have become a problem in higher education, universities have put in place admission examinations to allow selection of candidates motivated to study in the specific area of specialization. Thus, the importance of state examinations in admission to higher education has decreased in recent years.

A student's previous studies or related experience (such as education obtained abroad, work experience, participation in hobby groups or sports schools, or independent studies) can also be considered part of their general education if the parent and a school representative agree that these experiences contribute to learning outcomes in the school's curriculum. It is interesting to note that the student is not consulted

during this process, although the national curriculum for basic schools expects learners to be independent in making their life decisions (National Qualification Authority 2016).

Achieving alignment with the European Qualifications Framework was most time-consuming in vocational education**.** The assessment system previously used in vocational studies was not in line with the outcomes-based approach of the new Framework, as students who completed courses were issued a certificate which confirmed course participation in the achieved grade but did not confirm formal qualification (OECD 2001). Since 2013, the graduates of vocational studies receive a final graduation document aligned with the European Qualifications Framework (Standard of Vocational Education 2013). The Framework professional standards serve as benchmarks to align a particular vocational curriculum to a level (from 2 to 5) in the Framework. Level 5 vocational training, also known as specialized vocational training, was established in Estonia during the 2013-2014 academic year; there was no equivalent level of vocational training available previously. The learning outcomes of all types of vocational training, meaning the knowledge, skills and attitudes mastered during the course study, have been described in the Vocational Education Standard.

# 5

# Teachers and Learning Resources

This chapter gives an overview of the preparation and continuous professional development of Estonian teachers, including which learning materials are available for teachers and how the educational system is supported by other sectors.

### Main Messages:

- **Teachers are held to high standards.** Teacher education in Estonia has been consolidated and is centered in the two research universities. Teacher educators work closely with schools. Teaching has high professional standards.
- **Professional development is responsive to changes in the education system and larger society.** The content of professional learning is determined at the school level. Schools are free to arrange both the content and format of in-service training. Universities are the main providers of in-service training.
- **Teachers have autonomy in their work.** Teachers design the content of their classroom studies based on the national framework curriculum. Schools and teachers are free to choose their own learning methods and materials. The trend is to create and use digital learning materials and environments.
- **Policies to support teaching are regularly monitored and improvements are strategically planned.** Teacher education programs are externally evaluated and updated regularly based on research results. National strategies are designed to systematically support professional development.
- **A variety of resources is used to improve teaching**. Third parties and the private sector are involved in attracting newcomers to teaching. Digitalization of learning is supported by both the government and the private sector.

## High Standards for Teachers

### Estonian Teachers Are Well-Educated Professionals

Approximately 50 percent of Estonian teachers were educated during the Soviet era. They were trained to a high academic standard, with a strong subject knowledge base.

Today, teacher education is centered at two research universities: Tallinn University and the University of Tartu. (Art, music and vocational education teacher preparation is arranged in collaboration with the Estonian Academy of Art, Estonian Music Academy and Tallinn University of Technology.) The most significant changes to the teacher education framework related to higher education reforms were based on the 2002 Bologna process in Europe, which created the European Credit Transfer System (ECTS). Sixty ECTS are equivalent to one full year of studies. The 3 (bachelor, 180 ECTS) +2 (master, 120 ECTS) curricular system was launched in 2006 in Estonia. Table 14 below gives an overview of the national requirements for teacher education by school type and level.

**Table 14. National Requirements for Teacher Education by Educational Level**

| Educational level | Teacher type/education programs |
|---|---|
| Kindergarten, preschool | Preschool teacher (3-years bachelor's education) |
| Basic school: primary school (grades 1-6), and lower secondary (grades 7-9) | Class teacher in primary school (integrated 5-years master's education with education as a major)<br>Subject teacher in lower secondary school (3-years bachelor's education with subject or pedagogy as a major, continued with 2-years master's education with pedagogy as a major) |
| Upper secondary school (grades 10-12) | Subject teacher in upper secondary school (3-years bachelor's education with subject or pedagogy as a major, continued with 2-years master's education with pedagogy as a major) |
| Vocational school | Subject teacher in vocational education has similar preparation as for teacher in upper secondary level (3-years bachelor's education with subject or pedagogy as a major, continued with 2- years master's education with pedagogy as a major)<br>Vocational education teacher (3-years bachelor's education with pedagogy as a major) |

Kindergarten and vocational education teachers are prepared at the bachelor level. Preschool and kindergarten teachers must have a bachelor's degree (180 ECTS) with pedagogy as a major; however, many teachers at this level continue on to achieve master's degrees. Vocational education teachers usually first acquire a degree in an occupational specialization from a university, a higher education institute, or a vocational school. In order to acquire a vocational education teacher's qualification, they return to university and get a bachelor's degree (180 ECTS) with pedagogy as a major.

Class teachers and secondary subject teachers are prepared at the master level. Estonian universities follow two initial teacher education models: Class teachers at the primary level enroll in a 5-year (300 ECTS) integrated bachelor's and master's program, in which subject and pedagogical studies take place concurrently. Class teachers get a master's degree with pedagogy as a major that qualifies them to work in grades 1 to 6. Secondary subject teachers first complete a bachelor level program in a subject area and then follow this with a master's program in pedagogy. An alternative model for secondary subject teachers is to complete a bachelor level program in pedagogy with two subject minors before a master's program in pedagogy.

The Estonian Teacher Training Strategy for 2009-2013 states: "Universities will establish initial education curricula by branches of study so that students can gain a qualification that allows them to teach several subjects in schools (at least two subjects from all curricula for teachers in comprehensive schools) and to start studying pedagogy immediately [upon entering] higher education." This emphasis on multiple subject qualification led to the development of the alternative study path described above. There were at least three reasons why the concurrent model (integrated subject and pedagogical studies) was introduced. First, research on teacher education has shown that students who pursue only subject related studies at the bachelor level are more likely to lose motivation to become a teacher, while those who pursue integrated pedagogical and subject studies develop a "teacher's identity" (Löfström et al 2010). Second, teachers who study at least two subjects are more prepared to integrate subjects when they teach. And finally, an alternative path to teaching helps address the issue of shortage of subject teachers in small rural schools, where teachers qualified in only one subject might not have enough lessons for a full workload.

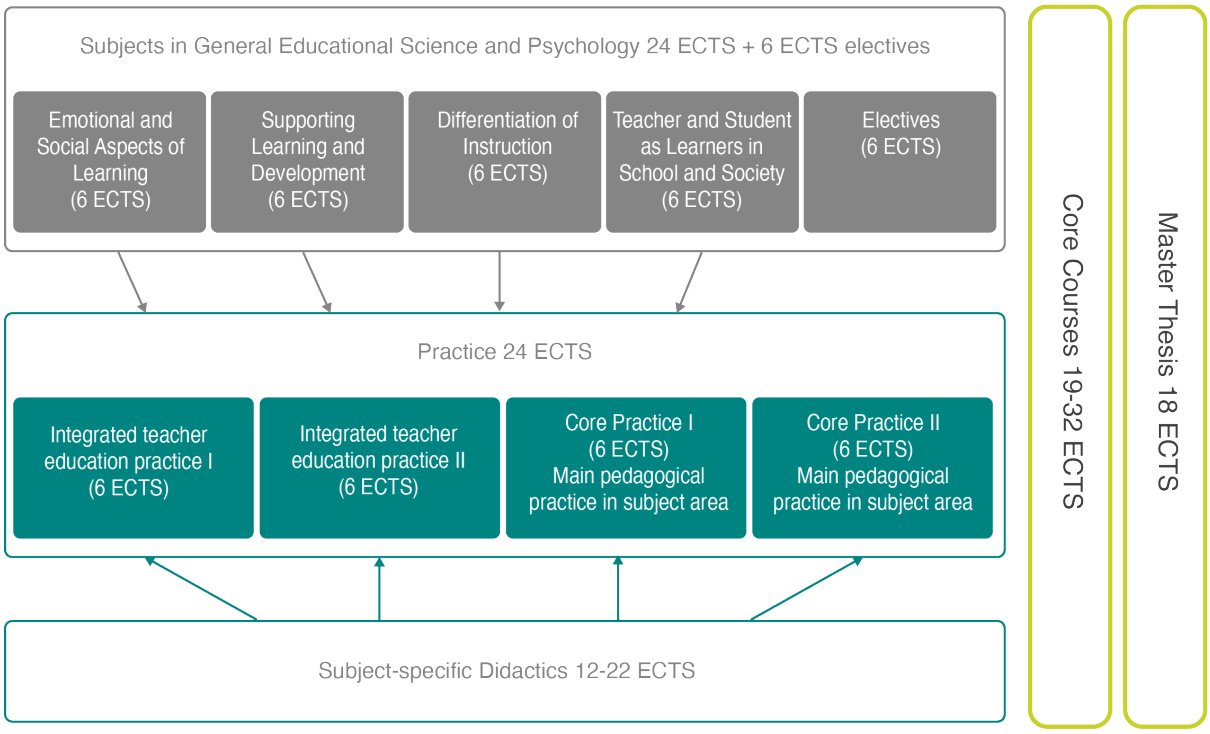
In addition, there is a growing population of teachers in Estonia—approximately 50 percent of the current total workforce—who teach full time and study at the university simultaneously. The reason for this is simple: a lack of teachers. As a remedy, schools have begun collaborating with universities, offering students teaching positions when they enter their teacher-training programs and providing them with mentors and on-the-job training. In turn, the universities work to tailor their programs to fit the needs and interests of working students.

Since 2000, Estonia has outlined general requirements for teacher education at all levels, preschool through higher education. These requirements are for the initial education period, induction period and in-service training. According to the *Framework Guidelines for Teacher Education* (2019), teacher education for all school levels consists of four parts: (1) general studies; (2) subject studies; (3) general studies in educational science, psychological and didactic studies and practical training (pedagogical studies); (4) educational research work or final exam in pedagogy. General studies focus on the development of the teacher's overall cultural, communicative, and social competencies, including foreign languages and ICT skills. Subject studies aim to provide subject knowledge based on requirements for different educational levels and a systemic understanding of the human being, the surrounding environment and society. Pedagogical studies should aim to acquire competencies described in the teacher's professional standard, should be at least 60 ECTS, and should include general educational science, psychology, didactic studies, educational research methods and practical training. Practical training should be at least 10 ECTS.

In 2016, Tallinn University updated its 2-year master's level subject teacher education curriculum to better integrate theoretical and practical studies in teacher education. The university developed integrated practice tasks that incorporated knowledge and skills learned both in the subject-specific "Didactics" courses and the educational sciences and psychology courses (see Figure 6, next pagge). This means that student teachers carry out practice tasks related to themes in their coursework. When in schools, they observe experienced teachers at work (e.g., designing their lesson or giving feedback to students) then co-teach with these teachers and eventually move on to independent teaching.

Theoretical knowledge and practice are also closely linked in initial teacher education at the University of Tartu. The practice requirement at both universities is much greater than the national requirement, and the practical component is closely related to coursework. Practical tasks are organized so that student teachers can observe and analyze authentic teaching and learning situations throughout their studies. During the second half of the teacher training program, student teachers teach independently under the supervision of an experienced teacher.

**Figure 6. Components of Subject Teacher Education Professional Studies at Tallinn University**




Source: Tallin University

## Strong Research Basis of Teacher Education

As with other academics, teacher educators are expected to conduct research. They work closely with schools on research projects. While teacher education programs have long included a research component, it wasn't until 2019 that research skills became a requirement for new teachers. The new policy required graduation examinations or final theses to include an educational research project, with the goal of enabling future teachers to make evidence-based decisions in the classroom (Ministry of Education and Science, 2019b). However, in line with long-standing university research traditions, some of these master's theses remain subject-oriented, with only a limited pedagogical component.

The 2004 version of this policy act set out the requirements for teacher educators. In that year, a policy established standards for teacher educators in universities that included both a requirement to do research and a requirement to have practical experience. It included the following provisions: (1) The same requirements established for all academic staff in higher education would now apply to teacher educators, meaning that any person in a position higher than junior lecturer must have a doctoral degree and must

carry out research; (2) academic staff teaching subject content should have at least three years of teaching experience; (3) academic staff who teach pedagogy-related subjects including didactics shall teach/practice at least 100 hours every three years at education institutions outside of the university.

The two universities that offer teacher training both developed strong research groups that focus on key aspects of the education system, such as child development, general competencies, professional development for teachers, curriculum studies, learning analytics and educational technology. For example, recent research from the University of Tartu's Institute of Education addresses phases of inquiry-based learning, students' metacognition, and interconnection between teaching practices and student achievement. The institute's staff has participated in international development projects focusing on web-based inquiry learning environments and learning analytics in e-assessment (e.g., Go-Lab, Ark of Inquiry, WatchMe) (University of Tartu Institute of Education n.d.).

Tallinn University established the Center of Excellence in Educational Innovation to develop an interdisciplinary research field focused on innovative and evidence-based teacher education, school management and educational policy. A recently created international research group focuses on the next generation of digital learning environments and resources and new ICT-based methods for promoting learning analytics. The Center views educational innovation from a broader perspective. It addresses the need to create a scientific base for the development of a new learning and teaching culture and to ensure it is fully integrated into the Estonian education system (School Educational Sciences n.d.).

To develop practical applications of education research, both universities open Centers for Innovation in Education (CIE). The priorities of the Center for Innovation at Tallinn University are to

- Create and support networks for cooperation between researchers, teachers and student teachers.
- Create, manage, and develop contemporary open-learning environments and interactive classrooms.
- Launch and implement scientific and developmental projects related to lifelong learning.
- Develop and elaborate innovative curricula and modules (pre- and continuous teacher training).
- Develop and implement innovative teaching methods (including learning materials, technologies, and forms of training).
- Consult with students, teachers, and lecturers in all fields, and develop training accordingly.
- Include foreign lecturers, scientists and doctoral students in the activities of the Center.
- Systematize the formation of teachers´ professional identity and contribute to creating a recognizable and respected teachers' professional identity within the field.

Source: Center for Innovation in Tallinn University n.d.

### Teachers' Professional Standards Set High Expectations for Their Work Content

The relatively short teaching time in Estonia compared to other countries reflects the efficient use of time spent in class. Students in primary and lower secondary school spend 6,431 teaching/learning hours in class compared with the OECD average of 7,590 hours (Education at a Glance 2019). A full workload for teachers is 35 hours per week, of which 18-24 hours are allocated for direct teaching. Estonian teachers report that they spend about 86 percent of class time on teaching and learning (as opposed to classroom management and discipline) compared to an OECD average of 78 percent. Estonia ranks second highest of those countries participating in the Teaching and Learning International Survey on this measure (OECD 2019b, OECD 2019e).

Estonia developed its first professional standards for teachers in 2005. The standards describe the professional activities, skills, knowledge, attitudes and competencies required to be a successful professional educator and require university teaching programs to be aligned with those standards (Estonian Qualifications Authority 2019).

The Estonian Qualifications Authority defines professional qualification standards as providing:

- A basis for compiling curricula and training programs which meet the requirements of the labor market.
- A basis for assessing competence.
- A tool to help employers recruit employees, write job descriptions, define employment requirements, plan training, and decide on promotion.
- A tool to help employees assess their current skills and deficits, plan for their careers, and pursue lifelong learning.
- A tool for trainers, learners, parents, advisors and other stakeholders to use to gather information and intelligence on labor market trends.
- The basis for comparing occupational qualifications certificates internationally.

Source: Estonian Qualifications Authority (2019)

The teacher professional standards are used 1) to design initial and continuing teacher education programs; 2) as a framework for teachers' self-evaluation and feedback; 3) to plan content and funding for teachers' professional development at the school and state level.

Since Estonia became an EU member in 2004, its education system has been increasingly influenced by European frameworks and policies. For example, the EU's vision of a European teaching profession, outlined in the 2005 publication "The Common European Principles for Teacher Competencies and Qualifications," strongly influenced Estonian discussions about a teachers' competency model. The European document described the teacher as a reflective practitioner and lifelong learner and articulated the need for standards to serve as a framework for teachers to pursue professional development and improve their practice. The standards must also serve the external function of certification to guarantee professional competence and quality. Close collaboration at the EU level influenced Estonia's first version of its teachers' competence model. It focused on:

- Instructional competencies: planning and management of learning processes, creating the learning environment, guiding learning processes, analysis and assessment of learners' development;
- Interpersonal competencies: communication and cooperation skills to support learners' motivation;
- Professional development and self-analysis.

The first competence model was used mainly to support new teachers enrolled in induction. In 2013, the framework was revised to set out standards for three levels of teachers: teacher, senior teacher, and master teacher. This was done to ensure that teacher competencies are developed gradually throughout a teacher's career.

Estonia launched its current teacher's professional standard in 2019. It states that the main role of a teacher is to empower the learner and to be his/her development partner so that meaningful learning can take place. Taking into account the goals of the national curricula, teacher and student chart a learning path to open up the learner's potential. Teachers should systematically develop their professional skills and stay informed about educational innovations (Occupational Qualification Standard 2019). The standard highlights six compulsory areas of competency:

1. **Supporting the learner** – teacher is aware of the foundations and cultural specialties of the physical, cognitive, emotional and social development of the learner, finds out the level of the subject-related knowledge, study skills and learning motivation of the group and the learner and takes these into account when setting (subject field, pedagogical and educational) study goals, recognizes the learners' need for support and their individual study needs, supports the development of social and collaborative skills.

