

Viive-Riina Ruus and Priit Reiska

Contents

14.1	History and Social Parameters of the Education System	227
14.1.1	Cornerstones of Historical Developments	227
14.1.2	Key Phases of Reform and Innovation	233
14.1.3	Social Context	234
14.2	Fundamentals, Organization, and Governance of the Education System	234
14.2.1	Educational Policy and Basic Legal Principles	234
14.2.2	Governance	235
14.2.3	Funding	236
14.3	Overview of the Structure of the Education System	236
14.3.1	Preschool Sector	237
14.3.2	Primary and Lower Secondary Education	238
14.3.3	Upper Secondary Education	239
14.3.4	Higher Education	240
14.3.5	Adult Education	240
14.4	Developments in the Current School System	241
14.5	New Developments	246
	References	249

14.1 History and Social Parameters of the Education System

14.1.1 Cornerstones of Historical Developments

The history of education as a formal institution can be traced back in Estonia to the thirteenth century – when Estonia was conquered by German and Danish knights in the wake of the crusades. For more information on education in Estonia, see: *Reforms and Innovations in Estonian Education* (eds Jaan Mikk, Marika Veisson,

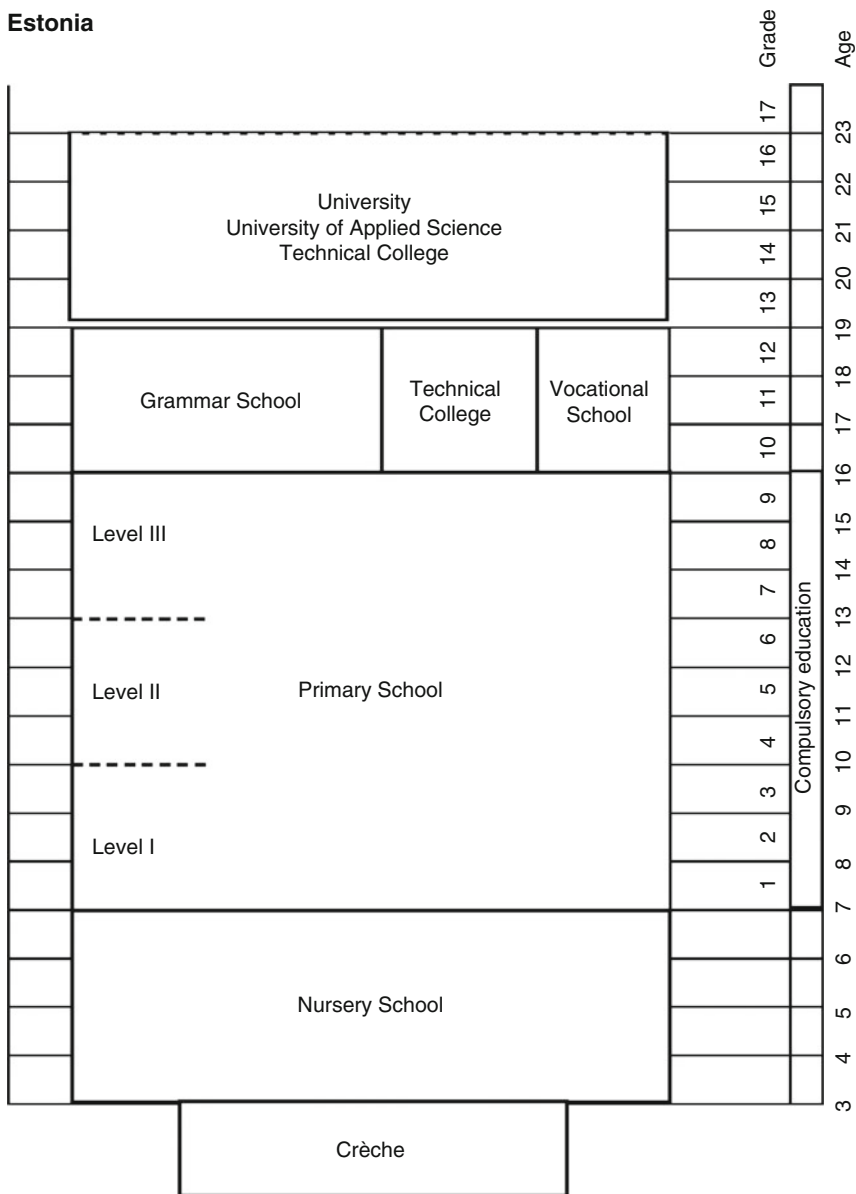
V.-R. Ruus (✉) • P. Reiska
Tallinn University, Tallinn, Estonia

Piret Luik (2008). *Baltic Studies on Education and Social Science*, Vol. 16) and a review by Ruus, V.-R., Henno, I., Eisenschmidt, E., Loogma, K., Noorväli, H., Reiska, P., and Rekkor, S. (Reforms, Developments and Trends in Estonian Education during Recent Decades, pp. 11–26). The first schools were part of cathedrals and monasteries and aimed to educate future priests. As elsewhere in Europe, lessons were made up of the seven liberal arts. The same schools also prepared pupils who wanted to study at one of the former European universities. These educated young people brought back the notion of humanism to Estonia. Toward the end of the same century came the call for priests to show that they could speak Estonian. Estonians who went to school at the end of the fifteenth century were no rarity (Andresen 1995, p. 14). The training to become a knight followed the same principles as in other European countries of the time; the appreciation of reading only came with the introduction of Protestantism. The aristocracy received their education at home, with tutors being engaged from the cities or from abroad. Apprentices learned the tools of their trade from the guild charter. In the sixteenth century, some guild journeymen were taught reading and writing.

The notion of the reformation arrived surprisingly quickly in Estonia. Lutheran preachings were held as early as 1517 in Estonian cities. The reformation characterized Estonian schooling as it did in other Lutheran countries for centuries. This was pioneered in the cities. However, there was also a counterreformation in Estonia, mainly restricted to the south of the country. This area fell to Poland following the Livonian War in the sixteenth century. The center of the counterreformation movement was Tartu, where a Jesuit grammar school was opened in 1583. At the same time, reformation ideas continued to spread in the north of Estonia, which had fallen to the Swedish crown. The education of the peasant majority however remained unchanged for the time being. Toward the first quarter of the seventeenth century, the whole area of present-day Estonia came under Swedish rule, which brought about a restructuring of the church and education system along Swedish lines. Academic grammar schools were established: in 1630 in Tartu and in 1631 in Tallinn. The first university was founded in Tartu in 1632. In the middle of the seventeenth century, the church began to foster the reading skills of peasants. Between 1684 and 1688 nearby Tartu was the Forselius Seminar to prepare schoolmasters. During the 4 years the seminar operated, the first generation of rural academics was trained (Andresen 1995, p. 49). Domestic lessons became widespread through the schools as a result of which literacy levels rose substantially.