2. **Planning of learning and teaching activities** – teacher sets short- and long-term learning goals based on learner(s), chooses content and plans activities, considering the curriculum, chooses from learning materials the suitable one matching the learning goals and the level of learners and group, shapes the physically, spiritually and emotionally secure collaborative study environment supporting wellbeing.
3. **Teaching** – teacher notices and recognizes learners' different interests, abilities, and needs; creates consciously a caring, bullying-free and collaborative atmosphere, teaches following the learner's specific needs, sets goals, learning outcomes and cross-subject integration, supports the development of core competencies and the formation of the self-managing learner, guides students to apply digital technologies, systematically applies different methods, including digital technologies, for feedback and evaluation which support learning.
4. **Reflection and professional development** – teacher reflects on his/her own work, including analyzing the effects of teaching using different methods, participates in study communities and includes colleagues in professional development aims, analyzes and interprets the results of educational research and applies them in his/her work; conducts action research on class/group level, follows, evaluates and values own physical, mental and emotional health.
5. **Collaboration and supervision** – teacher creates a trustworthy relationship with the learner and parents, gives feedback about learner progress to learner and parents, acts as a team member in a learning community.
6. **Development, creative and research activities** – teacher participates in learning communities and collaboration networks in developing the knowledge of the study field; participates in the development of the organization.

The updated model differs from previous ones by putting more emphasis on the teacher's role in creating a learning environment supporting students' wellbeing; analyzing students' individual needs; and working with students of diverse abilities, including making adjustments for students with special needs.

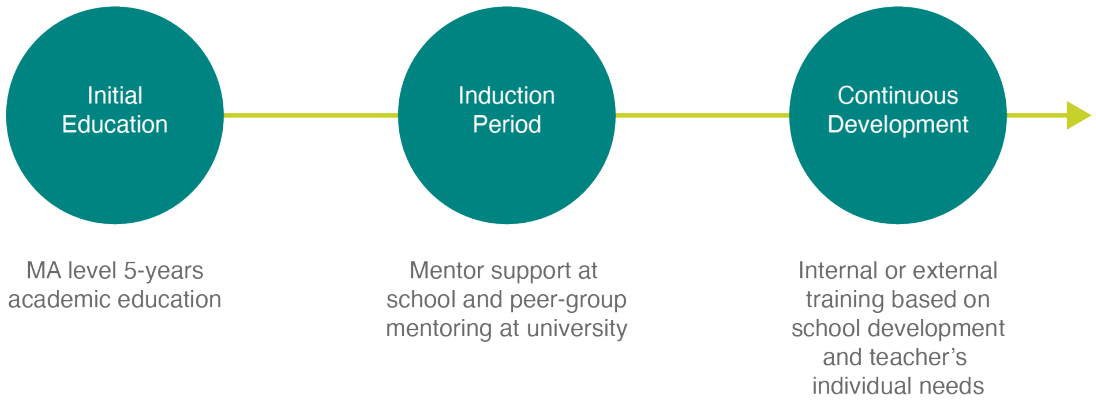
The main benefit of teacher standards has been a shared set of expectations among different actors: teachers, teacher educators, school heads, and parents. Shared expectations around teacher performance have been especially important for entry into the profession and ongoing development of beginning teachers (Pedaste et al, 2019). Teacher standards have also had a strong impact on the development and evaluation of the teacher education curricula (Leijen and Pedaste, 2018) as universities continuously improve teacher education programs according to renewed standards.

## Responsiveness of Teacher Professional Development to the Changes in the System and Society

### Teachers' Professional Development Is a Part of Teachers' Professionalism

The Estonian education system supports continuous professional development for teachers, consisting of initial teacher education, induction year, and lifelong in-service education (see Figure 7, below).

**Figure 7. Continuity in Teachers' Professional Development – Three Phases in Teacher Education**




Source: Framework Guidelines for Teacher Education 2000

The Estonian induction model has two parts: 1) learning and development at schools with mentor support, and 2) a two-day, quarterly peer meeting during the school breaks at the universities. This approach is unique because of the integration of the two types of mentoring: one-to-one mentoring at school and peer-group mentoring at the universities. The universities organized support seminars for beginning teachers in order to 1) help teacher education institutions understand the problems beginning teachers face and get feedback about the quality of initial education; 2) discuss problems with their mentor that beginning teachers find uncomfortable to discuss at school; 3) support the development of teachers' reflection skills; 4) allow beginning teachers to share their successes and failures at the group sessions and seek solutions together (Eisenschmidt 2006). The university support seminars create a bridge and continuity between initial education and continuing professional development.

Current regulation states that the aim of in-service teacher education is to create opportunities for teachers' self-reflection and professional development, and to develop an inspiring and innovative attitude through which they can make the best use of the knowledge and skills acquired in their work to support learner development. The basis for planning and conducting in-service teacher education is 1) the

competence requirements described in the professional standards; 2) the teacher's self-reflection and feedback on his or her work; 3) the needs of the teacher's own professional development and the development aims of the educational institution and national educational priorities (Ministry of Education and Science 2019b).

Teachers' professional development focuses on quality and content instead of a mandatory amount of training hours or days. The foundation for systematic professional development began in 1998 when Estonia began to regulate types of training programs (including quality indicators) as well as to register approved providers of specific programs in the national databases. The new regulations allowed in-service training providers to be universities, and/or other public and private institutions.

At the same time, Conditions and Regulations for the Certification of Educational Personnel (1998) established four levels of professional qualifications for teachers: junior teacher, teacher, senior teacher and teacher-methodologist. These titles corresponded to salary levels but the pay differences among them were small. This act also stated that teachers should attend at least 160 hours of in-service training every five years. Every school was to use 3 percent of its budget for teachers' salaries to cover the costs of in-service training.

In 2013, the four-level career ladder was replaced with three levels of professional standards: teacher, senior teacher, and master teacher. The responsibility for improving practice and creating support mechanisms and professional growth opportunities for teachers moved to the schools. There are no longer requirements for teachers to complete a specific number of hours of training, and as teacher salaries are no longer nationally regulated, it is up to the schools to determine their own salary system and bonus or appraisal mechanisms.

### Schools Determine Teacher Professional Learning Needs

In-service training is an essential component of school development. Most schools draft teacher training plans as part of their overall school development plans. Such plans include collaborative in-school training opportunities for teachers or groups of teachers. The trend is for schools to support collaboration and teamwork, with groups of teachers observing each other's teaching and providing feedback. However, individual teachers are also offered opportunities to attend external courses based on their specific training needs.

Although schools are free to determine the content and format of teachers' in-service training, the Ministry of Education and Research offers guidance at the national level, most recently through the

national program, "Teachers and School Heads Training Program for 2015−2018" (Ministry of Education and Research, 2014a). Under this program, teachers establish continuing education goals during a development interview with the principal. The principal then determines what types of in-service training the school will offer. Most courses are financed from the school budget, with some important exceptions funded by the government. For example, to meet Estonia's strategic goal of improving teachers' digital skills, around 3,000 teachers each year participate in in-service training organized and paid for by the Information Technology Foundation for Education. Since August 2020, these trainings function under the Estonian Education and Youth Board (*Harno*).

In addition to training at the school and national level, bigger municipalities arrange courses on specific topics and invite teachers from different schools to participate.

### Universities Are the Main Providers of In-Service Training for Teachers

In-service training is a free market, and many private and non-profit organizations offer courses. However, universities are the main providers, offering continuity from initial education to career-long learning. Educational innovation centers have been Established at universities, where ongoing research informs in-service courses for teachers and school development programs. Universities also offer programs designed to support teacher networks, where educators can learn from each other and share materials.

For example, Tallinn University's goal for in-service education is to implement collaborative, evidence-based programs to develop schools and school teams as learning communities. The university's in-service training initiative, "Teacher Innovation Lab," organizes learning sessions at the university. During these sessions, teachers develop teaching practices in subject/topic-based learning communities, pilot new solutions in their classrooms, and then analyze and share their experiences with the teacher innovation lab learning community. University researchers support the implementation of evidence-based practices. The Lab systematically collects data to understand the impact of this approach and to plan evidence-based improvements in the program.

One of the most important focuses for in-service education currently is how to assess and diagnose student learning, differentiate learning according to each student's needs, and support students with specific learning difficulties. Another current focus is how to develop general competencies such as learning to learn, social-emotional competencies, and digital competencies. Teachers get introductory training and materials to use for planning lessons. As they implement these lessons, teachers attend workshops where they share questions and reflect on the experiences.

## Teachers' Autonomy in Their Work

### Autonomy to Decide How to Teach

Within the context of Estonia's national framework curriculum, teachers design their own course content and choose their own teaching and assessment methods. This is not to say teachers must start from scratch; tools and learning materials developed at the national level are readily available (see more on this in chapter 4).

Teachers in basic school meet as a group to agree on the school curriculum and determine how the school's course of study should be organized. The integration of studies is a major focus of the national curriculum for basic education. Teachers can approach this goal collaboratively through common thematic emphases on subjects, school projects and cross-curricular topics, and study assignments and methods. As a group, they can also specify competencies, set learning objectives and determine common problems and terminology for various subjects (Riigi Teataja 2011a).

At the upper-secondary level, teachers may organize learning in different ways: all subjects may be learned throughout the academic year, or certain subjects may be taught at certain times; they may organize studies by theme or topic rather than as conventional subject lessons. This flexibility allows schools to develop their own practices and create innovative approaches.

In 2013, the Ministry of Education and Research established the "Huvitav Kool" (Interesting School) initiative, which encourages schools, NGOs, and other educational institutions to share their approaches and build networks to disseminate best practices. The initiative has four key priorities:

- Community involvement – how schools work with communities and use resources and involve other institutions in the teaching process,
- Professional teachers – how schools organize teachers' learning and foster collaboration,
- Optimal curricula – how schools develop their curriculum and integrate subjects to reduce students' workload, and
- Supportive external evaluation processes – how schools analyze and evaluate students' learning progress.

Source: Ministry of Education and Research, see: www.huvitavkool.ee

During the current period (2020-2025), the initiative is focused on the integration of formal and informal learning, parental education and responsibility for child development, the transition from kindergarten to school, and development of supportive school culture.

### Autonomy to Design and Choose Learning Materials

Estonian teachers choose their own teaching materials, often making collective decisions about the most appropriate materials for particular subjects. The learning materials (e.g. textbooks, workbooks, exercise-books and worksheets) required for completion of the curriculum (Riigi Teataja 2010a) are free for all students. Teachers are also free to choose or create additional materials. Some secondary school elective courses do not have coursebooks at all. In those cases, teachers compile course materials using online and other learning resources.

In general, education publishers in Estonia meet a high standard for their materials. They hire experienced teachers and university lecturers to create learning materials, many of whom are active members of their subject associations and contributors to the national curriculum. Publication of learning materials is self-regulated by a free market in Estonia, although it is limited to only a few major publishers due to limited demand for Estonian language materials. In order to assure quality and curricular alignment, new materials are reviewed by two experts: a teacher with at least five years of teaching experience (including three years at school level for which the study materials are designed) and a university lecturer or researcher in a relevant field.

Publishers market their materials directly to teachers, offering in-service training free of charge or sending free copies of coursebooks to schools to be tested. The competition between publishing houses has been fierce since Estonia regained its independence at the beginning of the nineties. However, recently the situation has become more stable, and now there are a few publishing houses that offer study materials for all general education subjects (e.g., Avita, since 1988, and Koolibri, since 1991), as well as those which specialize in certain subjects or school levels (e.g., Skriibus, for preschool and primary levels, Maurus, Studium, which offers additional study materials for students with special educational needs, and Argo, primarily for vocational schools). It is common for schools to use materials provided by different publishing houses.

### Digital Materials

The Estonian Lifelong Learning Strategy 2020 (Ministry of Education and Research, Estonian Cooperation Assembly, Estonian Education Forum 2014) defined the availability of Bring-Your-Own-Device (BYOD)-compliant open educational resources as a key indicator of the move to digital programs in primary and secondary education. There are several platforms which offer electronic learning materials for teachers. The earliest, established in 2001, was the educational portal School Life (Koolielu n.d., available only in Estonian). The portal targeted teachers and lecturers at all levels of education and over the years became a very popular place for teachers to gather and search for information. Due to other new developments discussed below, the portal stopped being updated as of 2021.

Opiq (see https://www.opiq.ee/) is one of the recent private sector platforms for hosting interactive, online digital textbooks. Opiq was developed by Avita, Estonia's largest textbook publisher. Opiq also hosts digital textbooks from other publishers, totaling 251 textbooks for grades from 1 to 12. In 2019, the Ministry purchased the exclusive rights for all educational institutions at the basic school level to access digital textbooks on the Opiq and Foxacademy platforms. The Ministry initially planned to provide this open access for two years, with the aim to promote the use of digital materials among students and teachers. During the first wave of COVID in spring 2020, open access was extended to upper-secondary level materials. Students can access Opiq materials, and teachers can assign automatically scored multiple-choice, fill-in-the-blanks, drag-and-drop tasks as well as open-ended reflection tasks to their students (with deadlines) and assess the results.

The main repository for general education is e-Schoolbag (in Estonian "e-Koolikott"), launched in 2016 by the Ministry of Education and Research. Currently the repository contains more than 18,700 learning resources. These include open educational resources, resources without an open license, and some commercial content from textbook publishers. Teachers can create collections of material which include existing resources in the repository as well as content of their own creation. The collections can be shared with students and other users of e-Koolikott. The opportunity to create collections encourages teachers to upload their own resources to the repository (Laanpere and Põldoja 2020).

The availability of digital learning materials made the transition to distance learning easier during the 2020 pandemic. Statistics collected at the national level showed a notable increase in the use of e-Schoolbag materials.

## Monitoring and Improvement of Teachers' Policies

### Teacher Education Programs Are Regularly Externally Evaluated and Updated Based on Research Results and Lessons from Other Systems Around the Globe

Universities, schools and policy makers collaborate to improve the teaching process. Research carried out by universities is used to inform teachers' professional standards and education programs, as well as to allocate resources for school improvement schemes.

All Estonian higher education institutes have accepted a competence/outcome-based approach to curriculum development based on the Bologna process. The Estonian Quality Agency for Higher and Vocational Education organizes external evaluation of higher and vocational education.

Until 2019, every five years university teacher education programs had to pass an external quality Assessment of their Study Program Groups (similar to external accreditation). These assessments provided recommendations, not mandates. Quality assessment looks at how well programs conform to national and international standards, with the goal of improving the program and supporting internal evaluation and self-development of the institution of higher education. For example, external experts noted the following about the program groups in education at Tallinn University:

- The study programs suit the needs of the labor market and have a good reputation with their stakeholders.
- There is a high awareness of current education debates. Members of the teaching staff have a good overview of the latest trends and challenges in teacher training and educational sciences and implement this knowledge in practice.
- Good opportunities have been created for interdisciplinary teaching. Tallinn University has very good relationships with schools, which are also reflected in a good balance between theory and practice in the study programs.
- The study programs support the educational innovation goals set for the University as a whole, such as student-centeredness, digital learning and self-regulated deep learning.

Source: Estonian Quality Agency for Higher and Vocational Education

Universities tend to adopt the external recommendations for improvement when developing their programs, e.g., provide students with more flexible models that allow them to combine school practice

and theoretical courses, reduce the teaching workload on teacher educators to allow them to focus more on research, etc.

Since 2019, all institutional evaluation of universities has been implemented and all study programs are part of this wider institutional evaluation, because the quality of curricula is seen as part of the university's other processes (Estonian Quality Agency for Higher and Vocational Education, n.d.).

### National Strategies Are Planned to Support Systematic Teachers' Professional Development

In Estonia, the national education strategy is designed to create shared goals for different parties: teachers, school principals, teacher educators, and government representatives.

In the Estonian Teacher Training Strategy for 2009-2013 the following goals were set:

- Teacher training is based on a solid theoretical foundation and supports the development of the teaching skills described in the professional standards.
- Teacher training employs flexible models that consider the needs of the education system and the individuality of pupils.
- Teachers' professional development and related support are systematic and consistent.
- Teachers are active community members who promote their subject through work with colleagues and participation in specialized and professional organizations.
- Management and development of teacher training is based on proven methods and is consistent and linked to the overall development of the education system.
- The profession of teacher is attractive and enjoys a high social status.

*The Estonian Lifelong Learning Strategy 2020* (Ministry of Education and Research, Estonian Cooperation Assembly, Estonian Education Forum 2014) highlighted the following components of teacher performance evaluation:

- A user-friendly self-reflection platform will be created, in which teachers will have the opportunity to test their skills. The self-analysis platform will be based on competencies outlined in the professional standards for teachers.
- There will be regular development discussions at educational institutions, which will be focused on the implementation of the new approach to learning. The head of the school will motivate the

teachers to approach each student individually and to participate in the development work of the school and in various forms of teacher training.