The period of Russian rule in Estonia began at the beginning of the eighteenth century, following the Nordic War. The war and the plague that followed nearly brought the Estonian people to the brink of extinction. One of the very few developments in education at this time concerned the establishment of technical colleges, which were primarily set up to serve military and industrial purposes. In 1719, the czar ordered admiralty colleges taught in Russian to be established in Tallinn. These not only provided basic general education but also offered courses in shipbuilding and artillery. A navigation college was set up in Narva. However, Estonians were much more influenced by various religious movements in the

Estonia



eighteenth century than by the establishment of these colleges. Priests who had studied in Halle spread pietism in Estonia and, from the mid-eighteenth century, the Herrnhut movement. These stimulated the desire for learning among adults, who taught themselves to read, to write, and to play music which they then passed on to their children at home (Andresen 1995, p. 70). At the end of the eighteenth century,

home lessons were the main form of learning, supplemented by school and confirmation lessons.

In the period of enlightened absolutism that began with the accession to the throne of Katharina II in 1762 in which the concept of enlightenment played a key role, several Russian ordinances came into force in Estonia. The most significant consequence of this development was the growth in general schooling. By the end of the eighteenth century, girls were attending schools in many places and mothers were teaching their children to read. As a result literacy was relatively high and parish records from the eighteenth century show that half or more than half of the peasants could read. The situation in the towns was much better: 71 % of recruits in Tallinn could read and 42 % could write. The education system for the aristocracy also changed. Although the Tallinn cathedral school had become a strict, class-oriented educational facility toward the end of the eighteenth century, it was imbued by the spirit of enlightenment (Eesti kooli ajalugu 1989, p. 247). The concept of enlightenment was mainly promulgated by autocratic Russia. Multipliers of the notion were the domestic and church teachers who had been educated at German universities.

In the nineteenth century, life in Estonia changed in many respects. In 1802, the university in Tartu reopened, populated by teachers mainly from Europe who came with their enlightened ideas. From 1803, educational administrative districts were established in the Russian empire, and a commission was set up at the university in Tartu to manage the education system in Estonia and Livland. In the country, parochial schools emerged for children who could read. Children here were taught writing, arithmetic, and nature studies. The abolition of serfdom in Estonia and Livland (1816 and 1819) led to a deterioration of education: costs for maintaining schools became the responsibility of the peasants who were plunged into economic dependency following their release. As a result, parochial schools were only slow to develop. The situation was eased somewhat by traveling teachers who practiced reading with children and by Sunday schools in which enlightened and educated peasants taught children how to read. By and large, country children only completed the village school by the mid-nineteenth century; only 4 % attended the parochial school. Nonetheless, the latter played a key role in education if only because graduates often took up positions in the schools themselves or became domestic tutors (Eesti kooli ajalugu 1989, p. 370 et seq). In the first half of the nineteenth century, 3-year colleges were established dedicated to training village teachers.

In the mid-nineteenth century, there was a national awakening, occasioned by influential ideas primarily from Western Europe (J.B. Herder, J.J. Rousseau). Having zigzagged its course through German-Baltic and Russian influence and pressure, Estonia looked to Finland as a role model, a country that had gained greater autonomy in the Russian empire (Jansen 2001, p. 95). As a result, literacy improved. Toward the end of the nineteenth century, nearly all of Estonia's peasant population could read: according to a census from 1922, 90 % of the population could read and write and a further 5.3 % could only read. For the Estonian people, this was the fruit of centuries of dogged effort to acquire an education. The role of

village teachers in this process was essential: they ran clubs and societies and organized libraries and the distribution of newspapers, and they established choirs and orchestras which were a feature of virtually all country schools.

Until the Republic of Estonia was established, grammar school education in the country was in German or Russian, which offered minimal access to Estonians (Eesti kooli ajalugu 1989, p. 455). Nevertheless, this virtually unattainable multilingual grammar school and university education left its mark for Estonians: in many urban areas, three local languages were spoken – German, Russian, and Estonian. Teachers who had studied at Europe’s universities brought a humanistic, romantic, and enlightened body of thought to Estonia that influenced the national movement through a variety of channels. On 24 February 1918, Estonians’ efforts toward self-determination culminated in the proclamation of the Republic of Estonia.

Educational reform began immediately following the proclamation of independence and the country’s victory over hostile powers. Native-language single-type schools were introduced which provided primary school pupils with the opportunity to continue their education in further education or technical colleges. Textbooks were written in Estonian. As Estonia experienced a turn toward authoritarianism in the 1930s, the school system became more complex, the principle of single-type schools became weaker, and opportunities for primary school pupils to follow a grammar school track became tighter. Grammar schools were subject to fees. In 1936, the foreign-language policy at grammar schools was changed – the first foreign language was no longer to be German but English. The development of vocational education reached a high level toward the end of the first period of independence, with schools having different profiles, study times, and entrance requirements. In summary it can be said that in the 1920s, the school system had more of an integrating function, whereas in the 1930s, it had an increasingly selective effect, with secondary education being more influential.

The center of national higher education was the University of Tartu. The university housed the faculties of medicine, law, philosophy, mathematics and natural sciences, agriculture, and veterinary medicine; the faculties of sport, economics, and constitutional studies were added later. Most students took part in academic associations. Engineers were educated at the Tallinn Technikum (since 1938, the Technical University of Tallinn); artists could study at the private “Pallas” school of art and, since 1938, at the State University of the Arts; and for musicians, there was the Tallinn University of Music (since 1923, the Conservatory). Pupils could also choose a military profile. Grammar school teachers were trained at the University of Tartu, and primary school teachers at various seminars. An academic elite emerged comprising researchers and teachers. Thus, during the brief existence of the Republic of Estonia, a European, but national-thinking, Estonian-speaking *intelligencia* was formed.

Estonia’s national independence practically ended with the signing of the Molotov-Ribbentrop Pact in 1939, and from 1941 to 1944, Nazi Germany dominated Estonia. In autumn 1944, the “Russian era” reemerged with the Czarist power replaced by Stalinist totalitarianism. Arrests and deportations followed. It is

assumed that Estonia lost one-fifth of its population through war, flight, and repression (Tarand 2001, p. 139). The educated elite were hard hit and the new power introduced major changes in education. The curricula of the Soviet era were characterized by the following:

1. All subjects carried an ideological stamp; history and social studies suffered mostly from falsifications.
2. Contemporary studies of economics were nonexistent.
3. The country was isolated from the social developments taking place in the rest of the world. Western philosophy, art, and (social) science were only taught in conjunction with criticism which resulted in “ideologically proper” viewpoints for the “civil” way of thinking and for social order.
4. Heightened social isolation due to the lack of foreign-language skills within the population, with fewer western languages being included in the curricula of general education schools.
5. An increasing proportion of Russian language, literature, and history in the curricula of Estonian-language schools. At Russian-speaking schools, time allocated to Estonian language and culture was very low and it was often not taught to the extent envisaged. Estonian- and Russian-language education were kept separate.
6. A strong preference for encyclopedic factual knowledge – particularly in natural sciences – in contrast to knowledge based on problem-solving, decision-making, and dealing with situations.
7. Ever-recurring efforts, mostly unsuccessful, to bring together academic education in line with the needs of industrial production and everyday life.

Education was made more accessible in the Soviet era, mainly to feed the needs of industry, especially the war industry. All postwar generations acquired a general education, raised during the Soviet era from 7 to 9 years. The numbers going on to general education grammar schools or technical colleges continued to grow. At the beginning of the 1980s, 99 % of 18 year olds were following an education that could qualify them for university (in general education grammar schools or in technical colleges) (Helemäe and Voorman 2000, p. 20). Native-language higher education was retained in Estonia and in other Baltic states, but with a growing Russian population, there were a growing number of Russian-speaking study groups. The number of university graduates grew strongly in the Soviet era. Although Soviet educational policy was very egalitarian, if not uniforming, selective processes were also at work. During the Stalinist terror, children and grandchildren of the former elite had little chance of attending university if “their papers were not in order.” In contrast, working-class children were given special favors. At the end of the 1950s and beginning of the 1960s, during *Khrushchev's* period of political thaw, direct political pressure eased somewhat, paving the way for even greater internal selection powers in education. While a grammar school certificate might have permitted entry to an elite in the 1960s, by the 1980s, there was a much stronger stratification of young people based on the grammar school they attended. Being able to study at

university hinged much more on whether students went to school in an urban or rural area and on the teaching methods taught in the school. Children were often selected to follow a more advanced track before they even started school. Because technical colleges only enable students to take up a university place at a later age, they were often seen as a dead end for pupils (Helemäe and Voorman 2000).

14.1.2 Key Phases of Reform and Innovation

Estonian education experienced a turning point in spring 1987 when 1,000 teachers took part in a teachers' congress. The uniform Soviet education system was strongly criticized by teachers at general education schools, who demanded sovereignty for the Estonian education system. At the heart of their campaign was the call for their own curriculum for Estonian general education. Following the congress, discussions took place across the country with various public representatives taking part. Commissions were set up to compile new curricula. Consequently, in autumn 1989, 3 years before the collapse of the Soviet Union and the return of independence, Estonian-language schools were planning lessons in line with the new curricula in which Communist ideology was virtually completely eradicated, the special status of the Russian language was abolished, and the list of subjects taught and the proportions of time allocated to them were changed. Higher education supported the reforms taking place in general education schools, and many teachers were involved in formulating new curricula, but not much thought was given to reforming higher education. Representatives of the technical colleges were generally against reform: their activities were strongly controlled by Moscow.

The next focal point of educational reform concerned the renewal of the curricula. Thanks to the developments of the 1980s and the work achieved at that time, curricula were renewed quickest of all in the area of general education. The starting position for the new curricula was Estonia's vision of establishing a market economy and a democratic, dynamic information society that would be part of European/western culture. This notion called for the acceptance of constructivist concepts of knowledge and learning. Aims emphasized the identification and resolving of problems, decision-making based on democratic means, skills of forecasting, and an awareness of responsibility. A key factor was the ability to motivate, reflect on, and manage one's own learning. The design of content was based on the classification of learning areas after specific skills were identified in the curriculum. In particular, skills were highlighted that would be required in all subjects and all aspects of learning, such as the ability to make decisions, learning and self-management skills, etc. The new curriculum came into force in 1996. Parallel to revising curricula, the Law on Nine-Year Primary Schools and Upper Secondary Schools was compiled which obliged schools to compile their own curricula. The 1996 curriculum was criticized for failing to harmonize the individual elements of school-based education. While the main part was seen in a positive light, individual syllabi were said to be filled with trivial information that proved to be an extra burden for children. The revised version of the curriculum came into

force in 2002. This specified the skills required for the curriculum to be fulfilled in a much more coherent manner. Up until the beginning of the twenty-first century, the curriculum was seen positively by the majority of teachers and head teachers (Ruus 2005). But this did not mean that the curriculum was implemented in full in daily practice.

Reforms relating to specialist education began later and proved to be slower and much more difficult (Rekkor 2002). In the Soviet era, vocational education was strongly controlled by Moscow and weighted toward heavy industry. Vocational education guaranteed the perpetuation of the working class and divided the society into social classes (Helemäe and Voorman 2000, p. 266). Following economic restructuring in the free Republic of Estonia, shortfalls in technical education became prominent. Overcoming the problems was not easy, and despite the contact established with Sweden and Finland, Soviet principles dominated this sector up to the mid-1990s. This was largely due to the lack of skills and inadequate state control. The opening up of new disciplines and the merging of curricula were left largely to the schools without the state intervening to provide coordination and control. Reforms in vocational education were triggered by Estonian-Danish development programs and international further educational projects in 1993. The Phare program was launched in 1995. The turn of the new century marked the start of reforming state curricula, and technical colleges initiated model curricula that would correspond to vocational standards. However, the weakness lay in state control. Curricula reform gathered new wind in 2005 with the birth of the European Social Fund. As a result, conceptual foundations for merging curricula have been laid. National curricula have been drawn up for many subjects and have involved external social partners. Today, training is based on module curricula in all technical colleges.

14.1.3 Social Context

In 1991, Estonia regained state independence. In many respects, this plunged society into upheaval: privatization, liberalization of prices, and economic restructuring. Unemployment was a new experience for many. New laws had to be created to cover all aspects of life.

14.2 Fundamentals, Organization, and Governance of the Education System

14.2.1 Educational Policy and Basic Legal Principles

The Education Act adopted in March 1992 was one of the first laws ever to be passed. The “spirit” of the law lies in supporting the development and lifelong learning of all people living in Estonia. The central structural elements of the law were the curriculum and the levels of education (based on the ISCED

classification); another key aspect was informal education. The most radical laws were those preparing the foundation of private nonuniversity types of higher education. Following the Education Act were the Law on Nine-Year Primary Schools and Upper Secondary Schools and the Adult Education Act (both 1993); the Higher Education Act of 1995; the Vocational School Act, the Law on Vocational Colleges, and the Private School Act (all three 1998); and the Pre-school Childcare Institutions Act 1999. Unfortunately the conceptual cross-purposes contained in the Education Act still remain today. The laws subordinated below this framework statute are based on institutions not on the curricula or educational levels. The Estonian parliament has even drawn attention to this conflict. To date, statutes have been adopted on the basis of the premises contained in the framework law, and amendments have been solely restricted to introducing numerous supplements to the law. The chronology of the statutes reflects the speed at which the respective education fields were rethought. The delay in adopting the Pre-school Childcare Institutions Act was based on the principle adopted by the infant republic that parents should be responsible for bringing up their children. The widespread practice in the Soviet era of entrusting preschool education to nondomestic facilities was viewed as a socialist relic. The well-trained network of nursery school setup under the Soviet regime suffered as a result. However, experience showed that mothers could not stay at home for financial reasons and they did not want to give up their jobs. For years now, there has been a shortage of nursery school places. It is still remarkable that there is still a division between schools based on the language of instruction – Estonian and Russian. The first amendments were introduced in 1997 stipulating guidelines for the transfer from Russian to Estonian as the language of instruction in schools from 2007. By then 60 % of the total curriculum at Russian-language grammar schools should be in Estonian.

Following the adoption of the Higher Education Framework Act (1996) and the accreditation of the curricula together with external experts (2003), development began on reformulating higher education curricula. This moved universities to take the development of their curricula seriously and the focus on self-evaluation. Estonia had joined the Bologna Declaration as early as 1999 – 5 years before the country joined the EU. Since 2002/2003, all universities accepted students on the basis of the 3(-year bachelor) plus 2(-year master) system. Exceptions are provided for in some disciplines such as medicine, veterinary medicine, pharmacy, architecture, and primary school education where programs normally run for 5 or 6 years.