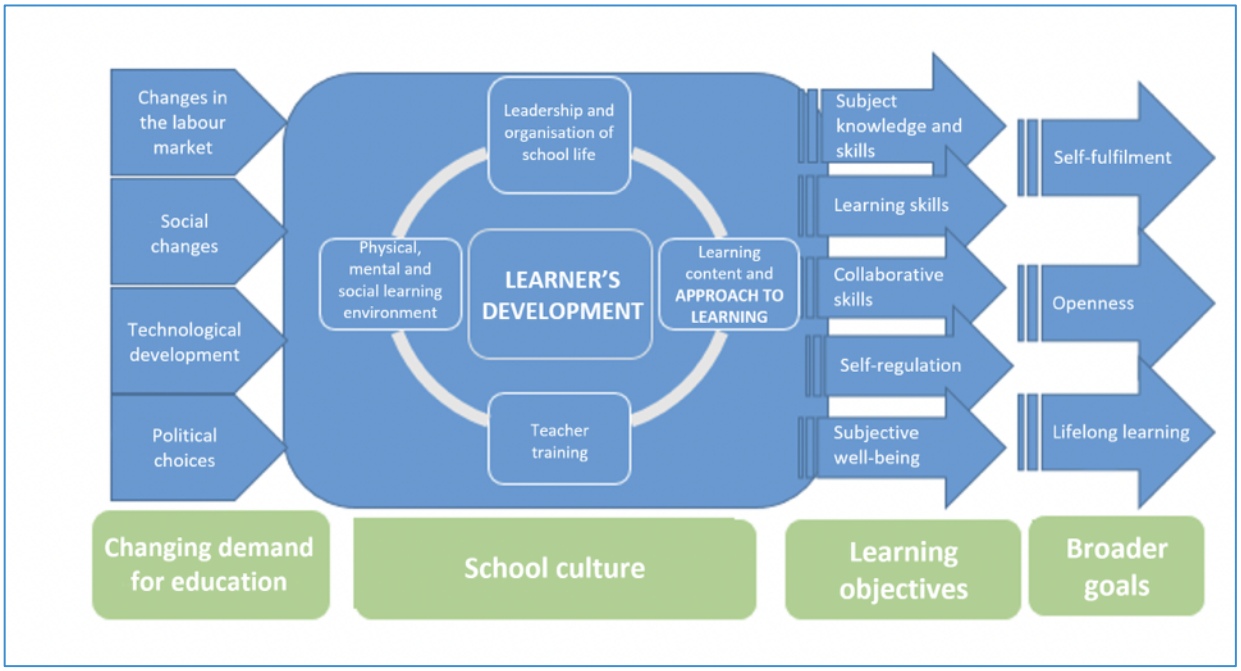
- To avoid significant differences in the evaluation of teachers' effectiveness and compensation across the state, the school leaders' associations (heads of vocational and general education schools) will develop models to assess the contributions and effectiveness of teachers and they will implement these models based on the specific nature of their school.
- Higher education institutions will work together to develop the principles for assessing the results of their teaching staff. In assessing the work of the teaching staff in universities (including during the process of recruitment), the quality of teaching work will be taken into account, including its international aspect. This includes work and teaching experience in foreign universities, participation in international development programs, development of curricula in a foreign language, teacher effectiveness and student feedback, the teacher's self-development, etc. This also includes the results of academic research carried out by the staff.

A key strategic goal of the Estonian Lifelong Learning Strategy has been implementing what it calls "a new approach to learning." Experts from two universities as well as a set of diverse schools and municipalities agreed that learning must incorporate an explicit understanding of its own goals, the ways that learning takes place and the relationships among participants in the learning process. The learning approach must be purposeful in implementing this shared understanding.

A school's approach to learning is part of the way it defines and develops its culture (see Figure 8, next page).

Estonia regularly revises its teaching standards to remain aligned with its renewed aims and approach to learning. The Estonian Qualifications Authority oversees these revisions, in cooperation with stakeholder groups. These include teacher educators from the two main teacher education institutions; teachers from the Estonian Teachers' Association and Estonian Teachers' Union; kindergarten teachers from the Association of Kindergarten teachers; special needs educators from the Association of Special Needs Education; school leaders from the School Leaders' Association; representatives from the School Owners' Association (municipalities); and national policy makers from the Ministry of Education and Research.

**Figure 8. New Approach to Learning: Changing Demands for Education, Changing School Culture, New Learning Objectives and Broader Goals of the New Approach**




Source: Ministry of Education and Research

The importance of digital competence as a teaching standard has steadily increased in Estonia. Since 2019, some schools have used a digital platform to monitor their teachers' compliance with this standard. The platform provides a common way to analyze digital competence in the context of teaching and learning and gives teachers the opportunity for self-assessment.

Estonia has also made a commitment to forecasting and analyzing the future of teaching. For example, in 2018 education experts and other stakeholders produced the OSKA survey projecting what education and research will require in 10 years. It envisioned teachers as tutors who guide students' development by teaching and providing links between different subjects. According to OSKA, future teachers are expected to excel in communication, leadership and cooperation skills, show profound understanding of cultural differences, and master the use of digital tools. Teachers must also demonstrate knowledge of inclusive education and educational and developmental psychology in their daily work, in order to recognize and support the specific needs of each student.

## Complementary Resources to Improve Teaching

### Third Party and the Private Sector Contribute Resources

The active contribution of the independent sector to education began in the 1990s, when an independent Estonian education system evolved. The Association of Unique Schools (Omanäoline Kool) was established in 1993 with support from the Open Estonia Foundation. The Open Mind Institute (AMI) began its activities in 1997 as an association of teacher educators at the Unique School and launched several in-service training programs for teachers (Open Mind Institute, n.d.).

Currently, the most prominent actor in the private sector is The Good Deed Education Fund, a philanthropic fund founded by a new generation of Estonian entrepreneurs. The fund supports initiatives that solve acute problems in the education sector. The main goals of the Education Fund are as follow:

- To attract more young people to the profession, as the average age of teachers is constantly increasing
- To strengthen the quality of school leadership (recruitment, leadership, culture and goalsetting, empowering the parent board)
- To reduce the youth drop-out rate after the mandatory level (9 years)
- To increase awareness of STEAM education among young people (Good Deed Education Fund)

In recent years, several programs have targeted the teacher shortage. In 2006, Teach for Estonia (*Noored Kooli*) was launched. Participants in the two-year program work as schoolteachers; admission is quite competitive and the program is well-regarded by schools and the public. With the support of the Good Deed Education Fund, *Noored Kooli* increases its admissions each year, with up to 50 participants enrolled by 2021. In addition to teacher training, the program provides training in education advocacy, policy work, and school and system-level development. Alumni of *Noored Kooli* work across the educational system, including in university teacher education units and educational NGOs.

Another non-governmental initiative, the substitute teachers' program (ASÕP), is a web-based service that provides substitute teachers when needed. School leaders don't have another easy way to secure high-quality teachers to act as substitutes, so ASÕP provides a much-needed service. The recently developed web-based system should help ASÕP grow and be able to provide substitutes for at least 1,250 lessons per month all over Estonia.

Some non-governmental organizations offer special kinds of educational programs for schools: *Kiusamisvaba kool* offers programs to prevent bullying (Bullying Free School, n.d.), Vaikuseminutid offers programs that develop self-awareness and self-regulation skills (Minutes of Silence, n.d.), and Ettevõtlik kool (Enterprising School, n.d.) supports the integration of enterprising learning into the school curriculum. These programs, which offer training for teachers as well as study materials, are partly subsidized by the government.

### Both Government and the Private Sector Support Digitalization of Learning

After Estonia regained its independence in 1991, it started the aggressive modernization of its educational system, using information technology for the benefit of social development. Estonia launched the Tiger Leap Program in 1996, followed by the Tiger Leap Foundation in 1997 (Information Technology Foundation for Education, n.d.). The program was built on three pillars: 1) computers and the Internet, 2) basic teacher training and, 3) native-language electronic courseware for general education institutions.

The first step was to provide all schools with computers and internet access. Estonia reached these goals in 2000 and 2001, respectively. Local governments then received matching funds from Tiger Leap to provide and improve school computer systems. In 1997, nearly 4,000 teachers participated in Tiger Leap's 40-hour basic computer training course, followed by thousands more in subsequent years. In 1999, Tiger Leap introduced new courses for teachers in electronic courseware, online information searches and preparation of educational materials.

In 2012, Estonia launched the ProgeTiger program, through which students can enroll in a class on programming and web application development. In the first stage, the Tiger Leap Foundation piloted the program in limited schools; later the program opened to all general education schools. ProgeTiger also supports schools through the development and updating of teaching and sample materials (including translation and adaptation); training and program networking activities; information and promotion activities; the purchase of technological equipment; and access to a network of regional ambassadors who support teachers in the smart use of technology. By the end of 2020, close to 100 percent of schools and kindergartens had participated in the program.

In 2013, Estonia merged the Tiger Leap Foundation, the Estonian Information Technology Foundation and The Estonian Education and Research Network EENet to form the Information Technology Foundation for Education (Information Technology Foundation for Education, n.d.). The goal of the merger was to reduce fragmentation and create a forward-looking center that would be a strong partner

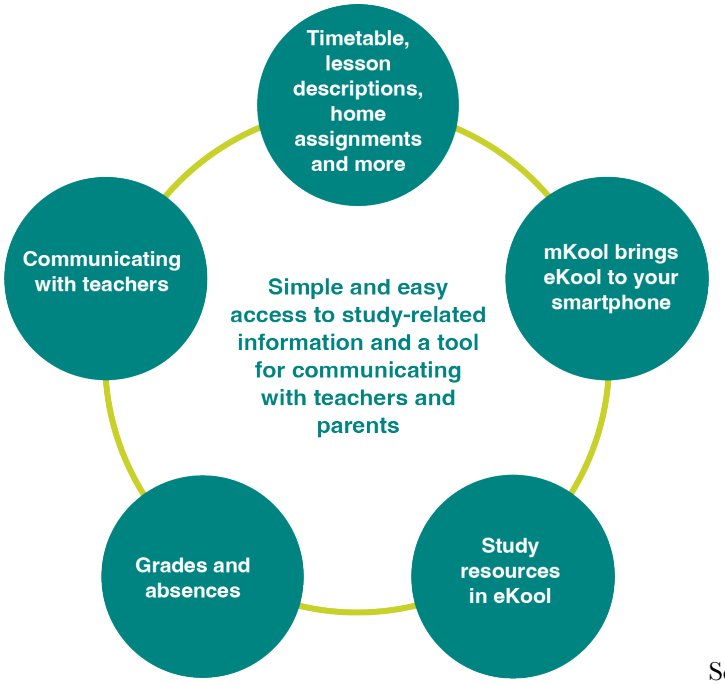
for the state, contributing to the development of education policy and the application of modern technologies in education. In cooperation with IT companies from the Estonian Association of Information Technology and Telecommunications, the role of the Foundation was to ensure that graduates at all levels possess the digital skills necessary for the development of the economy and society. The Foundation also served as a support center for educational institutions to integrate resources offered by ICT into teaching and learning. It initiated and guided innovation and development in the area of educational technology and introduced best practices (Information Technology Foundation for Education, n.d.).

In the summer of 2020, as part of the state reform carried out by the Estonian Government, the Information Technology Foundation for Education was merged with other agencies funded by the Ministry of Education and Research into the Estonian Education and Youth Board (*Harno*). Support activities for educational institutions in the fields of educational technology, e-services and ICT studies are now continued within a division of the new board. The new agency continues to have high aims in the field of education and information technology. One of the agency's main priorities is building and launching personal learning path infrastructure based on interoperable solutions. The aim is to provide learners with different opportunities to choose among for building their own learning path within a system that offers opportunities at different educational levels, types and learning methods, etc. Currently the focus is on building system infrastructure using machine-readable data generated from curricula, tests and learning activities. The infrastructure is designed to be open to many participants, governed by interoperability rules. Estonia launched a pilot project for the general education sector in 2021.

### Software and Services for Schools

Almost all Estonian primary and secondary schools use one of two commercial School Information Systems (SIS), either eKool or Stuudium. The eKool system is older, established through private-public partnership in 2001, while Stuudium was developed in 2012 and gradually increased its market share to 30 percent by 2020. Although the use of SIS is not compulsory, parents and local municipalities have pressured schools to do so. The main functionalities of the SIS are compiling student records, recording student grades and absences, posting homework assignments, grouping students in classes, organizing class schedules and messaging between school and parents (see Figure 9, next page).

**Figure 9. Functions of eKool**




Source: eSchool, n.d.

Every teacher, student and parent has access to their school's SIS using a national ID-card (MobileID or HarID, single sign-on service to all educational information systems provided by the Ministry).

# 6

# Equality and Equity in the Learning System

This chapter provides an overview of Estonia's efforts to foster equal access to education for all children. Creating a level playing field in education has been a priority of both social and educational policies for decades.

## Main Messages

- **Social policies support children from an early age to become lifelong learners and shape their own lives.** These policies aim to support low-income families or families facing financial, social or health challenges that can hinder child development.
- **Early childhood education is available to all children from the age of 18 months to seven years.** Most preschools are operated by local municipalities. Preschools are financed mainly through state and local government budgets. Disadvantaged families are supported. High rates of preschool attendance make it possible to diagnose special educational needs and intervene early.
- **A comprehensive school system means common standards for all.** There is a national preschool curriculum, a common National Basic School Curriculum for all students in grades 1–9 and a National Upper Secondary School Curriculum. Students only choose different programs in upper secondary school, at the age of 16 or 17.
- **Equal access to education and an equitable learning environment is guaranteed for all students.** Both public and private educational institutions must meet the same requirements. The financing of education aims to ensure equitable opportunities for all students. All students are provided free learning materials, a school lunch, free transport to and from school, free health care and support to enable participation in extracurricular activities. Students unable to live at home can live in supervised dormitories.
- **Support systems at the state and school level have been set up to accommodate children with special needs.** The state provides support for students with special educational

needs. In order to enable high-quality support, special counselling centers have been set up to help both students and the adults (teachers, parents) who teach/raise them. Each school has a specific person who coordinates work with students with special needs. Many preschools and schools have support specialists like speech therapists, special education teachers or social pedagogues (special education teachers who focus on social skill development).

- **Students of different ethnic backgrounds are provided with a supportive learning environment.** Students in Russian-language schools are supported in learning the state language. Voluntary language immersion programs designed to foster bilingualism are widely available. Schools that enroll new immigrants and internationally protected students receive additional support.
- **The learning system is characterized by a high level of quality across the country.** Students are admitted to basic comprehensive schools according to their place of residence. Basic schools all share a common curriculum, irrespective of geographical location. This policy and others similarly focused on educational equity contribute to a common level of high-quality teaching and learning across the country.
- **The implementation of equal access education and social policies has been largely successful.** In Estonia, students have largely equal access to high quality education. A weak link exists between socio-economic background and student performance and the difference in learning outcomes among schools is small.

## Social Policies to Support Children from an Early Age

Early childhood development is highly dependent on the environment in which a child is raised. A safe and loving home with guardians who engage with their children creates preconditions for learning and development.

The Estonian social system includes family policies that support equitable conditions for child development. These policies aim to support low-income families or families facing other challenges that can hinder a child's development.

Family-friendly policies have been under development since 2008. In 2011, *The Strategy of Children and Families 2012 to 2020* was introduced. It is aimed at all families and their children living in Estonia, irrespective of gender, nationality, race, language, religion, beliefs, social origin, income level, place of residence or family type. The strategy's primary objective is to guarantee the rights of children and

develop a child protection system that values "each child and the kind of safe environment that supports the development and well-being of children" (Ministry of Social Affairs 2011a, p. 7).

Based on the *Strategy of Children and Families 2012–2020*, Estonia reformed its child allowance system in 2013, with the aim to reduce child poverty. Estonia now uses a universal family benefit scheme, which means that every child is entitled to state support regardless of parental income. Additional payments are made to families at greater risk of poverty (single parent families, families with three or more children, etc.).

Parental support begins before the child is born. A pregnant woman has the right to receive maternity benefits for 140 calendar days. A one-time payment (320 euros in 2020) is provided to one parent when a child is born. In the case of triplets, the payment is 1,000 euros per child, totaling 3,000 euros. A monthly child benefit is also provided. As of 2020, this is 60 euros per month each for the first and second child, and 100 euros per month for the third and each subsequent child. Parents are entitled to the child benefit until the child reaches the age of 16, or, if the child remains in school, until the age of 19.

When the child is born the mother or father may take an additional 18 months of paid leave from work. The payment is based on either parents' average salary over the twelve months preceding the pregnancy. In 2020, the upper limit of the payment was 3,548 euros per month. After the initial 18 months of paid leave, either parent has the right to a further 18 months of unpaid leave. In addition, since July 1, 2020, a father has been able to take 30 working days of paid paternity leave, tripling the 10 days previously offered (Ministry of Social Affairs, n.d.).

All children and students have free healthcare, provided by the state. During the first year, an infant's health is examined once a month by the family doctor/nurse. After the age of one, children are examined once a year. At the age of six or seven years, the child is taken to the family physician for a preschool medical examination. The physician assesses the child's development and readiness for school and tests the child's eyesight, hearing, and speech development. To be accepted into a school, an abstract of the child's health-card must be submitted, listing important information about previous vaccinations, allergies, etc. All students are provided with school health care. The purpose of the provision of school health care is to ensure the well-being of all students and to support their normal development and growth. Health care provision for children is coordinated by school administrators (Ministry of Social Affairs 2010). The school nurse assesses and monitors the health of students, deals with disease prevention and health promotion, and provides first aid if necessary. For school-age children, the school nurse will perform a

check-up for children in the 1st, 3rd, 7th, and 11th grades. The family doctor should do a check-up while the child is in grades 2, 5 and 9 (Ministry of Social Affairs 2011b).

School health care includes dental and general preventative health through referrals. In Estonia, dental care is free for persons under the age of 19 and school health care services are available free of charge to students until the age of 21. In 2019, approximately half (52.15 percent) of the prevention activities financed by the Estonian Health Insurance Fund went to school health services (Estonian Health Insurance Fund n.d.). The universal approach reduces the risk of disadvantaged families being less able to access health care for their children.

### Early Education for All Children

The positive impact of early childhood education on children's development, education equity and reduction in poverty is widely supported by research (Fekonja-Peklaj, Marjanovič-Umek, and Kranjc 2010; Ainsaar and Tarum 2016). In Estonia, rural municipalities and city governments are obliged to provide early childhood education to all children 18 months of age and older whose parents choose to enroll them. Eighty-one percent of children under age three and 94.7 percent of three- to six-year-olds are enrolled in early childhood education. This high level of participation exceeds the OECD average, except for 5-year-olds. Only seven countries in the European Union guarantee access to education in the earliest years of life.

Most preschools are run by local governments, with only 4.7 percent of children attending private sector preschools (Education Eye n.d.). Local governments determine whether preschools operate during the academic year or throughout the calendar year. The state is the primary funder of teacher salaries, although local governments also contribute to the development and maintenance of preschools. Parents are charged preschool tuition, but the parental contribution may not exceed 20 percent of the minimum wage established by the Government of the Republic. Only minor additional payments are required if a family has more than one child attending a preschool (see "Subsidies for preschool education," below). Almost all local governments completely or partially subsidize preschool tuition and meals for low-income parents.