14.2.2 Governance

A dominating trend is the increasing direct responsibility of schools. From 2006, for example, general and vocational education has no longer been monitored by inspectors but by the facilities themselves. They are obliged to carry out internal audits of management, leadership, collaboration with stakeholders, resource management, learning processes, and the pupil's achievement. The state provides consulting services in this respect. One of the duties of the consultant is to compile

a report on the results of the internal audit. In this sense, the state exercises a certain degree of control over school life. As is standard in performance-oriented leadership systems, this scheme works in conjunction with other quality indicators – the results of entry tests, final examinations, and state examinations. When it comes to higher education, the role of the state is much greater. At the behest of the minister in 2003, for example, precise accreditation regulations were defined listing exactly the institutional audit and the audit of the curricula. Such a system increases the facility's reporting duties and its responsibility for the results. Thus, Estonia is following the trends characteristic of most developed countries over the last 25 years.

Education is managed via curricula. Curriculum development acquired a more systematic character in 2004 and 2005 through the start of two projects – the first was the project initiated by the Ministry of Education on scientific-based curriculum development, and the second was the project sponsored by the European Structural Fund on the increasing relevance of Estonian higher education in respect of developments on the labor market. The situation today is that institutions of higher education have developed results-based curricula in harmony with the Bologna Process and the European Tuning Project (Gonzales and Wagenaar 2005), in which developments look at graduate skills adopted to meet the needs of the labor market (Rutiku and Lehtsaar 2006).

14.2.3 Funding

A key instrument of management is of course the funding of educational institutions. The state budget funds teacher salaries and in-service training in community and private schools. The state participates in the management structures of educational institutions through adopting statutory regulations in which funds are provided to enable the selection of head teachers and teachers and the inclusion of parents and pupils (in boards of trustees, committees, and supervisory bodies). This “customer” focus is on the increase. In 2000, for example, regulations were passed governing the boards of trustees at general education schools in which there was only a teachers' representative; the largest decision-making power and strongest representation was borne by parents and school sponsors.

14.3 Overview of the Structure of the Education System

The Estonian education system is divided into the following levels: primary education, basic education (Level I), secondary education (Level II), and higher education (Level III). A distinction is also made between general, vocational, and extracurricular education. Primary education ends after Year 6. Teachers teach all subjects. After completing their basic education, pupils can continue their education at a grammar school or a technical college. Completing these schools entitles pupils to study at university. The organizational principle behind the system ensures that

pupils will not experience difficulty due to underlying shortcomings in the system when they move from one level to the next. Since 2006/2007, pupils who for whatever reason have not completed their basic education can also continue their education at technical colleges by following special programs. Compulsory schooling applies to children from the age of 7 through to the end of Year 9 or until they turn 17.

The level of education among Estonians is relatively good. In 2004, 31 % of 25–64 year olds held a higher education qualification. This was higher than the OECD average of 25 %, but lower than that of Finland (34 %), Sweden (35 %), Japan (37 %), and the USA (39 %) (Eesti kõrgharidusstrateegia 2008). Among the 20–24 year olds, 80.9 % had completed upper secondary school. This was higher than the EU average covering 25 countries, but below that of the Czech Republic, Poland, Slovakia, Lithuania, Greece, and others (Europe in Figures 2007, p. 87). Without doubt, a remarkable achievement in Estonian education has been e-education, which started with the introduction of the Tiger Leap program in general education schools in 2001. Today, 99 % of Estonian children have access to the web, 90 % have the necessary skills to handle information and computer technology, and three-quarters use the internet for school work. The development plan for e-education for 2006–2009 envisages generating the conditions necessary for a learning society (Õppiv tiiger 2006).

In the last 10 years, 70 % of pupils continued their education in the grammar school, while 30 % went to technical colleges. In the same period, 60 % of grammar school pupils and 10 % of technical college graduates went on to study at university. Over 10 % of pupils leaving grammar school went on to study at universities of applied science (Vocational education 2007). One of the problems is that of truancy and the level of dropouts from basic education (in 2006, this concerned 1.5 % of pupils). One-fifth of schools felt that this was a serious problem. On the other hand, the proportion of under 18's that have not completed basic education and do not study is lower than that of the EU average (Koolikohustuse täitmine 2007).

14.3.1 Preschool Sector

Great value is placed on the role of preschool educational facilities in the development of children. In recent years, between 83 % and 86 % of 3–6 year olds attend nursery school. The proportion of 1 year olds (19 %) and 2 year olds (57 %) attending *crèches* is relatively high (Eesti statistika 2008, p. 70). However, this is not enough to cover demand, and waiting lists at nursery schools are long. Plans have therefore been drawn up to expand the number of places in nursery schools in 2008–2011. Systematic preschool education in nursery schools or in schools themselves is seen as a necessity. Research has shown that roughly 10 % of children do not make use of the system (Üldharidussüsteemi arengukava 2007–2013, 2007). Generally, Estonian preschool facilities are very much child centered. All nursery schools have their own curricula which are often based on a state framework curriculum. Thanks to the Soros Fund, the “step-by-step” methodology has gained

importance in Estonia. However, it must be said that given the prevailing “competition” mentality among teachers and carers, school knowledge is often pushed to the foreground at the expense of activities intended to develop personality. Widespread competition for places in elite schools means that preschool children have to go through unreasonably intense preparation, by panicky parents, often to the detriment of the children themselves. Official educational policy recognizes the fundamentals of integrated education, and efforts are made to teach special-needs children together with other children; if necessary children are separated in nursery school. One of the problems is the availability of special educationalists, especially speech therapists and psychological advisers.

14.3.2 Primary and Lower Secondary Education

Primary and basic education is divided into three 3-year levels. The language of instruction is mainly Estonian and Russian. According to the national curriculum which came into force in 2002, the proportion of the timetable allocated to the different subjects is as follows: Estonian 19 %, foreign languages 13 %, mathematics 15 %, natural sciences 10 %, social studies 4 %, history 4 %, sport 9 %, handicrafts and performing arts 10 %, music 5 %, and integrated physical, cultural, and human education 2 %. Roughly 10 % of the timetable is open to schools to decide. Schools that have a different language of instruction basically follow the national curriculum with the exception of the number of hours devoted to Estonian as the official language of state. A considerable number of pupils whose first language is not Estonian learn in Estonian schools or in language integration classes: in 2007, this concerned more than 20 % of pupils (Haridus- ja Teadusministeeriumi 2008). Pupils in Year 1 have 20 lessons, in Year 2 23 lessons, in Years 3 and 4 25 lessons, in Year 5 28, in Years 6 and 7 30, in Year 8 32, and in Year 9 34. Truancy and drop-out rates are a problem mainly in Years 7–9 (Koolikohustuse 2007). A number of measures have been taken to counter this such as learning support, boarding schools for children with unfavorable family backgrounds, classes for pupils with behavioral and learning difficulties, guidance, etc. However, this has still not led to a significant improvement of the situation. This may be due to the fact that a large proportion of poor performance in school is due to what goes on out of school.