In 2011, as some local governments were struggling to provide enough preschool places, the government decided to allow private childcare services for children under three. Private childcare providers constitute less than 5 percent of all preschools in Estonia and must obtain a license in order to receive state funds (Social Welfare Act 2015). The licensing of private childcare inadvertently led to a reduction in access to

high quality care, however. Private childcare providers were more likely to offer a "babysitting" service as opposed to high-quality preschool education. The draft of the new Preschool Childcare Institutions Act places stricter educational demands on childcare providers to ensure that they deliver high-quality education or cease operating in the future.

### Comprehensive School System and Common Standards for All

The national preschool curriculum framework, which applies to all preschools, establishes a unified approach to supporting the development of children (Ministry of Education 2008). Preschool teachers must hold a bachelor's degree as well as teaching qualifications. In 2020, 86 percent of preschool teachers met those qualification requirements. The adult-child ratio in preschools is 1:12. Each preschool group is taught by a teacher along with a teaching assistant (Stein, Veisson, Õun 2018).

For decades, the general education system in Estonia has been based on the principle that all students attend and graduate from a unified nine-year comprehensive school. The primary standards for basic compulsory education are embodied in the national curricula. There is a strong emphasis on individual needs and ensuring equal opportunities for all students no matter their socio-economic background, ethnicity or gender.

As schools have considerable autonomy in interpreting the national curriculum, teachers are encouraged to differentiate the learning process to ensure that all students, including gifted students and students with special needs, meet its detailed learning outcomes.

In principle, no streaming takes place at the basic school level (grades 1–9). After graduation from basic school (grade 9), usually at the age of 16 (or in some cases 17), students are streamed based on competitive admission or self-selected into upper secondary or vocational schools. In upper secondary schools, particularly in large urban centers, students choose or are streamed into their preferred schools and programs (e.g., languages, mathematics, and science).

In order to meet the needs of their student body or of individual students, vocational education institutions can adapt study time, content, organization, and the learning environment. Institutions can, based on the school curriculum, create an individual curriculum for a student with special needs so long as the learning outcomes of the individual curriculum align with those described in the school curriculum (Vocational Education Act 2013).

## Equal Access to Education and Learning Resources

In order to ensure a safe and developmentally supportive environment for all children in public and private preschools or schools, the state has established a uniform set of requirements regarding buildings, premises, furnishings, indoor climate, maintenance, catering, cleaning standards, daily schedule, etc.

Schools must also follow regulations pertaining to the weight of backpacks or book bags used for school, length of the school day, and distance from home to school. For example, if a compulsory school student's walk to school exceeds 3 km (or 1.8 miles), the local government must provide transport for the child (Riigi Teataja 2001).

### Subsidies for Preschool Education

Although preschools charge tuition, costs are kept low and subsidies are widely available. The parental contribution may not exceed 20 percent of the minimum wage established by the Government of the Republic (in 2019 it was EUR 470). The average monthly wage in 2019 was 1,407 euros. Families with one child pay on average 32 euros per month (6 percent of the minimum wage); families with two kindergarten children pay on average 54 euros (10 percent of the minimum wage) for both children; and families with three kindergarten children pay on average 56 euros. Sixty-eight percent of local governments fully subsidize preschool for families with high economic need, while 28 percent provide partial subsidies (Kalma 2019). Some local governments also subsidize tuition in private preschools.

Preschool meal costs are covered by parents. These costs are decided by the preschool's board of trustees and approved by the preschool director (Preschool Childcare Institutions Act 1999). Two thirds of local governments partially or completely exempt low-income families from paying for preschool meals. Sometimes the exemptions include private preschools.

### Subsidies for General Education

A high-quality learning environment for students in basic and upper secondary schools (grades 1–12) depends on a two-tiered principle: per capita student funding supplemented by needs-based funding. This means each Estonian student is funded at the same level except when equal funding is considered inequitable, such as when a student's school is located in a deprived area or far from an urban center. The European Commission calls this approach "progressive universalism" (Fraser and Marlier 2014).

Local governments also receive additional financing from the state to support student participation in extracurricular activities. Financing is based on the total number of young people aged seven–19 on the local government's territory, the number of young people with disabilities and other special needs, and the local government's tax base, among other factors (Youth Work Act, Private School Act and Hobby School Act Amendment Act 2017).

All basic and upper secondary students are provided with free textbooks, free school meals, free transport to school, free health care and support for participating in extracurricular education. Making these supports universal helps to avoid stigmatizing poor students.

For students who live too far from school or whose families are unable to support their child's schooling the state provides supervised dormitories. In 2020, Estonia allocated a total of 880,000 euros for financing school dormitories. The cost of one dormitory place is 2,000 euros per student per year (Ministry of Education and Research 2019a).

### Subsidies for Vocational Education

Vocational schools are not funded on a per capita formula. Vocational education institutions receive core funding to cover organizational (including infrastructure) costs and administrative costs, as well as the provision of support services to students. This funding is meant to ensure the availability of vocational training for all those who want it (Eurydice 2020).

There are significantly fewer vocational education institutions than upper secondary schools in Estonia, which is why graduates of basic schools in rural areas who wish to study vocational subjects often have to continue their studies away from home. In order to increase the attractiveness and accessibility of vocational education to all students, and to compensate for additional study-related expenses, vocational students in Estonia receive financial benefits (Cedefop 2017).

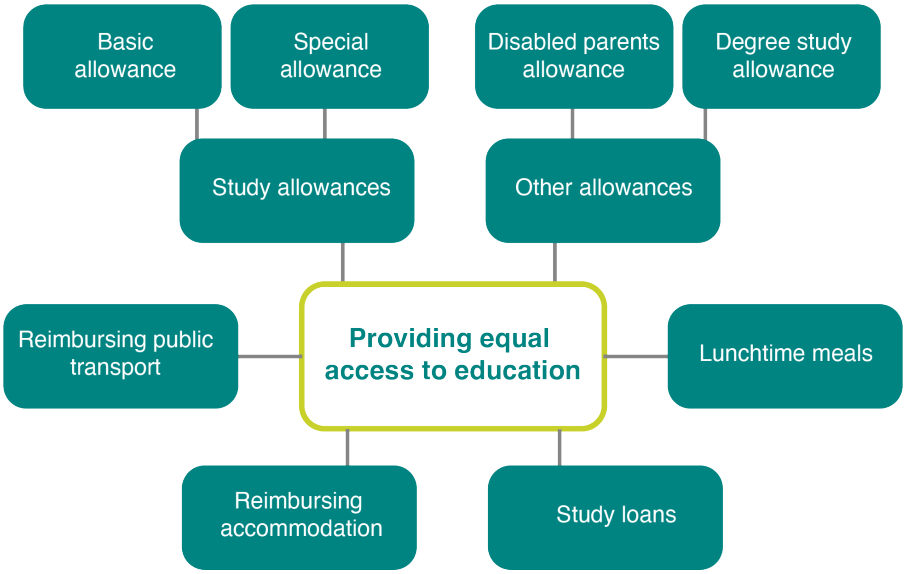
National and local governments have set up dormitories at some VET institutions for students who live far away or whose families do not provide support. The dormitories are primarily financed by the school. Parents are expected to pay a fee but may apply for a grant to cover the costs if needed.

Students living in a dormitory or rental apartment are reimbursed the cost of travel to and from their permanent (family) home twice a month. Trips over public holidays and school holidays are also covered. Students not living in a dormitory who commute to school are reimbursed for one return-trip per day (Ministry of Education and Research 2015).

Since 2005, the state has been providing free school lunches for full-time vocational students up to the age of 20. Books and other learning materials are provided free of charge.

Any full-time vocational education student who is an Estonian citizen or a permanent resident can apply for an allowance, which is only provided for the intended duration of study (e.g., a three-year program). Students must have a passing grade to qualify. In 2018, the allowance was 60 euros a month. Students who feel that they cannot for economic reasons continue their studies can apply to their school for an additional special grant. Grants are financed by the government. An Estonian citizen or permanent resident who has graduated from upper secondary education and whose program of study (per their curriculum) is at least six calendar months in length is eligible for a student loan. The maximum student loan is 2,000 euros per study year (Ministry of Education and Research 2019a). Figure 10 summarizes the range of supports for vocational education students.

**Figure 10. Supporting the Learner in a Vocational School**




Source: Ministry of Education and Research https://www.hm.ee/et/kutseharidus-oppija-toetamine

## Support for Children with Special Needs

### Support in Early Childhood

Supporting the development of preschool children with special needs, including gifted children, is a collaborative effort. The head of the preschool creates teams of teachers and support specialists, such as

speech therapists, special education instructors and social pedagogues. Often these specialists already work on-site. Fifty-nine percent of preschools have a speech therapist on staff and 30 percent employ a social worker (https://www.haridussilm.ee/ee). Preschools that do not have special education teachers on staff may seek support from a national network of state-financed counselling centers, called Pathfinder centers (Harno Rajaleidja n.d.) which are located in each county.

If a child is deemed to need special support, then an individual learning plan is developed by the teacher in cooperation with specialists and the parent(s). In such cases, an evaluation of the individual development plan, the suitability of the learning environment and the child's future needs is undertaken at least once a year. Access to specialists and other support services is provided free of charge.

In larger kindergartens where the number of children with special needs is higher, a special group can be created. Children are admitted to these groups based on the recommendation of an external panel of experts. The number of children in a special group is determined by need. For example, there may be up to 12 children in a group of children with physical disabilities, and up to four children in a group with more complex developmental disorders (Preschool Childcare Institutions Act 1999).

Although the principles for supporting students are similar in kindergartens and basic and upper secondary schools, there are some differences. In Estonia, students are not grouped by risk factors. They are instead grouped by the type of the support required, be that general, enhanced or special support.

### Support During the General Education Period

As with preschools and kindergartens, basic and upper secondary schools are expected to adapt to meet the needs of their students. Three tiers of support are available to students with special needs. The first is general support, which schools provide to students from their own budgets. Once a teacher has identified a student as having special needs, the school's special needs coordinator organizes a team of internal and external experts, including speech therapists, special education teachers, social pedagogues, and psychologists. In the case of very serious health problems, the local government appoints a full-time support person for the student.

If the above measures are insufficient, the school can apply for enhanced support from Pathfinder centers where an expert advisory panel consults with the school and the parent(s) and makes recommendations on how to support the student. The state covers the cost of additional support, which is available to students with ongoing learning difficulties or psychological or behavioral disorders or other health conditions or

disabilities. In these cases, a support specialist might accompany the student at all times, either in mainstream or special classes, or several specialists might offer support over a certain period of time.

The highest tier of support is special support, which is provided to students with severe conditions or multiple disabilities. This special learning support is financed by the state and delivered in coordination with social or health services.

Once a year the school must reevaluate the impact of any special education measures it has applied. When possible, students who have been taken out of the regular classroom for one on one or small group support are reintegrated (Pihlak 2019).

The Ministry of Education and Research keeps data on recommendations made by Pathfinder expert panels and the measures implemented to support students with special needs. The most common special educational needs are literacy, numeracy, and temporary learning difficulties. About half of SEN students participate in a speech therapy group and a third in a study support group focused on learning difficulties. Pathfinder centers mostly aid smaller schools that are less likely to have specialists on staff. Larger schools have more resources to hire support professionals, but, especially in rural areas, staffing shortages limit the provision of services (Räis, Kallaste, Sandre 2016). The shortage of speech therapists for Russian-medium schools is also quite complicated, as the specialists are not trained in Estonia. Although most teachers support the principle of inclusive education, many feel they need more professional development to adequately support these students.

In Estonia, gifted students fall into the category of special needs. Students are identified as gifted if they are academically outstanding in one or more subject areas. Indicators might include participation in national and/or international Olympiads and/or research competitions; pursuing a subject area in depth at another educational or research institution (e.g. university); and following an individualized curriculum designed for high intellectual capacity (Serbak 2019). Schools design these curricula, incorporating additional instruction by subject teachers or outside specialists. The main universities have special academies for gifted students from general education, which are supported by the state (see also in Chapter 3). Nonetheless, it is estimated that about half of all gifted and talented children go unnoticed or underdeveloped in Estonian schools because teachers tend to focus their attention on weaker students who need help with their studies (Sepp 2010).

Vocational schools also provide support services for students with special needs, including career services, study assistance, social pedagogical and psychological services. Schools may also prepare an individual curriculum and an individual transition plan for effective graduation. Specialists might also work with

small groups of four-12 special needs students. Additional Estonian language learning can be provided for those students whose lack of proficiency is a barrier to academic and professional success (Devrimci, Heinmets, Jürivete, Kongi, Teesalu 2014).

### Students of Different Ethnic Backgrounds

Estonia has one official language: Estonian. Ethnic Estonians constitute approximately 61 percent of the population, ethnic Russians 25 percent, ethnic Ukrainians 2 percent and Belarusians 1 percent (Statistics Estonia 2020). These three largest ethnic minorities are primarily Russian speaking. Minorities can be categorized into two groups: those who have been living in Estonia for decades and new arrivals.

As a legacy of the Soviet occupation, a network of Russian-language preschools and schools exists alongside Estonian-language preschools and schools. Since 1991, all preschools and schools operate based on a common core curriculum. To ensure that graduates of Russian-language schools can successfully integrate into the economic, political and social life of the country, Estonia has dedicated considerable resources to building Estonian-language fluency while continuing to develop students' capacity to communicate in their first language.

All Russian-language preschools teach Estonian, with more than half offering a voluntary Estonian-language immersion program. Since their initiation in 2003, a key obstacle to the expansion of language immersion programs has been the lack of qualified teachers (Valk, Selliov 2018).

In Russian-language basic schools (grade 1–9), students take Estonian as a second language beginning in first grade. A language immersion program was launched in 2000. Students may enter immersion early or late in their course of study but usually pursue half of their academic program in Estonian and half in Russian. In addition, immersion schools teach at least one foreign language such as English. Based on current demand, more schools are likely to adopt the immersion approach provided they can hire qualified teachers.

Since 2007, Russian-language upper secondary schools have been required to teach 60 percent of the curriculum in Estonian and may teach up to 40 percent in Russian. Estonian literature, Estonian history, social studies, music and geography must be taught in Estonian. Several schools have found it a challenge to fully meet this requirement.

Students in Russian-language vocational schools also receive instruction in Estonian. The aim is to help them achieve functional proficiency so they can compete in the labor market and integrate into Estonian social and political life.

A core concern of the Estonian education system is a gap in student performance between Russian-language and Estonian-language schools. In 2015 and 2018, students in Russian-language schools had lower PISA scores in reading, mathematics and science. For example, in 2018, the gap between Estonian and Russian-language schools stood at 42 points in reading, 29 points in mathematics and 44 points in science (Tire, Henno, Soobard, Puksand, Lepmann, Jukk, Lindemann, Täht 2019). In addition, Estonian Grade 9 and 12 final examination results show that students in Russian-language schools are on average achieving significantly lower scores than students in Estonian-language schools. There are other areas of concern as well. According to school climate indicators (sense of belonging, bullying at school, school absences, valuing cooperation at school, teachers' support, and teachers' enthusiasm) students in Russian-language schools report feeling less connected to their school, less valued at school, and experience higher rates of bullying (Tire, et al. 2019).

In addition, a smaller percentage of basic compulsory school graduates from Russian-language schools continue on to upper secondary schools where instruction is in Estonian. Instead, these students are more likely to pursue vocational education. Estonia has publicly recognized this challenge and plans to increase stakeholder dialogue to seek solutions, with a particular focus on targeted professional development for teachers and principals in Russian-language schools.

New arrivals constitute less than one percent of Estonia's school population. In 2020, there were around 420 newly arrived children in Estonian schools (of whom between 15 and 20 were refugees). Although recent immigrant children are generally integrated into mainstream classrooms, most have individual learning plans, often including extra instruction in Estonian or catch-up lessons in some content areas. These students are also entitled to 2 hours per week of instruction in their native language, provided there are at least 10 children from the same language group in a given school. If a student has lived in Estonia for fewer than three years, the requirement to learn a third language can be waived at the student's request and the number of Estonian language lessons increased (Riigi Teataja 2011a). Schools with new arrivals receive an additional 400 euros per student per year.

### The Learning System Is Characterized by Little Stratification

Differentiating students based on socio-economic background or abilities can increase social stratification. There is no streaming in Estonian preschools and little to no streaming in basic comprehensive schools.

The age of entry into preschool (and preschool attendance overall) has been shown to affect long-term learning outcomes. In Estonia, most children enter preschool at the age of two or three. According to the OECD, among Estonian students who took the 2018 PISA tests, 86.3 percent of those from socio-economically deprived backgrounds reported attending preschool during childhood. In recent years, preschool attendance has risen substantially (see "Early education for all children," above).

A focus on retention also helps reduce differences in learning outcomes for poor and affluent students. In Estonia, only 2.6 percent of students repeat a grade, versus the OECD average of 11 percent. According to PISA 2018, Estonian students from rural areas repeat grades slightly more often than in urban areas (3.2 percent versus 2.2 percent) and boys repeat more often than girls (3.4 percent versus 1.8 percent (Kitsing and Täht 2020).

All Estonian children are required to attend school from the age of seven until they graduate basic school (grade 9) or until they reach age 17. As a rule, basic comprehensive education is acquired for nine years, and students usually graduate at age 16. At this point, students have the choice of continuing their studies at a gymnasium (upper secondary school) or a vocational school (see more in Chapter 2). In Estonia, students are admitted to municipal schools for acquiring basic compulsory education based on their place of residence. The vast majority of students study in a municipal school (Education Eye n.d.).

In the last decade, the general education drop-out rate in Estonia has fallen to a relatively low level, 0.3 percent in basic schools and one percent in upper secondary schools. By contrast, the 23.4 percent drop-out rate for vocational schools presents a serious problem (Ministry of Education and Research, 2019). Students cite choosing the wrong field of study as the main reason for dropping out. However, learning and financial difficulties also likely play a part.