Even more teachers are of the opinion that they are not wholly responsible for the learning success of children under their care and that the main responsibility has to be borne by the child and his/her parents. As mentioned above, Estonia has officially accepted the principles of integrated education, but as children are taught in special classes and groups, actual compliance with this principle is somewhat questionable. Of course, there are also schools for children whose special needs do not allow for them to learn together with other children. However, the availability of special education assistance and support remains a problem still today.

According to international comparative studies, the learning achievements of Estonian pupils far exceed both OECD and EU averages. In the TIMSS study from

2003, Estonia came fifth in natural sciences, first in geography, fifth in chemistry, sixth in biology, seventh in physics, and eighth in mathematics. In the PISA study from 2006, Estonia came fifth in natural sciences, fourteenth in mathematics, and thirteenth in functional reading.

14.3.3 Upper Secondary Education

Between the mid-1990s and 2006, nearly all pupils who had completed basic education continued schooling either at a grammar school or at a technical college. About two-thirds of pupils attend a grammar school and one-third technical college. However, in 2007 for some unknown reason, the situation changed with less than 90 % of pupils now continuing their education (Eesti statistika 2008, p. 75). The grammar school is based on 35-h programs that provide for the merger of individual programs and learning groups from different ages. Overall there are 72 obligatory courses at grammar school. There is no fixed number of hours per week; pupils can make up their own program for one-third of the time and compile their own profile. There are language, business, technical, and sports grammar schools. In addition, there are some differences between Estonian-language and Russian-language grammar schools, albeit these will probably become less over time, not least because Russian-language grammar schools started to teach some subjects in Estonian from 2007 to 2008. The most difficult problem in Estonian grammar school education at present is an inexpedient school network. Given the low birth rate, many grammar schools have low pupil populations. Consequently, teachers cannot be offered a full position for their subject, and pupils have less choice in the number of options.

The structure of vocational education at the upper level of secondary education has changed considerably since the country regained independence. Colleges are no longer dominated by heavy industry and agriculture, and many new subjects have emerged, most of which are related to the tertiary sector. Vocational education inherited an extremely futile school network from the Soviet era that had to be regulated more effectively. Today, a large proportion of vocational education takes place in facilities populated by learners from a wide variety of backgrounds, from dropout from basic education through to adults taking part in development and training courses. Between these two extremes, the same facility will house students who have completed basic education and grammar school and who are now attending professional training as well as tertiary level students studying applied sciences.

The secondary level of vocational education suffered from its poor image for a long time. There were many reasons for the poor image, such of which were due to problems inherent in the system. In technical colleges, the proportion of general education subjects is less than in grammar schools. This puts graduates in a much worse position when they start university. Although the establishment of universities of applied sciences eased the situation somewhat, pupils coming through the technical college system have a poorer chance to continue their education than pupils completing grammar school. Today, technical college graduates who want to

study at university have the chance to attend concentrated general education subjects during college time. Thanks to a variety of EU projects, the technical equipment and economic situation of technical colleges have improved enormously. One problem technical colleges have to face is the high drop-out rate. In 2006/2007, this accounted for 14.7 % of the total number of pupils (Haridus- ja Teadusministeeriumi valitsemisala arengukava “Tark ja tegus rahvas” 2009–2012, 2008, p. 9). One factor that is hindering the development of the upper level of secondary education, including grammar schools, concerns the lack of a uniform system of administration: as a rule, grammar schools are administered locally, but 70 % of technical colleges are run by the state – a source of a conflict of interest.

14.3.4 Higher Education

The student population in Estonia is relatively high. In 2005, 65.5 % of the 20–24-year-old age cohort was studying at university – above the EU average for 2004, but below the averages for Scandinavian countries and the other Baltic states. Given the size of Estonia, there are many universities: in 2007, there were 35 institutes of higher education, including 11 universities, 21 universities of applied science, and three technical colleges that also offered higher education programs. There were also 16 private institutes of higher education. The majority of students study at the six public universities. The University of Tartu is the biggest followed by the Tallinn Technical University, the University of Tallinn, and the Estonian State University. Compared to OECD averages, more Estonians study social sciences, economics, law, humanities, arts, and agriculture, whereas fewer study natural sciences, engineering, and exact sciences. In recent years, figures for the latter-mentioned disciplines have grown thanks to state-managed educational projects and are now approaching OECD levels (Seletuskiri 2006, p. 29).

The economic situation of Estonian students is often complicated, and for years, now more than half of students are forced to work on the side (OECD 2007, p. 35), which gives rise to the question of whether we can actually speak of fair access to university education in Estonia. In 2007, only 38 % of students were male. This uneven distribution of the student population was also reflected in masters’ programs (66.5 % female) and doctoral programs (55.6 % female). The continuity of higher education is being strongly impacted by the low numbers of PhD students. To meet the needs for university researchers and the knowledge-based economy, there would need to be twice as many PhD students (Haridus- ja Teadusministeeriumi valitsemisala arengukava ‘Tark ja tegus rahvas’ 2009–2012, 2008, p. 11).

14.3.5 Adult Education

The educational opportunities for adults are wide and varied. Under certain circumstances, it is possible for adults to take up part-time study at university free of charge, to continue a course of study that was previously interrupted or to start a

new course of study in subjects prioritized by the state. Furthermore it is possible to acquire a general education free of charge, to prepare for state exams at adult grammar schools, and to receive vocational training while at work. There is also a special vocational education program for those who have not completed basic education and are older than 17 years. In 2005, a consortium of e-technical colleges was founded, aimed at developing collaboration in e-education between universities of applied science and technical colleges and at fostering lifelong learning. Professional development and labor market training are provided by both technical colleges and job centers. There are also comprehensive computer literacy programs for people with a low level of education. People who do not or who barely speak Estonian can receive institutional and financial assistance to support the learning of the language. Since the latter half of the 1990s, there has been an annual forum to foster lifelong learning and adult education. A system of professional qualifications is being compiled to ensure the mobility of labor (Elukestva õppe strateegia aastateks 2005–2008 vahearuanne 2007). Unfortunately, current research does not give room for complacency. A study conducted by Eurostat showed that only 6.4 % of 25–64 year olds had attended development and training programs in the 4 weeks leading up to the study. The EU average was 10.1 %. In many countries, including Sweden, Denmark, and Finland – countries that are often role models for Estonians – figures even reached 20–30 %. Concern is raised by the fact that only 10.1 % of people with a lower level of education (basic secondary education or less) took part in these programs (EU average 23.1 %) (Eesti inimarengu aruanne 2008). Fortunately, the trend is set to rise – adult education is to receive state funding and facilities are recording higher interest in their courses.

14.4 Developments in the Current School System

The starting point for the more recent era of educational development can be said to begin with the year 1999, when Estonia joined the Bologna Declaration. The peak moments of this era were the years of 2004, when Estonia became a full member of the EU, and 2010, when it received an invitation to join the OECD. This can be named the era of Europeanization and globalization of Estonian education. This long-term process is ongoing.