Most schools in Estonia do not stream students. According to PISA 2018, 43 percent of students in OECD countries attended schools where students were selected for different classes according to their abilities; in Estonia, the corresponding share is 1.4 percent (OECD 2020b). Partly this is due to the small size of Estonian primary schools, which usually have only one class in each grade. Some schools do perform in-grade selection, which is more common in urban and private schools than in rural and municipal schools.

Estonia's policy of Recognition of Prior Learning provides an additional pathway into formal education, particularly for students entering vocational schools. Students can request to have their professional experiences or independent study recognized as credit toward admissions requirements (Government of the Republic 2013).

In order to foster inclusive education policies and in view of the shrinking student population, Estonia has reduced the number of special education schools over the last decade. This has led to more special needs students attending mainstream schools, which has increased the need for support staff and tested the willingness of teachers to work with students who are at diverse stages in their development.

### Effectiveness of Equity-Seeking Education and Social Policies

The 2018 OECD study on the development and well-being of five-year-old children, IELS, revealed that in Estonia the relationship between a family's socio-economic background and the child's cognitive and socio-emotional development outcomes is weak (OECD 2019d). Since 2006, PISA studies have shown a weak correlation overall between Estonian students' performance and their socio-economic background. According to PISA 2018, Estonia was one of six countries where both advantaged and disadvantaged students' performance improved significantly. Estonia was also among 11 countries and economic regions where the average performance was higher than the OECD average while the relationship between socio-economic status and reading performance was weaker than the OECD average (OECD 2019d).

The most recent percentage of variability in the reading results of Estonian students that can be explained by socio-economic background is 6.2 percent. Only Hong Kong (5.1 percent) and Macau (1.7 percent) showed smaller differences. The OECD average is 12 percent (Tire el al., 2019). These figures are trending in the right direction in Estonia: on the 2015 PISA, socio-economic background explained 9 percent of the variability in reading results (OECD 2016a).

In Estonia, 90 percent of 25 to 64-year-olds have at least completed their upper secondary education, compared to an OECD average of 75 percent. In addition, 47 percent of Estonian women aged 25–64 have completed tertiary education, compared to 35 percent overall in the OECD. According to the OECD Program for the International Assessment of Adult Competencies (PIAAC), the knowledge of Estonian adults in both reading and mathematics is higher than the OECD average. The share of low performers was small (13 percent). Estonia ranked 7th out of 23 countries. Based on these results, it is possible to conclude that in Estonia not only is access to education ensured, but access to quality education is ensured (Santiago et al. 2016b).

According to PISA 2018, Estonia is one of the few countries where learning resources are funded equally across the country. There are no significant differences in student performance between socio-economically advantaged and disadvantaged schools or between private and public schools. Estonia ranks between 9th and 12th (as there was no significant difference among these four countries) in its number of computers per student to comparable to Canada, Hong Kong and Sweden. Of the nine countries for which data is available, only in Estonia, Iceland and Canada are rural schools better equipped than those in urban areas (OECD 2020b).

In sum, most students in Estonia have relatively equal access to education and a good level of knowledge and skills. There is a weak link between socio-economic background and student performance, and a rather narrow gap in the knowledge and skills of students in advantaged versus disadvantaged schools. Still, the country faces some challenges in meeting its equity targets. For instance, reading results for boys are significantly lower than for girls. While the reasons for this have not been thoroughly examined, one explanation may be the lack of consideration given to boys' preferences for reading material and learning/teaching styles. There is also a disparity between Estonian- and Russian-language schools. According to PISA 2018, the reading and science scores of students in Russian-language schools indicate that they are approximately one academic year behind students in Estonian-language schools. Also, according to PISA 2018, Estonia must do more to reduce bullying, increase students' sense of belonging, and help students feel more supported at school. Nonetheless, all in all, Estonia has reduced the barriers to learning created by poverty more effectively than most other countries.

Despite Estonia's progressive social and educational policies, the creation of a truly equitable education system remains a challenge. Poverty remains a major concern. In 2018, 17.1 percent of children under the age of 18 lived in relative poverty, while 1.6 percent lived in absolute poverty (Statistics Estonia 2019). In 2019, relative poverty among 16 to 24-year-olds was 20.9 percent. While the overall percentage of Estonians living in poverty is in decline, the percentage of children in poverty has increased, creating a clear demand for more effective policy measures.

# 7

# Current Changes and Future Perspectives

Despite having one of the top performing education systems in the world, Estonia is continually looking for ways to respond to changes in society and the labor market. In this chapter, we will look at some current reforms in the Estonian learning system as well as discuss future directions of reform, proposed by the national strategies and development plans.

## Current Changes

We will focus on six key changes planned for the Estonian learning system over the coming decades:

- Reorganization of the school network and the creation of regional education centers for upper secondary education;
- Efforts to increase the attractiveness of the teaching profession and prepare a new generation of teachers;
- Digitalization of the learning system;
- Changes in curriculum and shifts towards more personalized learning;
- Developing new models for education of minority populations; and
- Efforts to support students' and teachers' well-being at school.

### Reorganization of the School Network

**A shift towards regional upper secondary schools:** Due to demographic shifts, particularly the drastic decrease in the number of students in rural areas, reorganization of the Estonian school network has become an important and emotionally charged issue in Estonia. In recent years, Estonia has closed or merged several small rural schools and consolidated upper-secondary education into larger regional centers. The shift toward regional centers, which has enabled schools to offer students a sufficient variety

of coursework and choice of electives, has been accompanied by a shift from municipality to state governance.

Estonia launched its program to establish a network of regional gymnasiums and upper secondary schools in 2011. The main aim of the program was to reorganize the whole school network in response to demographic changes. The program is based on two principles:

1. All young people should have access to high-quality and choice-rich upper secondary education at least in their county.
2. Basic schools should be located close to students' homes, and schools need to provide safe and modern learning environments.

Adhering to both of these principals has not been an easy task. Parents and local communities often oppose changes, particularly the closure of small rural schools and the reorganization of schools with long-standing traditions. Responsibility for basic and upper-secondary education has historically fallen to local municipalities, with their close ties to the interests and needs of the community. The shift to newly established state-upper-secondary schools means local municipalities have less input concerning school management and development.

Establishing or renovating state-governed upper secondary schools has required a significant investment of state funds, as has repurposing closed lower-secondary schools in rural areas (another aim of the program). In some cases, a new public use — such as a kindergarten or library — can be found for the closed or unused part of the school buildings. The current status of the state-gymnasiums program is quite promising: by 2023, a total of 24 state-gymnasiums will have opened since 2012, including at least one in each county. (In 2013/2014, by comparison, there were 202 upper secondary schools in Estonia).

The school network development program for basic and upper secondary schools aims to create energy-efficient school buildings and design innovative learning environments to accommodate the needs of the new generation of students. The new schools have more space for group projects, individual work, laboratories, etc., and include welcoming spaces for children with mild special needs and students with mobility, hearing and visual impairments.

### Box 9. Example of State Gymnasium Learning Environment: Viljandi Gymnasium

> Viljandi Gymnasium was the first state upper-secondary school (grades 10-12) opened within the framework of the reform of state gymnasiums. In the construction of the building modern requirements were taken into account, including energy efficiency. For example, there is a small weather station on the roof that adjusts the window blinds to the right angle so that there is appropriate daylight in the room. All classrooms have a SMART whiteboard, a data projector, a teacher's desktop computer, a document camera and a sound system. Ergonomic and multifunctional furniture was chosen for the classrooms. Great attention was paid to acoustics, etc. The design of the rooms allows teachers to take into account the individual needs of the learners.
>
> Source: Viljandi State Gymnasium, n.d.

Gymnasiums are encouraged to develop their own learning approach and curriculum, to consider students' individual interests and capacities and offer greater flexibility in the learning process. Gymnasium students should have at least four academic pathways to choose from (e.g. natural science and environment, social sciences, art, theatre, languages, entrepreneurship, etc.) and a set of electives developed in collaboration with other institutions and stakeholders in the region.

### Box 10. Example of State Gymnasium Study Fields: Viimsi Gymnasium

> Viimsi Gymnasium has developed study branches: 1) Foreign Languages and Culture; 2) Music, Media, Drama and Arts; 3) IT, Technology, and Sciences; 4) Nature, Lifestyle and Safety. During their studies, students can take 15 elective courses in addition to the required ones. Students can also take part in extracurricular activities such as university courses, courses in music and art schools, sports and participation in students' board activities..
>
> Source: Viimsi Gymnasium, n.d.

The approach to teaching and learning of Viimsi Gymnasium (see box above) starts with the main outcomes of the learning process. They address students' general competencies like critical thinking and

problem solving, communication and collaboration skills, creativity, entrepreneurship and self-direction. Students have compulsory courses, several electives and extracurricular school activities, all of which serve learning purposes.

**Integration of upper secondary and vocational education.** Along with the creation of a state-owned upper-secondary school network, Estonia is considering how to integrate academic upper-secondary education and vocational education. It could benefit both academic and vocational students to take electives at both types of schools, based on their personal preferences. Regional education centers would be well-situated to provide this cross-use of resources. This potential "boundary crossing" is part of the wider trend of vocational learning "expansion," where vocational training takes place in various settings, including gymnasiums, work environments, and as part of volunteer opportunities (Loogma 2020).

Estonia is planning for a future where there is less distinction between academic and vocational education. At least three strategies will enable integration: 1) common entry requirements for upper-secondary school and vocational school; 2) a "one-door policy," which means that students enter one comprehensive secondary school and make choices about whether to continue in academic or vocational education within that school; 3) a modular vocational degree system, meaning students can choose smaller units of study (as opposed to following an entire curriculum) and piece those smaller units together to achieve a full vocational degree (Educational Development plan 2021-2035).

### A More Attractive Teaching Profession

One of the most critical challenges for the Estonian education system relates to its teacher workforce. Based on the TALIS survey (OECD 2019e), the average age of Estonian teachers is 49 years, the highest among participating OECD countries, and 54 percent of teachers in Estonia are aged 50 and above, compared to an OECD average of 34 percent. As a consequence, Estonia will need to replace more than half its teachers over the next decade. Of further concern, 40 percent of Estonian teachers report that they would like to leave teaching within the next five years, compared to an OECD average of 25 percent. Several efforts are ongoing to secure the future of the teaching profession.

**Governmental initiatives** The government is addressing both the shortage of teachers and the sense that the prestige of the profession is diminishing. The parliament agreed to an annual salary increase of almost 46 percent over four years, (OECD 2020b). However, the average salary for Estonian teachers at all levels (primary, general lower secondary, general upper secondary) is only about USD 28,000,

compared to OECD averages between US$43,942 and US$49,778. Teachers' salaries are also lower than those of comparably educated professionals within Estonia.

More than ten years ago, Estonia instituted a "beginner's allowance" to encourage new teachers to work outside bigger cities such as Tallinn and Tartu (Riigi Teataja 2010a). The allowance pays up to 12,000 euros over three years in addition to salary. Since 2019, Estonia has also supported specialists such as speech therapists, school psychologists, and social workers with a beginner's allowance.

Estonia has also created programs such as "Yes! To become a Teacher!" for adults who are considering a career change and Future Makers in Education for BA candidates who might consider a teaching career. In addition, Estonia has developed a series of projects to promote teaching, including a six-episode national TV series called "I, Teacher," a slogan, "Teachers create tomorrow's Estonia," a Facebook page and a webpage (www.õpetaja.eu), and program called "Teacher- spokesperson of education" to help current teachers inspire others to join the profession.

Together, these efforts have shown some success. According to TALIS surveys between 2013 and 2018, the percentage of Estonian teachers reporting that the teaching profession is "valued in society" has increased by 13 percentage points. Teachers younger than 30 perceive teaching as valued in society at higher rates than their older colleagues. In 2013, only 12 percent of Estonian school leaders perceived teaching as valued in society; by 2018, this number had grown to 40 percent (OECD 2019e).

**Changes in teachers' work** As the role of teachers evolves, teacher education also needs to change, with more emphasis on teaching teachers to guide their students' choices and activities, give constructive feedback, develop learners' self-regulation skills, and create an empowering and integrative learning environment (Teacher Occupational Standard n.d).

In a technology-rich environment, the learning process focuses more on developing a student's personal learning path, and teachers are expected to use more data to monitor student progress, provide personal feedback, and guide further learning. Collaboration is another important contemporary feature of teaching: teachers work less often in isolation and may rely on colleagues' support and expertise in challenging situations (as in many other professions). Also, due to Estonia's highly autonomous school system, a teacher's own initiative, or agency, plays a crucial role in influencing school development (Leijen, et al. 2019). Hopefully, these new areas of focus in teaching, along with the message that teachers are empowered to direct their own work as well as school development more broadly, will attract a new generation to the profession.

**Opening up the profession** The educational strategy for 2035 aims to make teaching more diverse, with workers from other areas of the labor market bringing new skills and professional experience to the education system.

In addition to Teach for Estonia (see Chapter 5), the government has introduced several other initiatives, including support and encouragement for part-time teaching. For upper secondary level elective courses in particular, part-time teachers who also work in other professions can provide students with an important link to "real life," including experience working on-site for businesses, etc.

### Box 11. Example of a Program Providing Guest Lessons for Schools

> Initiative Back to School is a non-profit organization that operates on donations. Back to School's strategic partner is Swedbank Estonia. The development of the association is supported by the Civil Society Foundation and the Education and Youth Board. Back to School aims to help 1st to 12th grade students learn 21st century skills or "life skills," including career, digital, information processing, communication, financial and collaboration skills as well as skills in entrepreneurship, technology and cultural, civic, media, environmental and health awareness. To teach life skills, Back to School provides teachers with a web-based environment for arranging both physical and online guest lessons, study visits and job shadowing. Since 2012, about 3,500 guest lessons and more than 190 e-guest lessons for tens of thousands of students have been conducted through Back to School.
>
> Source: Tagasi Kooli n.d.

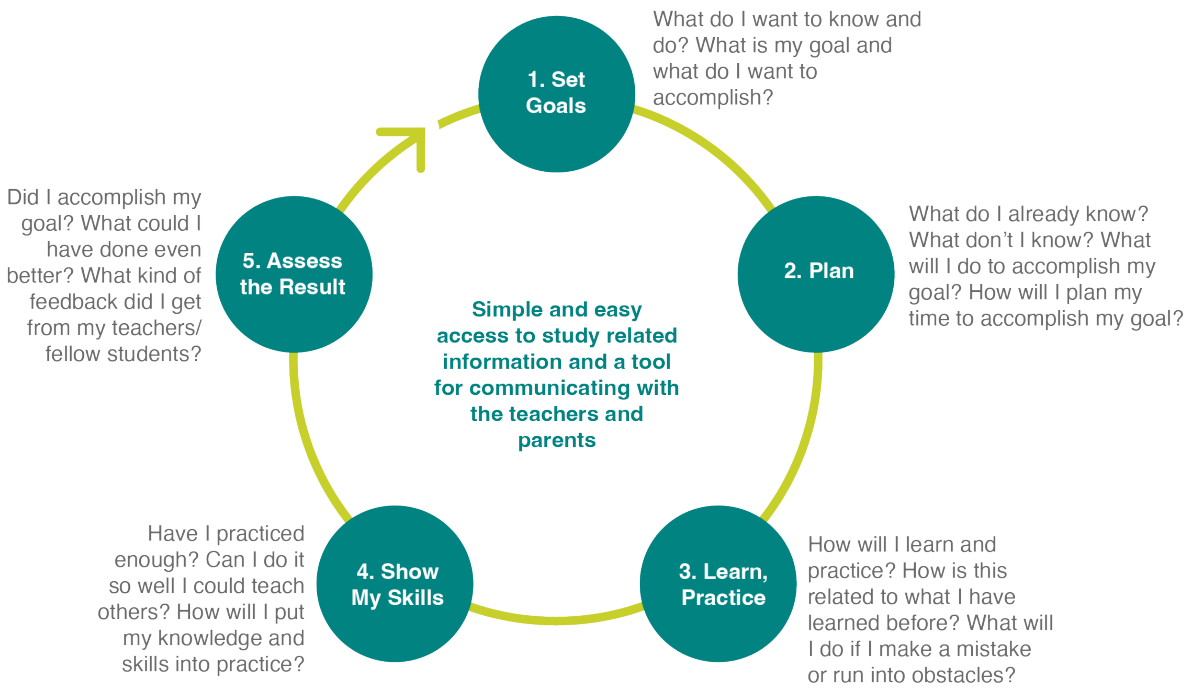
Universities have opened up alternative paths to teaching. For example, one potential direction for initial teacher education is a "learn as you go" workplace-based model, where new teachers plunge into teaching right away and learn by reflecting on their experiences. For such models to succeed, it is important for universities to collaborate closely with schools and other organizations, such as NGOs offering alternative programs, to ensure the programs are pedagogically sound and that workplace learning is continuous (Eisenschmidt, Ruus, and Poom-Valickis 2015).

**School as a better workplace for teachers** If teaching is to become a more desirable career choice for young people, schools must become more attractive workplaces. Efforts to design more teacher-

friendly schools include the *Future School* program at Tallinn University (Eisenschmidt, Vanari, and Tammets, 2020). In this program for school teams, distributed leadership, dialogue and meaningful goal setting are used to create a sense of school ownership among teachers and other parties, which in turn motivates them to contribute to school improvement. Teams of teachers set common goals and work together to co-create new practices and improve teaching and learning across the school (Oppi, Eisenschmidt, and Stingu 2020).

Forselius School, a participant in the *Future School* program, stands out as an example of how teachers helped students develop self-regulation (that is, their capacity to engage in learning, set goals, plan activities, and monitor and reflect on their progress) in all grades throughout a year-long team project. First, teachers learned together about self-regulation and then designed "learning-to-learn" materials for students in all grades, following the concept of Zimmerman's (2000) self-regulated learning described in Figure 11.