Typically for this era, a number of strategies and development plans have been launched. The most significant of the above is the complete development plan “Clever and active nation” (2009–2012, effective with amendments also for 2013–2016). This document is an organization-based development plan for all areas in the jurisdiction of the Ministry of Education and Science – education, youth work (including out-of-school or hobby education), research and development, language and archives, and the ministry as an organization. It is updated annually with new data and other necessary inserts. The completion of this development plan was a feat of its own: for the first time since Estonia regained independence, we have a publicly accessible, compact overview of the current situation and future prospects that includes all the subsystems and subfields of the

jurisdiction. The document also provides the administrators of the Ministry of Education and Science a common ground in their daily work as public servants.

The development plan gives an outline of the EU and global (OECD) targets, rules, and standards that have served as the basis of evaluating the current situation and setting future directions for Estonia and compares the current situation of the Estonian education (2010) with the targets set by the EU Lisbon Strategy and EU averages. The conclusion of the comparison is that by several indicators (preschool education, literacy levels of 15 year olds, further studies of basic school graduates, young people's participation in tertiary education), Estonia has already fulfilled the EU targets set for 2020 or is at least very close to achieving them.

At the same time, the percentage of non-studying young people (18–24 year olds) with low educational level (basic school and less) was larger than what the EU 2020 framework allows; neither did the participation rates of adults (25–64 year olds) in lifelong learning meet the EU 2020 targets in 2010. Moreover, Estonia falls short of low student mobility and has limited numbers of foreign faculty professors and doctoral students, poor financial support to doctoral students who take their doctorates abroad, etc. For the country to attract more highly qualified workforce, including people who hold scientific degrees, the development plan emphasizes the need to sustain Estonia's positive reputation and to establish exemplary learning conditions for children of highly qualified foreigners who have moved to Estonia.

The guiding principle of the entire development plan is internationalization, predominantly integration with EU educational policy and educational developments in Europe. In general education, internationalization is supported by opening the Tallinn European School and international study programs that support the qualified employees of EU and international organizations and foreign companies in moving their career to Estonia. In vocational training, internationalization is implemented through the 8-level occupational qualifications system, establishing occupational qualification standards and issuing occupational qualification certificates. Internationalization is most dominant and extensive in higher education; a relevant strategic document was approved as early as 2007.

The following views and principles served as the starting point for this strategy: science and higher education are international by default, a knowledge-based society needs highly qualified labor, research and development have to be assembled in large centers to improve Europe's economic competitiveness, a global labor market has emerged, and higher education has become a cross-border commercial activity. The strategy determined the need to create a legal environment that would support internationalization and incorporate the following: quality insurance of higher education (including accreditation), facilitating academic mobility, recognition of higher education diplomas issued abroad, providing and recognizing international joint curricula and degrees, right of Estonian students to apply for study grants and study loans for studies abroad, and cross-border provision of higher education (opening branch offices of Estonian universities abroad and vice versa). The document also suggested revisiting the immigration policy in order to enable talented foreigners to study in Estonia and also launch their working career in the country after completing their studies.

In the internationalization framework, a special emphasis was put on increased mobility of both students and university teachers, developing postdoctoral studies, repatriating young scientists who have completed doctoral or postdoctoral studies abroad and utilizing their skills at home. Another important measure is the internationalization of curricula: introducing foreign-language curricula in Estonia's higher education, opening regional (i.e., pan-Baltic) foreign-language curricula, developing international joint curricula, and incorporating international and interdisciplinary aspects in Estonian-language curricula.

In order to promote internationalization, it was considered important to have an atmosphere that is open and tolerant, embracing cultural differences, where all students and employees are treated as equally independent of their racial, cultural, ethnic, etc., background. It was pointed out that Estonia should improve conditions that would allow foreign students and professors to integrate Estonian social and cultural life also outside the school. Among other vital factors, the reputation of Estonia's higher education and sufficient information about study possibilities in Estonia and abroad were mentioned. Internationalization is further supported by the volume and level of foreign-language studies: the Estonian education system is among the top performers in the EU by the number of foreign languages taught. The number of people who speak just one language has continuously decreased (from 21.8 % in 1998 to 12 % in 2010), while the percentage of those who speak two and more foreign languages has steadily increased. The problem is that English-language studies are overrated while other languages receive far less attention. In 2011/2012, 60.2 % of pupils in Estonian schools providing general education studied English, 28.1 % studied Russian, 9.7 % studied German, and 2 % studied French. The strategic targets include having the majority of the population speak at least two foreign languages besides their native tongue, increasing the number of languages studied, and having the nation's foreign-language skills meet the needs of the country.

Moving closer to domestic problems of the Estonian education, the development plan rightfully cites as a positive development the fact that dropping out of basic school and the first year of grammar school has been cut down to minimum as a result of the implementation of a number of measures (study counseling, established support structures). Only 0.5 % of basic school and 1 % of first-year grammar school pupils dropped out of school while only 1 % repeated a class in 2010. As we recall, dropping out of basic school was a serious concern in the 1990s. Regrettably, drop-out rates remain high in vocational training and higher education. To fight this, the following measures will be implemented: increasingly efficient career and study counseling, a special program to return the dropouts to the education system, recognizing studies completed outside the formal education by institutions of higher education, etc.

Positive developments include the trend of the Estonian language improving its status as the second language among people living in Estonia. While in 1997, 44 % of non-Estonians living in the country spoke Estonian on a certain level, this rate had gone up to 64.1 % by 2010. In addition, the level of Estonian skills had also improved. Moreover, the number of school pupils participating in

Estonian-language studies, including language immersion, has increased, reaching one-fifth of the basic school children whose study language is not Estonian.

Internationalization has its dark side too. Mother tongue Estonian-language skills have been fluctuating if one looks at the graduation exam results of basic school and grammar school in 2010/2011. The native-language skills of first-year university students were found to be unsatisfactory by a 2010 study. The onslaught of the English language, a side effect of globalization, is a danger factor since it narrows the fields of use of the Estonian language.

Introducing the development plan's principles into legal acts has been especially intense in the past few years. This has given reason to speak about a new wave of educational reforms. If we look at the strategic mind-set of the development plan, we could emphasize its technocratic character (numeric indicators instead of general aims; the mechanisms of involving social partners and holding public dialogues in policy making are barely touched upon), economism (education is viewed primarily from the standpoint of economic development, lowering the connection to culture or social development with the exception of language policy), and mechanical assumption of EU norms and indicators without any interpretation or rationalization or attempts to adapt them to the local situation.

More or less in parallel with the development plan of 2012 was the completion of another strategic document, "The five challenges of Estonian education" with the time target set of 2020 (to be referred as ES 2020). The expert panel of authors included representatives of the Foundation Estonian Cooperation Assembly, the Estonian Education Forum and the Ministry of Education and Science, schools, and universities; the general public was also consulted on numerous occasions.

The ministry's development plan and ES 2020 have profound differences. The development plan did not seek to provide a general vision of the kind of education or society that Estonia should hold as a target. The focus was on results, mostly measurable results in the ministry's jurisdiction. The data presented are vast and reliable which make the offered solutions and expected results specific and convincing. Overall, however, the ministry's development plan concentrates on solving the urgent issues or fulfilling EU norms and does not present a future image of the Estonian education that would be inspiring or mobilizing for the general public.