**Figure 11. Developing Students' Self-Regulation Skills in Forselius School**




Source: Forselius School: https://tfk.tartu.ee.

### Digitalization of the Learning System

The digitalization of Estonian schools started in the 1990s with the Tiger Leap program. From 2015-2020, the Ministry of Education and Research launched the *Digital Turn* program to support education institutions in the meaningful application of modern digital technology to learning and teaching. Currently, a new generation of digital infrastructures (personal digital devices, school digital infrastructures, interoperable information systems, web services, cloud solutions, open data, etc.) and the methodologies for their use are under preparation and testing.

From 2017-2019, Tallinn University and University of Tartu, in cooperation with other stakeholders and the leadership of Information Technology Foundation for Education (HITSA), prepared new informatics subject curricula for the national curricula for basic and upper secondary school. The new curriculum teaches both computer and design thinking. Students are put in a real-life situation where they must fulfil an individual role as well as work together as a team to develop a digital solution. In preparation, students can take electives courses such as programming, prototyping and design, software analyzes and testing and information services. Developing a digital project requires close cooperation with the private sector, as teachers often lack experience in this area. As part of development, the team created new learning materials for relevant elective courses and piloted them in collaboration with upper secondary and VET schools, as well as with entrepreneurs who acted as guides and role models for students.

Some schools developed digitalization further in their curriculum, focusing on infrastructure (e.g., network, BYOD) and the integration of digital technologies into the learning process (see example from Pelgulinna Gymnasium in Box 12, next page).

In order to understand and map technological trends in education, Estonia launched the Technology Compass in 2018. The Compass maps key technological trends that impact education and keeps educators informed about the technology developments and related teaching methods across the globe (see https://kompass.harno.ee). The Compass produces an annual monitoring report focusing on a set of topics selected for the year, describes the current state of Estonian schools in these areas, identifies new topics that will prepare students for the future labor market, and finds opportunities for the application of new technologies in teaching. The reports address topics like artificial intelligence, gamification in education, personalized learning, learning analytics and big data, privacy, smart technology, use of virtual and augmented reality in the learning process, etc.

### Box 12. Example of Integrating Digital Technologies into the Learning Process: Pelgulinna Gymnasium

Our school's pedagogical approach:

- Innovation and use of digital tools, including digital safety, coding, drones, etc.
- Descriptive evaluation, less grading (numbers)
- Combining subjects into STEAM - physical and social sciences, incorporation of technology, principles of engineering and design, English language arts, application of mathematics
- International cooperation
- Art projects and creativity

Technology usage:

- Computer lessons for every class: mobile-smart lessons, robotics, 3D printing, web development, computer graphics, animation, developing mobile apps
- BringYourOwnDevice (BYOD), free WiFi, LanParty, SmartCircus, E-school, cloud services and apps, Moodle

Digitalization:

- Every class has a computer and a projector and WiFi.
- Teachers and students can use tablets and laptops (BYOD).
- Every teacher is responsible for their use of technology (according to curriculum agreements).
- Curriculum is divided into digital competencies in ordinary lessons and informatics lessons. Informatics lessons are taught by special teachers from 2nd to 11th grades.

Source: Tallinn. n.d.

Another strategic focus of the *Digital Turn* program is funding the creation of new learning materials. In 2015, the Ministry of Education and Research established a platform called e-Schoolbag that allows teachers and students to collect and use digital learning materials in one environment (see also Chapter 5). Through the portal, teachers can use learning materials located on different websites to combine videos,

games, worksheets and other materials and create learning kits of materials that are then easily accessible to students and colleagues. Interactive learning materials are independent learning objects, similar to Lego blocks, which teachers and students can reuse one by one, add to a new collection on the e-Schoolbag platform, as well as change and supplement. E-schoolbag is constantly updated and expanded in order to popularize its use among teachers and improve the quality of the user experience. Due to COVID-19, the use of the e-Schoolbag increased six-fold in 2020 compared to the previous year (Information Technology Foundation for Education 2020). Similarly, use of other e-services multiplied during the pandemic, especially the use of e-tests and the Moodle learning environment.

In order to increase the effectiveness of learning and teaching, and to support the personalization of teaching, interoperable tools and services are created that support descriptive, predictive and prescriptive learning analytics for different target groups involved in teaching. The aim is to build an ecosystem of interoperable online services for schools in line with the following requirements (Küngas 2020):

- All educational online services have a Single Sign-On (HarID) function.
- The data and metadata stored in various educational information systems are accessible both in human- and machine-readable forms.
- Every digital object (including learning object) has a unique identifier.
- Information systems and e-services exchange data on their usage and interactions.
- All learning interactions across multiple services and platforms are recorded in a standardized format.
- An xAPI compatible learning record store (LRS) is the heart of the xAPI ecosystem, receiving, storing and returning data about learning experiences, achievements and job performance. An LRS is needed in order to do anything with xAPI. Every other tool which sends or retrieves learning activity data will interact with the LRS as the central store; interaction logs can be analyzed in combination with "slow data" drawn from the official registries, based on the needs of various parties.
- The outputs of analytic models are accessible/usable by humans and AI agents.
- Users may grant access to their data to various interoperable services.

The goal of the new ecosystem of interoperable online services for schools is to make education data from different sources available for building analytics dashboards and enabling predictive analytics for different actors. For example, Schoolaby is a Distance Learning System for delivering online education, including both subject content and a structure or process for content delivery, that uses data mining and recommender features. In the future Schoolaby will also offer learning path analysis, with some AI

elements (https://schoolaby.com). Schoolaby is not unique; there are so many start-ups, NGOs, and companies designing solutions for schools and kindergartens that Estonia established the umbrella organization EdTech Estonia (https://www.edtechestonia.org/home).

Looking to the future, Timo Tobias Ley, a professor of learning analytics and educational innovation at Tallinn University, outlined three key trends:

1. Enlarging the sources of data: Traditional AI systems are built on limited data which includes mainly answer patterns. There is a trend — referred to as Multimodal Learning Analytics — to enlarge the number of sources from which data are collected, including expanding the classroom's usefulness as a source of data. This necessitates bottom-up oriented data processing strategies such as machine learning.
2. AI in the service of human decision making: There is a trend to understand AI as hybrid systems in which intelligent technology and human decision making together optimize the learning experience. This means that human stakeholders (teachers, school leaders) need to be involved in creating the systems, and AI needs to be comprehensible, transparent and support decision making ("explainable AI"). This leads to creating dashboards and other technology to support the teacher in the classroom.
3. Theory-based AI: There is a trend to integrate theoretical models of learning into the design of AI systems. For example, "cognitive learning analytics" integrates cognitive computational models into the design of personalization technology.

These future perspectives of education technology are key to keep in mind when developing the education cloud system. The aim is to develop the educational cloud environment, which provides access to educational databases and e-services like Estonian Education Information System (EHIS), Examination Information System (EIS), Estonian School Information System (EKIS), study information systems, e-diaries, e-guides, study material repositories and various language learning environments. The cloud information system would provide teachers, students and parents a good overview of the existing digital learning resources and the opportunity to use them conveniently.

### Curriculum Shifts Towards Personalized Learning

Estonia's traditional national curriculum is also adapting to better meet societal expectations and future needs. The curriculum will change in four key ways: 1) better reflect labor market needs; 2) shift towards

deep learning and better reflect an understanding of child development and the processes of learning; 3) shift towards more personalized learning; 4) pay more attention to general skills.

**Considering Labor Market Trends—OSKA Program.** The Estonian Qualifications Authority launched OKSA in 2014 to better connect the education system with the expectations of the Estonian labor market. The program projects labor needs over the next 10 years, with the aim "to learn and teach the future skills" for Estonia's economic development.

Each year, OKSA issues recommendations for training requirements for five to six economic or business sectors. For instance, in 2019, OSKA conducted an analysis of the following sectors:

- Film and Video, Art and Design, Journalism, Content Creation, and Language, Marketing and Communications and Printing
- Performing Arts, Music, Libraries, Museology, Crafts, and Sport
- Real Estate Services and Facility Maintenance
- Security and Law
- Water, Waste and Environmental Management

- The Coordination Council, OKSA's governing body, decides which sectors will be analyzed each year, with all economic sectors analyzed once every five or six years. In the intervening years, expert panels for each sector keep an eye on how recommendations from the most recent analysis are being implemented.
- The Coordination Council approves the list of sectoral expert panels and approves sectoral reports and proposals. All reports are publicly available, and educational institutions try to follow the recommendations of the OSKA expert panels. The Coordination Council consists of representatives from the Ministry of Education and Research, Ministry of Economic Affairs and Communications, Ministry of Social Affairs, Ministry of Finance, Ministry of the Interior, the Bank of Estonia, the Estonian Employers' Confederation, the Estonian Chamber of Commerce and Industry, the Estonian Service Unions' Confederation, the Estonian Trade Union Confederation and the Estonian Unemployment Insurance Fund.

### Box 13. Example of OSKA Suggestion Package

An example of OSKA "suggestion package" concerning the Estonian Education Sector:

- According to our calculations the Estonian Education Sector needs 850 new employees each year, including over 650 kindergarten, school and vocational teachers and university lecturers, over 70 support specialists and over 130 educational workers. Taking into consideration Estonia's goal that 60% of the young should be involved in youth work, the need for new youth workers grows (in 2017, 54% of the youth were involved in youth work). In 2018, about 740 people graduated after studying curricula related to education and less than 700 of them made it to the job market. We can conclude that in the near future the need for a work force in education will exceed training offers. The need for a work force and training offers are relatively in balance among classroom teachers and kindergarten teachers but the need for subject teachers and support specialists greatly exceeds the training offers for them.

Source: Mets, Viia, 2018

Departing from such a "diagnosis," OSKA presents several suggestions, for example:

- Innove, in cooperation with the University of Tartu and Tallinn University, will encourage the flexible retraining of teachers at general education schools and vocational schools to become natural sciences or mathematics teachers.
- Smart Specialising Committee, in cooperation with partners (Ministry of Economic Affairs and Communications, Ministry of Education and Research, University of Tartu, Tallinn University) will add all BA level mathematics and natural sciences curricula into the Smart Specialising growth fields special allowance recipients list.
- University of Tartu and Tallinn University, in cooperation with partners (Estonian Teacher's Union, Estonian Class Teachers Union, Estonian School Leaders Association), will find ways to motivate BA mathematics and natural sciences graduates to continue studying the subject teachers' curriculum. They will add didactics and practice to the BA curriculum and develop a special program, the "Young Nature and Engineering Scientists go to School."

Source: Estonian Qualifications Authority, 2018

**Updating Curricula to Focus on Developmental Stages of the Learner** Recent proposals for updating the basic school curricula have included the expansion of the traditional subject- and competency-based curriculum to include a dimension based on the developmental stages of thinking (Toomela 2020). This perspective suggests that a curriculum cannot simply focus on knowledge and skills; it must also teach the student to develop different kinds of thinking. This is based on an understanding of the stages of human cognitive development, distinguishing between everyday thinking, logical thinking, and systemic thinking. At the everyday thinking stage, learning takes place through external activities and is based on the real activities of the learner. At the logical thinking stage, learning becomes language based. Initially, language-based learning is expressed through speech: describing one's own and others' activities, or sharing one's conclusions, generalizations and reasoning with others. As logical thinking develops, the focus shifts to internal reasoning, or "inner speech," while external speech becomes the vehicle for thought. At the systemic stage of thinking, which typically starts at the end of basic school, the learner becomes adept at using different cognitive skills for different tasks or activities.

This perspective suggests that systemic thinking is a prerequisite for acquiring general competencies and meeting the individual and global challenges of today's world. The authors of this approach argue that more purposeful support for the development of thinking skills in both national and individual school curricula is the most effective way to help people succeed amid uncertainty. They suggest that the traditional curriculum "with more and more knowledge and skills" is inadequate preparation for our rapidly changing world.

**Shifts Towards More Personalized Learning** During the last decade, Estonia has tried to shift to more personalized teaching and learning (Estonian Lifelong Learning Strategy 2020, Education Strategy 2021-2035). One of the first steps toward this goal is the creation of flexible learning paths supported by modern technology. The Education and Youth Authority (*Harno)* is coordinating the development of programs that would allow teachers and learners to share feedback on the learning process, and—taking things a step further— show what the learner has done, why he/she did so and what the gaps in his/her knowledge or skills might be. The data collected through the Examination Information System (EIS), which include results of grade level work and examinations and tests of learning and communication competencies, allow the teacher to follow the learner's progress through different levels of education, to notice phases of development and to recommend suitable studies. Another aim of this personal learning infrastructure is to give schools feedback on the impact of new ways of learning and teaching on student progress (Tammets n.d.).

In a recent initiative, Estonia created digital learning resources to cover the whole national curriculum in four fields at the upper secondary level: mathematics, natural science, arts and social science. Learning materials are open source so that teachers can modify them for use in different platforms (eSchoolbag, Moodle, etc.). Under this initiative, e-Textbooks are reconceptualized as aggregations of both professionally developed and user-contributed content accessible through a wide range of devices. The following principles are followed during the creation process:

- Learning resources are dynamic in nature.
- Teachers may select resources and integrate content, for example, history + arts = arts history, economy + geography = economic geography.
- The teacher is a creator who chooses, re-uses and remixes materials.
- The student is a creator of and contributor to his/her own textbook.

The project also uses learning analytics to collect data to monitor students' progress. The next phase will include more automatization and data analytics regarding learning materials. Ideally, the infrastructure should support personalization without additional burden on teachers. Data-driven services, backed up with modern AI technologies, support evidence-based decision-making with minimal delay. The infrastructure provides insights and diagnostics for each individual student in real time. Learning analytics dashboards provide visualizations, which help users interpret students' learning behavior: how they learn, what motivates them and what are their "blockers." Teachers can intervene whenever needed, not after failures at national exams or high-impact tests.

Professor of educational technology Margus Pedaste from the University of Tartu put it this way in conversation with this study's authors:

> *The main technological challenge for the future is how to support self-regulated collaborative problem solving in online settings in a personalized way. We already have tools for this—*
>
> *Open Learner Models that make the data about the learning process visible to the learner allowing combining automatic model-based personalization but also adaptation to learners' self-directed process. However, in order to feed Open Learner Models with high quality meaningful data and to make good adaptive models based on the analysis and prediction models, we also need innovation in learning analytics, educational data mining and artificial intelligence.*

The big challenges for future technology are how to collect data in real time about cognitive, metacognitive, motivational and emotional processes. A lot of this information is not visible or consciously

expressed by learners and must be obtained by mining existing datasets for its digital traces and determining what is meaningful.

**Emphasizing General Competencies** Estonian national curricula have always emphasized general skills and competencies (social skills, learning to learn skills, self-regulation, digital competence, and others as discussed in Chapter 3).

### Box 14. Example of One Teacher's Perspective

> I would begin with expressing my opinion that mistakes are not just unavoidable in the learning process but even expected. I have discussed with my students why making mistakes is useful in learning and how making mistakes, which is of course followed by analyzing the mistakes and that whole puzzle and effort, helps to develop their long-term memory. My students choose their favorite color writing instrument for correcting their mistakes, which helps embed in them that mistakes have a positive effect on learning outcomes and learning process.
>
> In addition we analyze the importance of activities that contribute to forming long-term memory contents—remembering, formulating and passing on the study material orally or in writing. The children are used to performing small memory content activating remembering tasks that teach them to find necessary information from their memory.
>
> I want my students to understand how to study so that they can remember what they learned tomorrow and in the far future. I support this through different lesson activities and methods. For example, reading a new text multiple times is not an effective study method—it only makes the students excellent readers but it is more important that the students have the skills to process new information through correct learning strategies.
>
> In conclusion, it is a process where constant discussion and analyzing of learning and thinking takes place, where the emphasis is not on right or wrong, but on explaining the answer.
>
> Source: Kadri, 3rd grade teacher, Personal conversation

The most fundamental general competence is learning to learn. Learning to learn can be understood as regulating and managing the process of deep learning (Kikas and Soodla, 2019). Learning to learn

requires knowledge of the learning process, motivational beliefs, cognitive and academic skills, awareness of one's needs and available opportunities, and the ability to overcome obstacles in order to learn successfully. Metacognitive knowledge and skills are a vital dimension of learning to learn (Kikas 2020).

Learning to learn has been recognized as an important basis for learning since the launch of the first national curriculum in 1996. To evaluate learning to learn skills, a national competition for 6th grade students on learning competencies has been held annually since 2002. The competition is financed by the government but organized by universities (University of Tartu Science School n.d.).

Students who enter the competition must demonstrate practical observation and presentation skills, as well as aural comprehension and memorization skills by listening to and analyzing texts. All tasks are solved by teams, which means that teamwork, planning and allocating tasks are important skills also.

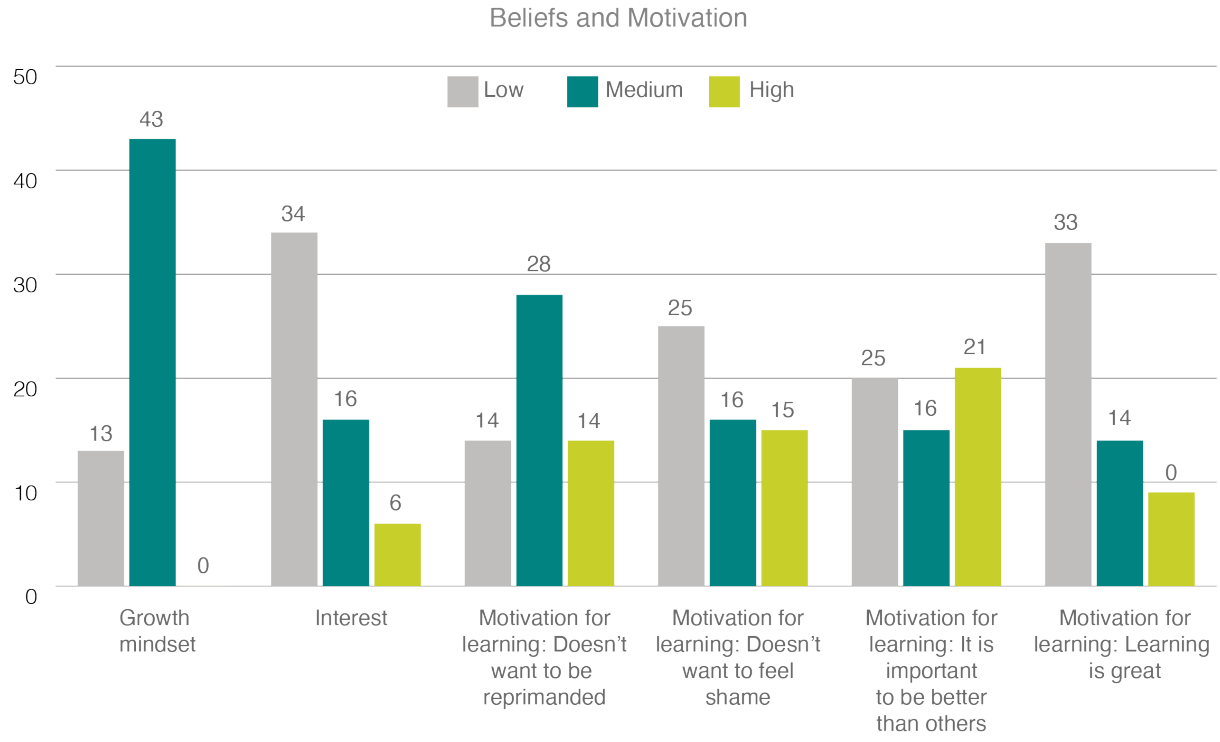
Estonia's focus on general skills has required national standard-determining tests to assess general competencies. Currently the Education and Youth Authority (*Harno*) prepares and mediates these tests for teachers to use in their classrooms (based on teachers' own initiative and interest) developed in cooperation with university researchers. They include the following:

- Learning, communication and self-determination competence tests for the 1st and 2nd stages of study
- Reading and mathematics competence tests for the 1st and 2nd stages of study
- Digital competence test for the 3rd stage of study and upper secondary school

Teachers get the feedback report of test results, which characterizes the sub-competencies of tested students. The data a teacher receives on her class are analyzed, with students assigned to one of three groups: low, medium and high. For example, according to the results of a learning competence test on learning-related beliefs and motivation (see Figure 12, next page), most students belong to the medium group in the growth mindset category, while in the interest category, more than half of the students are in the low group. Learning motivation is more external and competitiveness is high, as almost half of the students report that it is important to be better than others.

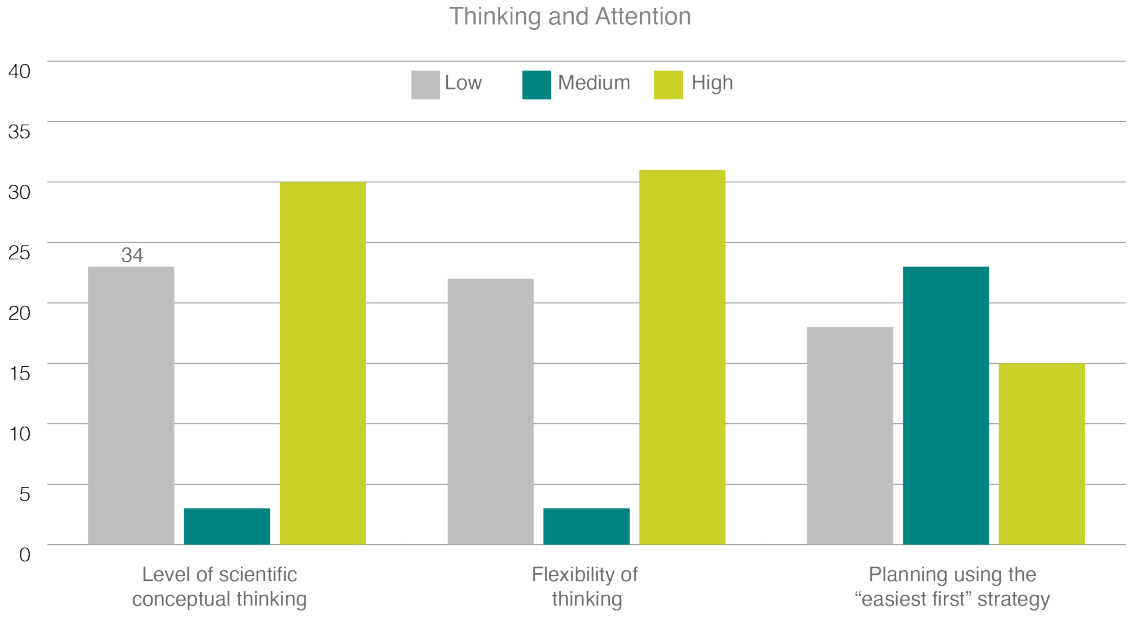
According to the results of a learning competence test focused on thinking and attention, students' level of scientific conceptual thinking and flexibility of thinking is high (see Figure 13, next page). Their choice of learning strategies is mixed, but most students don't choose the "easiest first" strategy, suggesting they are making meaningful choices in planning their learning.

## Figure 12. Sample Class Feedback Report of the Learning Competence Test for Beliefs and Motivation




Source: 2020 School monitoring survey by Tallinn University

## Figure 13. Sample Class Feedback Report of the Learning Competence Test for Thinking and Attention




Source: 2020 School monitoring survey by Tallinn University

Special training for teachers on how to use general competence tests to support student development is offered as a part of university continuing education courses (Kikas, Soodla 2018).

### Identifying Models for Education of Minority Groups

About a quarter of the Estonian population speaks Russian as their mother tongue. In addition, immigration to Estonia has increased, especially following Estonia's accession to the European Union in 2004. The large Russian-speaking minority and the growing new immigrant community are a challenge for Estonian education.

After World War II, two separate school systems emerged in Estonia: Estonian-language and Russian-language schools. During the last ten years, the number of students in Estonian-language schools has increased 12 percent while the number in Russian-language schools has decreased 17 percent. That said, Russian-language schools (in which all instruction occurs in Russian) remain a substantial part of the Estonian learning system.

The future of Russian-language schools has been a "hot" topic of political discussion in Estonian education. The question is whether Estonia still needs separate schools or whether it is possible to teach young people together in Estonian-language schools. Proponents of co-teaching argue that linguistically segregated schools result in a segregated labor market. By studying together, without physical segregation, it is likely that a more unified social network will develop, which will support people throughout their work lives.

The need for early language learning has become a prominent issue in recent public debate. The results of a 2017 public survey on the integration of Estonian society show that the majority of Estonian people (including 77 percent of native Estonians and 79 percent of people of other nationalities) believe that Estonian-language instruction should start in kindergarten. An early start ensures better language skills development, readiness to enter the Estonian language education space and a more equal footing in academic and professional life. Native Estonians and immigrants of other nationalities have become more open to multicultural educational institutions.

The share of parents of non-Estonian-speaking children who chose to send their child to a school with Estonian as the language of instruction is increasing. In the 2019-2020 academic year, 2.3 percent of students who spoke Russian at home studied in basic schools where instruction was delivered in Estonian. Three years ago the share was 1.9 percent. To take one school as an example, at Kuristiku Gymnasium in

Tallinn the share of Russian first graders has increased to 50 percent, up from 30 percent three years prior.

In the last decade, Content and Language Integrated Learning (CLIL), which is used in both Estonian- and Russian-language schools, has become a dominant approach. CLIL is an umbrella concept that covers various learning solutions and methods (for example, immersion, family exchange, project learning, outdoor learning, etc.). The key feature of CLIL is the synthesis of knowledge and skills in different fields, with a particular focus on the acquisition of language, subject and learning skills (Mehisto, et al. 2010). Use of CLIL is growing among both Estonian- and Russian-language schools and preschools.

Looking to the future, several other school models are under discussion, including 1) Co-learning school (2016); 2) Human Rights Education Concept (2017); and 3) Unified Estonian school (2018).

The concept of Estonian co-learning schools emerged from the theory and framework of multicultural education by James A. Banks, developed for the United States. Co-learning is focused on quality requirements for schools where many students from different linguistic and cultural backgrounds study together. Language learning is central to this concept, but training and counselling to raise cultural and integration awareness are also important.

According to the concept of human rights education, schools should pay special attention to the learner's ethnic, ideological, cultural, gender and religious background. Although the teaching and learning of human rights is a part of Estonia's national curricula, the key is to follow the principles of human rights systematically in the teaching process.

The aim of the unified Estonian school is to integrate national minorities and immigrants into Estonian society. The idea is that schools are multicultural by nature, so the school's educational work should adapt to the needs of a multicultural society (Kivistik, et al. 2019). Tallinn Open school is testing this model (see Box 15, next page).

### Box 15. Example Tallinn Open School Trilingual Immersion Program

In 2017 the Open School, located in Tallinn, implemented a trilingual immersion program for the first time in Estonia. In a trilingual immersion program students with three different native tongues (Estonian, Russian, English) are in the same study group. This allows students with different backgrounds to learn different languages in a meaningful context, both in everyday communication and in relation to subject knowledge. In early stages subjects are taught in at least two languages (Estonian and Russian) and there is always one teacher who speaks the students' native tongue present. The Open School curriculum is characterized by integration – multilingual learning is integrated with the exact sciences through project learning and globally recognized evidence-based learning with social and emotional learning programs (Social and Emotional Learning Programs). Project training takes place both in the student's native tongue and in foreign languages, and external experts are involved in the projects if necessary. The school's extracurricular activities tend to be in science but there are also hobby groups where children can develop their thinking, language and art skills, and sports.

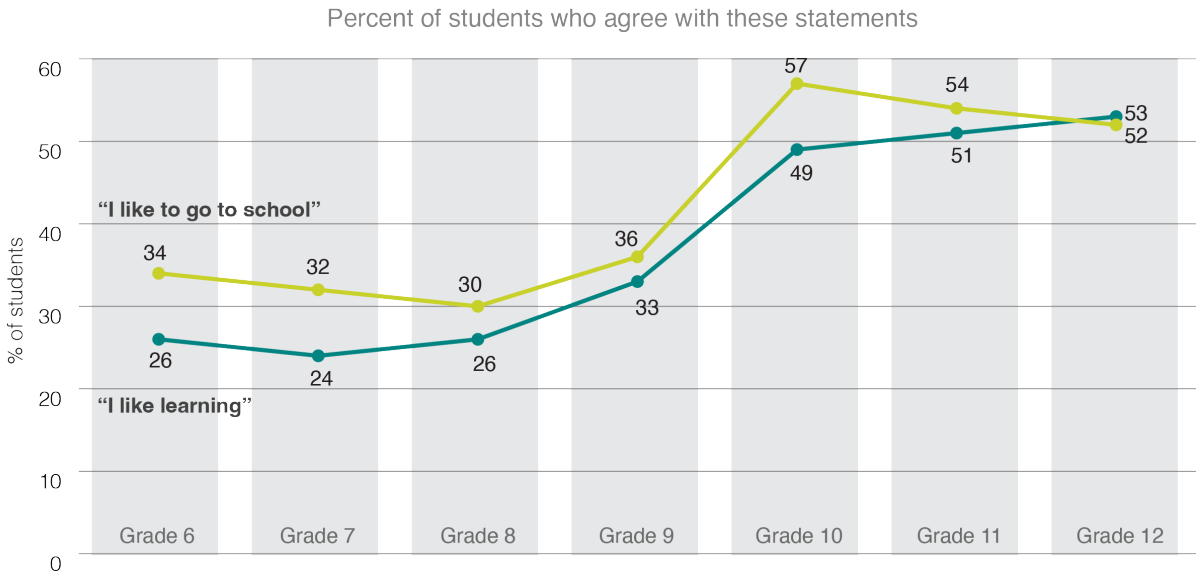
Source: The Open School webpage

## The Well-being of Students and Teachers

In recent years, some education stakeholders have begun to question whether the Estonian *work hard and aim high* mentality should remain the dominant model for schooling, especially as it impacts the well-being of students and teachers.

On the 2018 PISA, Estonian students' "overall satisfaction with life" ranked 36th among 72 countries—a middling result. However, when looking specifically at "*school* satisfaction or *school* happiness," the situation is more concerning. According to a 2020 survey by Tallinn University of primary school and gymnasium students (4,850 participants from 6th to 12th grade), the share of students who said they "like to go to school" and "like learning" was surprisingly low (Figure 14).

## Figure 14. Student School Satisfaction Survey

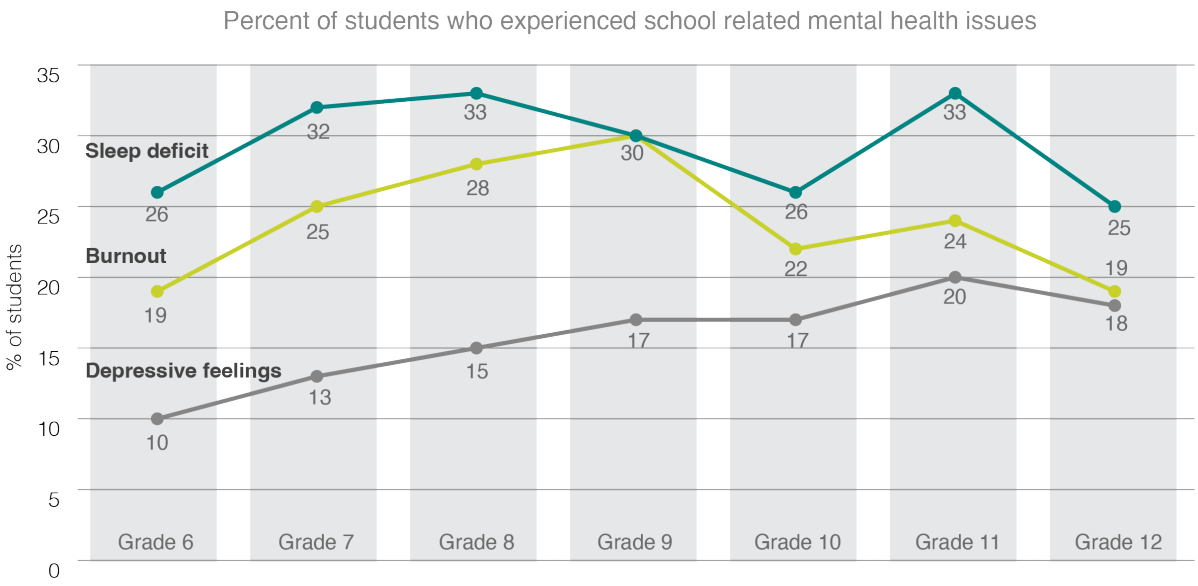



Source: 2020 School monitoring survey by Tallinn University

Only one third of 6th to 8th graders agreed that they like school and feel comfortable during classes; among 10th to 12th graders, the share of students who like to go to school is about half.

The very concept of *school happiness* is quite complicated, as there are different degrees of "unhappiness" in school, ranging from minor discomfort to burnout, depression and even suicidal feelings. A Tallinn University school monitoring survey also measured burnout, depressive symptoms and sleep deficit. Results indicate that about 20-25 percent of students may have some problems with their mental health (Figure 15).

## Figure 15. Survey of Student Mental Health




Source: 20 School monitoring survey by Tallinn University

There are several studies addressing mental health issues among Estonian schoolchildren, especially teenagers. Grinberg indicates that about one-quarter of Estonian schoolchildren are experiencing school burnout, and that the strongest predictor of burnout is schoolwork overload (Grinberg 2017). In Estonia, 13- to 15-year-old students usually spend seven hours a day at school plus two hours on homework, which amounts to a longer day than their parents spend at work.

In Mark's study (2018), 26 percent of students reported depressive feelings (i.e., for two or more weeks had felt so sad every day that they had given up their usual activities). According to the WHO-5 score of well-being, 19 percent of Estonian schoolchildren are distressed and 5 percent are severely distressed, with girls (6 percent) somewhat worse off than boys (3 percent).

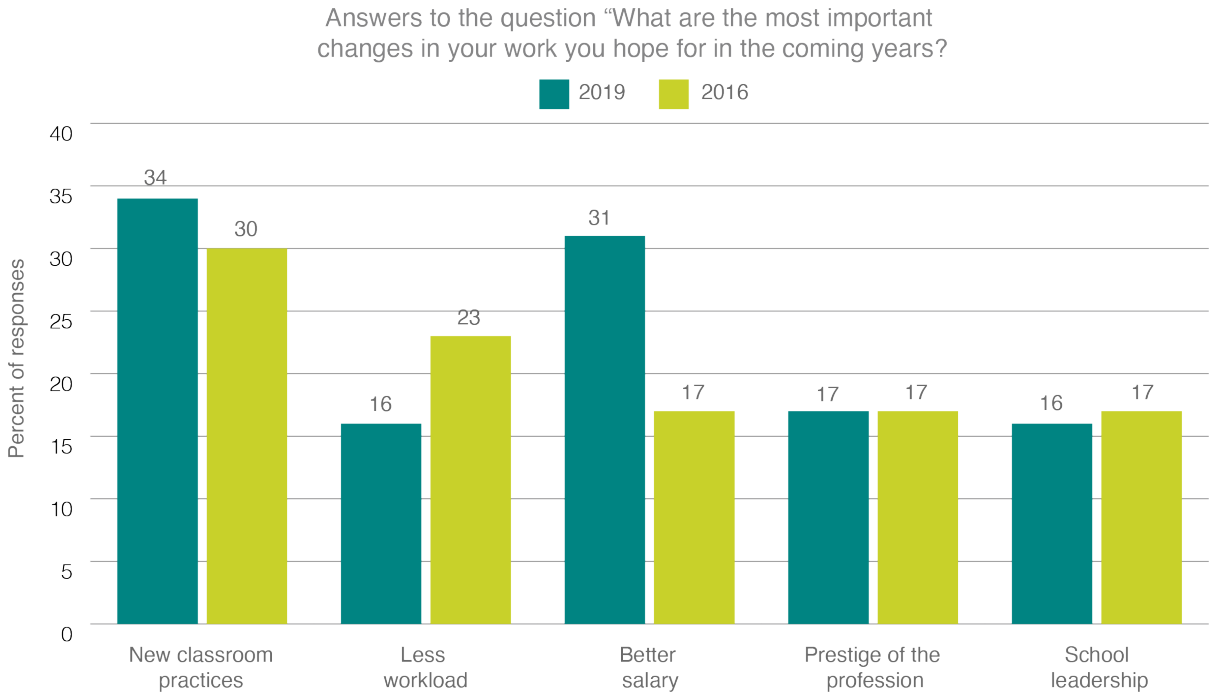
Among 13- to 15-year-olds, almost 13 percent had experienced suicidal ideation during the previous 12 months. Both suicidal ideation and depressive feelings were more common among girls than boys. Studies indicate smoking, alcohol consumption, physical fighting and bullying as the main risk factors for suicidal ideation. Also, communication difficulties with parents (especially with the mother) were associated with increased odds of suicidal ideation (Mark 2018).