ES 2020, on the other hand, has attempted to create a vision regarding the direction in which the Estonian education should take in the coming two decades, to use this as a groundwork of presenting the key strategic concerns and the most pressing challenges in the field of education that likely will have a direct impact on the well-being of the Estonian nation and education and the country as a whole. ES 2020 views education in connection with human personality, the society, and cultural developments. True, both documents share some common ground, especially with regard to the views on labor market and educational participation.

The highest value that the educational policy must serve according to ES 2020 is a person as a unique individual and his well-being and development. Of personal qualities, the willingness and ability to study, ability to think creatively and critically, ability to cope with the unknown and failure, ability to be a leader and

take risks, ability to value diversity and cooperation, self-regulation, and stress tolerance were highlighted.

The guiding principle of ES 2010 is the belief that the development of an individual and his environment in the education system depends on both internal and external factors of the education system. Education itself is presented in the strategy as a complex, multilevel, and multidimensional system that is mutually influenced by other spheres of society, such as economics, politics, and culture. Among the factors listed as the most consequential for the Estonian education in the current historic phase, the document cites the small population, the relative poverty of the people (compared to the EU), globalization, changes in family structure, stratification (regional, gender based, income based), and the people's, especially children's and young people's, active involvement in global networks, as well as the education system's relative passivity to outside influences combined with low resistance to the negative impacts of the society. In the ES 2020 strategy, a central place is reserved for studying (in the modern sense of the word) as a person's most vital adaptation mechanism.

The ES 2020 mentality is ecological by nature. In its view, the most important feature of any modern environment – no matter from which individual or collective subject's standpoint we look – is their extreme mutability, including the speed, interconnectivity, and interdependence of changes, and the fact that changes are difficult if not impossible to forecast. An environment with such a high degree of dynamism provokes adaptation difficulties in every being who lives and acts in this environment. Those who survive are the ones who have found their answer to adapting to the changes – whether it means changing oneself or change of the environment in the desired direction.

From this standpoint, ES 2020 highlighted five strategic points or so-called challenges of the Estonian education:

- Moving toward a study approach that focuses on development and cooperation
- Improved position and reputation of the teacher
- Increased participation in the studies
- Creating a stronger connection between education, the knowledge-based society, and innovative economy
- Making digital culture a part of the Estonian cultural sphere

In addition, the document includes a subdivision “Educational Administration” in support of development, the objective of which is to present organizational solutions for implementing the strategy. The following solutions are considered of importance in administering education:

- Taking the educational laws to a common ground, based not on institutions but level of education (basic, secondary education, etc.) and the functional types of study (general education, vocational training, etc.)
- Creating opportunities guaranteed to all children to receive basic education

- Structuring the school network, including separating basic school and grammar school
- Reviewing the system of outside evaluation of state exams and schools
- Developing the network of pilot schools
- Developing a commission-based system in educational research
- Reviewing the existing education funding models to make them compatible with the principles of equal treatment and results oriented
- Implementing legal and social measures as well as financial means to guarantee meeting the laws and requirements that deserve to be respected

The government of Estonia has established ES 2020 as the basis for further development of the nation's education. Currently, work is being done to make the strategy practically usable.

14.5 New Developments

Some tangible changes in the educational policy in the recent years manifest themselves at all levels of the education system, although in various degrees. The effects of the qualification framework have been the weakest in general education, but this can be expected to increase in the near future.

With the introduction of the new national curriculum, basic school and grammar school were separated. In basic education, a stronger emphasis was put on upbringing and pupils' ability to shape their later educational path either in technical college or grammar school providing general secondary education. In the grammar school, choices available for schools and pupils were expanded by introducing study profiles and optional courses. The focus has been on the integration of curriculum, implemented through overarching subjects that pervade all subjects. In performance evaluation, a formative evaluation of pupils was brought to the fore. Emphasis on school children's creativity, initiative, and analytical skills has grown. To this end, creative tasks, either individual or group based, were included in the curriculum, as well as pupil research and practical work. The school program cannot be completed without passing the latter, although the choice of subjects and organizational details remain for the schools to decide. These changes place increasing demands on school curricula, on the cooperation between teachers, on schools' strategic leadership, and on the cooperation with pupils' organizations and parents.

In June 2013, the president promulgated the Law on Nine-Year Primary Schools and Upper Secondary Schools Act which had created extensive controversy after having been passed by parliament. The law was adopted in an incomplete form, since parliament could not reach a consensus on the issue of school funding. The most important amendments focus on the requirement, also stipulated in the curriculum, that a grammar school have several study profiles. This requirement calls into question the existence of small rural grammar schools. To solve this issue, a new status of grammar school – the state grammar school – was introduced

alongside the municipal grammar school which had hitherto been the only official form. In doing so, the state has taken on the responsibility of guaranteeing that there is at least one strong grammar school with a variety of study profiles in each of the 15 counties. Behind this amendment was the need to free sparsely populated rural areas from their obligation to maintain grammar schools that had only a handful of pupils. Instead they can now use the freed up resources to strengthen local basic schools.

In 2012, parliament passed a law amending the Universities Act and the Institutions of Professional Higher Education Act. The motivation behind the amendments was the need to reshape the higher education funding system. This need was formulated by the OECD in a 2007 analysis of Estonia's higher education. One problem in higher education concerns the huge number of working students during their studies (in 2010, 56 % of students worked). Institutions of higher education fear that this might deteriorate the quality of the studies. Another reason for the amendments was the fact that the state-commissioned education has not succeeded in functioning sufficiently well in the national interests. For example, via the system, 40 % of funding went to priority specialities such as science and mathematics, technology, and engineering. Despite this, only 25 % of students were studying in the fields. The new law abandons the state-commissioned education and replaces it with operating support based on performance indicators. The funding does not dictate how many places must be available in a certain field of study for the institutions of higher education. This decision is for the school to make, based on its profile and possibilities to offer quality higher education. In granting the funding, the state takes into account the university's (1) extent of activities (number of students and faculty members, cooperation with private companies, support services, etc.) and (2) quality and results of studies (state examination results of pupils seeking admission, level of internationalization, passed doctoral theses, etc.). To receive funding, the higher educational institution signs a 3-year administrative contract with the Ministry of Education and Research while also entering into annual performance agreements. The performance agreements help the state to defend national interests, such as guaranteeing a sufficient number of graduates in vital specialities (e.g., medical workers, teachers, policemen) or on certain educational levels (doctoral level).

As a whole, the Estonian education in 2013 can be characterized as increasingly structured, centralized, systematic, regulated, and standardized. Stricter control is exercised over performance according to the standards, primarily through the extensive use of accreditation mechanisms and financial means.

Generally, it is characteristic of Estonia that all political forces and social strata share a tradition of prioritizing education. This, however, does not equate to unanimity with regard to educational policy.

Besides economic issues, it is education that has emerged as the focal point of the society. The primary reasons for this include low birth rates, extensive emigration and the consequent decrease in the number of school children, economic recession and the lack of resources, as well as the nation's unreasonable administrative system that remains unreformed due to political opposition.