The mental health of students has gained more and more public attention during recent years. Many believe that burnout-depression-suicidal thoughts result from a school system that is too competitive and too results-oriented, at least for some students. While a majority of parents and teachers still have

confidence in the current system and believe school should be first and foremost a place for hard work, Estonia has already taken some practical steps to improve the well-being of students. These include the recent launch of a program to expand school psychologist services as well as improved access to psychological counselling for students.

Low levels of well-being do not only affect students. In fact, low levels of teacher well-being are thought to be among the reasons for declining interest in the profession. In surveys from 2016 and 2019 by Tallinn University, teachers listed "less workload" as one of the most desired changes to their job. Figure 16 presents the other responses of Estonian teachers to the question "What are the most important changes in your work you are looking for in coming years?"

**Figure 16. Survey of Teachers' Hopes for Changes in Their Work**




Source: Tallinn University School Monitoring Surveys 2016, 2019

However, putting teacher workload into a wider context, the situation becomes more complex. Measured in hours (contact lessons and hours spent preparing for contact lessons and on other work assignments), the workload of Estonian teachers is only slightly higher than that of teachers in other OECD countries, according to TALIS. When long school holidays are factored in, the sum of Estonian teachers' annual work hours is comparable to other countries. The stress level of Estonian teachers is also comparable: 17.9 percent of Estonian teachers reported that they experience work related stress, similar to the OECD average of 18 percent (Talis 2018).

Regardless, the well-being of students and teachers is an emerging issue in Estonian educational debate, and it seems likely that both attitudes and practices will change in coming years. Estonia aims to balance its traditional academically demanding approach with more attention to student well-being and encouraging joy in learning.

## Looking to the Future: Strategies and Development Plans

In the final part of the chapter, we move away from grassroots-level changes and look at the Estonian learning system from the national perspective. Our goal is to analyze national development plans as a way of understanding Estonia's approach to learning in the context of its changing society.

### A Vision for the Future

At the national level, the Strategy Unit of the Government Office of Estonia and the Foresight Center of the Parliament are responsible for the analysis of the external environment and future trends, as well as for drawing up the development strategies and scenarios arising from them. The National Development Strategy Estonia 2035 sets strategic targets for the next 15 years and identifies the changes needed to achieve them. The Foresight Center is a think tank within the Chancellery of the Parliament that analyzes long-term development in society and the economy. The Center is an advisory body; its mission is to contribute to forward-looking policymaking, to analyze long-term developments in society, and to describe new trends and developments, as well as to propose alternative development scenarios.

Estonia 2035 outlines several powerful global trends: rapid changes in technology; growing migration and urbanization; environmental degradation and continued climate change; ageing of the population, especially in Europe; the weakening of international institutions and changes in transnational power centers; new threats of conflict; changes to the nature of work; and new business models (World in 2035 2018). Building on this analysis of global change, Estonia 2035 offers five broad development goals for the country: 1) intelligent, active and healthy people living in Estonia; 2) the Estonian society as caring, cooperative and open; 3) Estonia as a country with a secure and high-quality living environment; 4) the Estonian economy as strong, innovative and responsible; 5) Estonia as an innovative, reliable and human-centered country (Estonia 2035 2020).

In order to move towards these broadly formulated goals, the strategy sets out 27 specific areas of reform. These include increasing social cohesion and equal opportunities in education and in the labor market; improving the quality of higher education and enhancing its funding; preparing for the work of the future;

and increasing the unity of governance and ensuring a smoothly operating state. In general, Estonia 2035 has avoided setting specific timelines for its targets and planned reforms.

Regarding education, the "Estonia 2035" strategy paper specifically outlines skills and labor market expectations, focusing mainly on the needs of learners and the goal of making the education system more flexible—that is, to ensure the abundance and availability of learning opportunities, as well as a smooth and flexible movement between levels and types of education. In addition to proposing several changes, such as the better integration of formal and non-formal education, general and vocational education, and the optimization of the school network, the strategy highlights the need to teach both general competencies and skills. It also emphasizes the importance of strengthening cooperation with employers and promoting practical experience and skills as part of general education. Finally, the strategy stresses the importance of non-cognitive skills, including them in the curricula for different levels and types of education, although without specifying what the teaching of these skills would look like.

The strategy includes a list of indicators with targets set for 2035. In terms of education, an increase in the overall level of education is expected by 2035. Among 30- to 34-year-olds, for example, the share of people with higher education in Estonia should rise to 50% (from 47.3% in 2018). The strategy also foresees an increase in the proportion of people with doctoral degrees; by 2035 this number should rise to 1.5% among 25- to 64-year-olds (from 0.85% in 2017) (Estonia 2035 2020, p. 48).

The current Estonian thinking about future trends and national-level development aims is characterized by the following general attitudes:

- **Stability is the underlying premise of the future**. Although future development trends are described in the national documents, their link with the national goals is weak. Estonian views of the future assume that both the global and national environment will remain largely similar to current conditions. Today's political context (especially EU and NATO) is expected to work in the same way; we are expected to adapt ourselves to environmental challenges; we will continue to embrace technological innovations, etc.
- **Development planning has become more state centered**. In Estonia, national development plans are carried out by relevant state authorities. Although academia, civil society organizations and experts are involved, the Strategy Unit of the Government Office of Estonia and the Foresight Center of the Parliament prepares the final documents. This approach differs significantly from previous practice, where the organizers of national level development planning were mainly non-governmental organizations — the Development Fund, the Estonian

Cooperation Assembly, etc. Perhaps for this reason, nationwide strategy papers increasingly resemble the government's work plan, complete with relatively detailed technical goals and activities.

- **Vision is marred by lack of clear priorities and avoidance of challenging topics**. Estonia 2035 promotes balanced development across all sectors of society yet avoids independent analysis or goalsetting around painful problems and bottlenecks. As a result, several issues that cause tension and disagreement in Estonian society have not been addressed in the strategy papers, presumably for political reasons. These include the gender pay gap (at which Estonia is the EU's worst offender), the future of Russian-language schools in Estonia and the opportunities and risks facing Estonia in relation to the increasing (global) competition for talent and related immigration issues. Although these issues are addressed through expert analysis (Elias-Taal 2018, p. 39; Terk 2019, p. 54), the Estonia 2035 strategy does not set clear goals related to such uneasy topics.

In creating its national plan for the future, Estonia has reached the stage where researchers in the field of future studies describe "future visions" (characterized by broad strategic planning with strong ethical dimensions) with more narrowly sectoral and often technical-style objectives and activities (Terk 2018, p. 228). The goals of Estonia's strategy papers are predominantly a continuation and acceleration of current developments, rather than a fundamental innovation or response to changes in the external environment. As such, they form a contrast to the strategies adopted a decade or two ago, which called for the rapid digitalization of society and a radical decrease in the number of local municipalities.

### Future Strategies for the Learning System

The Estonian Ministry of Education and Research is responsible for proposing and elaborating developmental strategies for the learning system. From 2014 until the end of 2020, the Estonian Lifelong Learning Strategy 2020 guided Estonian educational policy (Ministry of Education and Research 2014b). An interim evaluation of the Lifelong Learning Strategy, carried out in 2019, outlined several positive changes to the learning system (Ministry of Education and Research 2020c):

- **Teachers' salary has grown almost 70 percent in the last six years**: The average gross salary for general education teachers went from 930 euros per month in 2013 to 1,576 euros in 2019, or 112 percent of the average Estonian salary across all professions. The average salary for vocational educators came close to that of general education teachers, at 1,513 euros per month.
- **Students' access to computers and smart devices in schools has improved year to year**: Students like to use computers while studying. Secondary school graduates have good information

and communication skills, with 83 percent of students scoring average or above average in national tests.

- **School culture is becoming more student-oriented and popularity of programs designed to enhance student well-being has increased significantly**: As of 2019, over 340 schools had joined the Interesting School program run by the Ministry of Education and Research. The program's aim is to make learning in Estonian schools more attractive by fostering the curiosity and creativity of students.
- **Adult (25+) participation in vocational education has grown rapidly**: By 2019, adult learners made up 41.7 percent of all vocational education students, an increase from 26.3 percent in 2013.
- **The number of upper-secondary schools has decreased**: From 2013 to 2019, about fifty schools closed, decreasing the number from over 200 to 157. The current goal is a further reduction to 100 upper-secondary schools. Schools have been closed due to the decrease in student population, but also due to consolidation into bigger state gymnasiums designed to offer more choices for students based on their individual needs.

The evaluation also outlined several challenging areas and bottlenecks:

- **The state must provide a stable teaching staff in addition to raising salaries.** There is a shortage of teachers (particularly nature, science and mathematics teachers) and the retention of younger teachers is a problem; a large portion of graduates will work as teachers for only a short time.
- **There is a growing need to prevent school bullying,** improve opportunities for physical activities in school (including a flexible learning environment) and improve the content of the curriculum to make it more relevant for students. These concerns are especially relevant for Russian-language schools, where students experience more bullying and less support from the school staff.
- **Support for special needs students should be improved.** The number of students who need support and better inclusion in school life is growing. Yet only about half of teachers believe that support services provided by the schools are adequate, suggesting these services need to be expanded or redesigned.
- **Major gender gaps remain in education:** more men than women are at a low education level, and overall men are less motivated to study than women. Among 25- to 34-year-olds, considerably fewer men enter higher education, with few signs this trend will change.

The Education Strategy for 2021–2035 is approved, setting the targets for Estonian education for the next decade and beyond (Education Strategy 2021–2035, n.d). According to the 2035 strategy, the general objective of Estonian education is "To equip the population of Estonia with the knowledge, skills and

attitudes that prepare people to fulfil their potential in personal, occupational and social life and contribute to the promotion of quality of life in Estonia, as well as global sustainable development" (Education Strategy 2021–2035).

To achieve this general objective, the 2035 strategy sets out three strategic goals:

1. **Learning opportunities are diverse and accessible**, and the education system will enable smooth transitions between different levels and types of education.
2. **Estonia has competent and motivated teachers and heads of schools**, a diverse learning environment and a learner-centered approach to learning and teaching.
3. **Learning options remain responsive to the development needs of society** and the labor market.

For each goal, the 2035 strategy sets out action trajectories and describes the activities needed to ensure their achievement, as well as the indicators that will be used to measure success.

The education strategy 2021–2035 highlights the role of education in developing good citizens and responsible employees and emphasizes the wider significance of education in the development of culture and society. Regarding urbanization and a shrinking and ageing population, Estonia plans to increase the efficiency of the education system by reorganizing the school network; improving links between non-formal and formal education as well as between general and vocational education; and defining more clearly the roles of central and local authorities and the relationship between schools and guardians.

As far as the content of education, the strategy focuses not only on academic knowledge but also the development of general and transversal competencies. Relying on recommendations from the OSKA program, both changes to the nature of work and the transformation of organizations have important implications for the future of learning and teaching. According to the strategy, the central challenge is the need to combine deep knowledge and skills with general competencies:

> *The set of skills needed will change from a narrow specialization to become more cross-sectoral. This means that the ideal employee of the future has the so-called "T-shaped" competence, i.e. with deep knowledge in at least one area, with the skills to understand and link different disciplines and people dealing with them. In addition to being competent in his or her profession, a future employee is expected to be significantly better in "soft skills," such as communication skills, perceptions of different cultures and adaptation to them, etc. (Pärna 2016 p. 45)*

As with Estonia's broader national development plans, the new strategy for education stresses continuity. The nation does not anticipate sharp turnarounds or fundamental reforms over the next 15 years. The 2014 strategy outlined five priority areas where deeper changes were needed; the 2035 document presents several specific aims to be achieved but does not outline priorities or foresee deep reforms.

Still, digital solutions are presented as the key to diversifying and enhancing learning as well as making learning more accessible for different target groups. The new strategy lists several ways to ensure greater digitalization of the education system:

- Readiness of school teams to exploit technology and openness to educational innovations
- Valuing evidence-based principles in decision-making and taking advantage of the potential of big data
- Wider use of smart learning tools and methodologies to help personalize learning
- Introduction of digital diaries to increase people's ownership of learning, as well as their ability to analyze and plan their educational needs and careers

The strategy identifies as a special aim the digital inclusion of people with lower skills and education so that they are better equipped to take advantage of the opportunities created by technology. The strategy stipulates that these ambitious goals will require continued investment in the digital infrastructure of educational institutions and a focus on increasing the interoperability and ease of use of information systems.

Support for the further use of technology in education comes from other government initiatives as well. The report of the Working Group on Artificial Intelligence (AI) (established in 2018 at the initiative of the Republic of Estonia Government Office) considers the role of artificial intelligence in both the Estonian public and private sectors. It presents proposals to ensure the clarity of the Estonian legal space around AI; to coordinate supervision on matters related to AI; to prepare specialists in the AI field more widely; and to better inform the public about new possibilities related to the field (Estonian artificial intelligence 2019).

### Summary

Putting the *Education Strategy 2021–2035* into the context of our previously outlined five "key qualities" of Estonian education, we draw the following conclusions:

**Aim high and work hard mindset** is continuously emphasized as a principle, but often alongside an emphasis on the well-being of students. The strategy states: "The application of the modern approach to learning supports the acquisition of good knowledge of subjects and expertise, with the ability to apply them in practice, as well as the development of learning, cooperation and self-management skills. Subjective well-being related to better physical and mental health should be improved."

**Broad societal support for education** will continue to play an important role. The development plan states the goal of "… creating a comprehensive solution to take into account non-formal and informal learning in formal studies, so that refresher training curricula can take greater account of what has been learned in various environments (digital environment, workplace, museum, youth center and youth program, hobby school, environmental education center, etc.)."

**Autonomy of educators** is not expected to change in any substantial way, despite the shift to more centralized strategic planning. At the school level there are continuing calls to increase diversity, including a greater "opening" of the teaching profession to people of different educational backgrounds. The aim of the development plan is to "create new flexible opportunities for learning and/or taking up the office of a vocational teacher, teacher or support specialist, including involving more people from outside the education sector in order to teach practical skills and provide experience in the world of employment." Even the creation of the network of state-owned gymnasiums is presented not as a means of state control, but an avenue toward better quality and a wider spectrum of choice for teachers and students.

**Evidence-based and equity-promoting governance** also continues to be strongly emphasized: "The development of the education system is evidence-based, researchers in different fields are more involved in the design of educational processes and policies."

**A diverse and responsive school network** will require, according to the development plan, "..specific (regional) solutions, taking into account regional cultural environments and development background." In addition, "… the concept of regional education centers with a focus on the integration of vocational and general secondary education will be developed and implemented." The aim is to support the organizational culture of educational institutions so that they become "caring and collaborative, supporting … the well-being of all actors, including better physical and mental health, constructive resolution of disagreements and crises."

Thus, one may conclude that the *aim high and work hard* mentality, in combination with multiple contributors to education and autonomous schools, will continue to be the foundation of the Estonian learning system. At the same time, some new challenges are emerging for the system, especially the issue

of student and teacher well-being. Placing our national goals beside wider trends of global politics, economy and business, Heidmets and Eisenschmidt, professors from Tallinn University, outlined three general challenges for the Estonian learning system in coming decades (Heidmets and Eisenschmidt 2020, p. 313):

1. **A shift towards a more comprehensive view of child development**. Teaching and learning should focus more on "whole person development." In addition to professional knowledge, aptitudes such as social and emotional maturity, self-regulation capacity, physical fitness, and resilience in the face of a rapidly evolving technological world are increasingly in demand. The school of the future should not merely be a workshop for producing professionals with narrow skill sets but aim to support holistic individuals who cope well with the changing world.
2. **More emphasis on individual agency, or each person's independent capacity to act**. Internal motivation and the ability to make independent choices and shape one's own behavioral strategies acquire more and more value in our increasingly complex and uncertain world. The role of school is to support creativity as well as capacity for responsive and evidence-based decision making.
3. **Stronger promotion of wider identity and responsibility**. In line with agency, students are expected to have a broad understanding of their own communities and of the world and develop a proportionate sense of responsibility. Schools should promote values and behavior which allow the younger generation to see themselves as a part of wider social and environmental communities, with a sense of responsibility expanding outward from the individual to the entire planet. The young generation is expected to be "… amplified and responsible, placing cooperation above competition and preferring sustainability to short-term benefit" (Schleicher 2018, p. 3).

The hope is that an increased emphasis on individual agency and global responsibility will not endanger the high performance of Estonian students but support their long-standing position among the top performers in the world.

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