Bearing in mind the concerns and opinions voiced in the media, parliament, and various educational forums, the Estonian public:

- Continues to view education as a top priority and tends to follow closely the developments in the field
- Is increasingly aware of the deepening gender gaps and other disproportions in education
- Is dissatisfied with the fact that not all children can be assigned to the nursery school of parental choice due to the simple lack of nursery school places
- Recognizes as problems issues such as school violence, school children's insufficient physical and psychological well-being, and poor-value education
- Recognizes increasing educational stratification, unequal access to quality education in the city and in the rural areas and in poorer and wealthier social groups, and rise of private fee-based basic schools
- Is dissatisfied with education funding on the local government level
- Sees employers' dissatisfaction with the existing proportions in numbers of graduates of various specialities and recognizes the employers' view that Estonia overproduces persons with general secondary education and higher education at the expense of vocational training on both levels
- Disapproves the educational passiveness of the unemployed and persons with lower level of education
- Feels solidarity with the teachers in their dissatisfaction with poor salaries
- Feels concern for the expanding labor and study migration and the overall population decline

Some problems are extremely complex, multifaceted, and controversial and have a complicated background. Among those, the hardest to overcome are perhaps the conflicts between:

- Estonia's high level of globalization and Europeanization versus the need to protect the Estonian language and culture
- Standardization and completeness of predetermined learning outcomes versus uniqueness, innovation, and creativity Behaviorist approach versus social constructivist approach
- The education system's focus on economic dynamics versus the marginalization of culture and social sphere
- Cooperation versus competition in education
- Teaching versus research and development
- Internal versus external learning motivation
- Education as an instrument versus education as a value in itself

Unfortunately, problems like this tend to remain largely or completely imperceptible to the wider public and often also politicians who are therefore unable to conceptualize them.

One of the more hopeful recent trends is the so-called smart specialization which promises to solve several issues. At the heart of it is the concentration of funding and knowledge not in independent economic sectors but on activities that penetrate several sectors simultaneously (such as information and communication technology), as well as the reliance on the entrepreneurial process of discovery.

Estonia's qualification framework will likely facilitate the process of smart specialization, providing it with a relatively static and stable foundation. However, its positive effects can only manifest themselves if they do not become an obstacle to innovation, dynamic growth, and development.

Therefore, a uniform and long-term educational strategy can only be implemented if the problems are solved at societal level. Estonia's success so far and the nation's high educational pursuits allow one to be optimistic about the future.

References

- Andresen L (1995) Eesti kooli ajalugu. Avita, Tallinn
- Eesti Arengufond (2013) Nutikas spetsialiseerumine – kvalitatiivne analüüs
- Eesti kooli ajalugu (1989) I.köide. 13.sajandist 1860.aastateni. Toim. E. Laul. Valgus, Tallinn
- Eesti kõrgharidusstrateegia aastateks 2006–2015 rakendusplaan aastateks 2008–2010 (2007) <http://www.hm.ee/index.php?03236>. 20.11. 2008. ekka.archimedes.ee/kvaliteediagentuur
- Elukestva õppe strateegia aastateks 2005–2008 vahearuanne (2007) www.hm.ee/index.php?03236. Accessed 15 Dec 2008
- Europe in Figures (2007) Eurostat yearbook 2006–07. Eurostat statistical books
- European Association for Quality Assurance in Higher Education (2009) Standards and guidelines for quality assurance in the European higher education area, 3rd edn. European Association for Quality Assurance in Higher Education, Helsinki
- European Commission (2008) The European Qualifications Framework for lifelong learning (EQF). Office for Official Publications of the European Communities, Luxembourg
- External Review of Estonian Higher Education Quality Agency (2012) Self-evaluation report
- Gonzales J, Wagenaar R (eds) (2005) Tuning educational structures in Europe: universities' contribution to the Bologna process. University of Deusto/University of Groningen, Bilbao/Groningen
- Haridus- ja Teadusministeeriumi valitsemisala arengukava “Tark ja tegus rahvas” 2009–2012 (2008) www.hm.ee/
- Haridus- ja Teadusministeeriumi valitsemisala arengukava “Tark ja tegus rahvas” 2013–2016 (2012) Tartu, veebruar
- Helemäe J, Saar E, Vöörmann R (2000) Kas haridusse tasus investeerida? Hariduse selekteerivast ja stratifitseerivast rollist kahe põlvkonna kogemuse alusel. TPÜ Rahvusvaheliste ja Sotsiaaluuringute Instituut, Tallinn
- Jansen E (2001) Eestlaste rahvuslik ärkamisaeg.- Eesti identiteet ja iseseisvus. – Avita, 2001, lk. 89–108
- Koolikohustuse täitmine ja selle tagamise tulemuslikkus (2007) Riigikontrolli aruanne Riigikogule 27.aug. <http://www.neti.ee/cgi-bin/otsing?query=Riigikontrolli+aruanne+++27.august+2007+8src=web>. 21 Nov 2008
- Laidre M (2001): Reformatsioonist rahvusliku ärkamisajani. – Eesti identiteet ja iseseisvus. – Avita, 2001, lk 73–86
- OECD (2007) OECD reviews of tertiary education. OECD Publications, Estonia

- OECD (2011) Report in the gender initiative: gender equality in education, employment and entrepreneurship. Meeting of the OECD council at Ministerial level, 25–26 May 2011
- OECD (2012a) Education at a glance. OECD indicators. OECD Publishing, Paris
- OECD (2012b) Education at a glance 2012. Highlights. OECD Publishing, Paris
- OECD (2012c) Draft synthesis report on innovation driven-growth in regions: the role of smart specialisation
- Õppiv tiiger (2006) E-õppe arengukava üldhariduses aastatel 2006–2009. TÄPSUSTA!
- Referencing of the Estonian qualifications and qualifications framework to the European qualifications framework (2012) <http://www.kutsekoda.ee>. Accessed 15 Oct 2012
- Rekkor S (2002) Kutsealase koolituse ülesannete kirjeldamise kontseptuaalsed lähtekohad. Aira Lepik ja Katrin Poom-Valickis (koost.). Sotsiaal- ja kasvatusteaduste dialoog ja ühishuvid. TPÜ Kirjastus, Tallinn
- Rutiku S, Lehtsaar T (2006) Õppekavaarendus kõrgkoolis. Ülikooli Kirjastus, Tartu
- Ruus V-R, Henno I, Eisenschmidt E, Loogma K, Noorväli H, Reiska P, Rekkor S (2008) Reforms, developments and trends in Estonian education during recent decades. In: Mikk J, Veisson M, Luik P (eds) Reforms and innovations in Estonian education. pp 11–26 (Baltische Studien zur Erziehungs- und Sozialwissenschaft, vol. 16)
- Seletuskiri “Eesti kõrgharidusstrateegia aastateks 2006–2015” eelnõu juurde (2006) Eesti Statistika aastaraamat
- Tarand A (2001) Nõukogude aeg- eesti identiteet ja iseseisvus. – Avita, 2001, lk. 139–151
- Üldharidussüsteemi arengukava 2007–2013. <http://www.hm.ee/index.php?03236>. Accessed 22 Nov 2008
- Vocational education 1996–2006 (2007) Statistics Estonia