

A STATUS PAPER ON SCHOOL TEACHER TRAINING IN ESTONIA

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INTRODUCTION

Teacher is mostly seen as a main social agent for nations sustainability and development. The pre-service/initial preparation of teachers and their further in-service training and life-long learning are considered to form the system what supports the quality of an educational process in school. Especially in last decades of 20th and in 21st century the general approach to teacher preparation in developed countries involves science based learning, integration of learning and school-practice, research and reflective activities.

The Bologna process in Europe has influenced the structure and content of teacher training and education in EU member states (like Estonia). The most common *mix* among the OECD countries includes courses in subject-matter (content knowledge), in teaching techniques (pedagogical knowledge), and practical school experience. Some countries also include: the development of research skills, content in cognitive, behavioural and social sciences and knowledge in child development. (Musset, 4). But the historical and cultural background and developments in the sphere of education form country-specific systems of education as well as teacher preliminary/initial training or education.

The following overview of a status of teacher education in Estonia is based on contemporary studies and views on teacher and teacher education¹ that underscores the importance of professionalism; integrated curriculum; principle of learner-centred, social-constructivist and integrative pedagogy and learning environment; internationalization, educational institution as knowledge creative learning organisation, teachers as learning community (Loogma et al, 1998; Senge et al.2001; Nonaka&Takeuchi 1995; Collinson % Fedoruk Cook, 2007). An analysis is made of the documentation, thematic studies and the author's long-standing practice to bring out teacher education principles, content and organization in higher education institutions in Estonia.

¹This framework is sound with wider view of contemporary society as learning society and educational organisations as knowledge creative, learning organisations (Senge 2001, Nonaka&Takeuchi 1995) and scenarios Estonian Education – 2015 (Loogma, et al 1998).

SOME TERMS AND BACKGROUND INFORMATION

Teacher Training and Teacher Education

Due to historical development, term "teacher training" and "teacher education" often describes formally the same process. Nevertheless, in University of Tartu the "teacher training" (schooling of teacher) is mostly used, when in Tallinn University "teacher education" is preferred. Analyse of current teacher education/training curricula in all institutions show that in all of them the value aspect, development of student's identity, wider philosophical-cultural background understandings are present and forms the core of study. Consequently, it is justified that the concept "Teacher education" is preferred in following text. "Teacher training" is used when referring to the institutional English translation of the programme.

Induction Year

The induction year programme is designed for novice teachers of pre-school child care institutions, special-education teachers, speech therapists, teachers of general-education schools and vocational educational institutions. It is based on the framework requirements set out in the National Teacher-Training Development Plan. During the induction year the novice teacher works, and is paid as other teachers. Programme is financed by the Ministry of Education and Research and provided by the University of Tartu and the Tallinn University.

SCHOOLS AND EDUCATION IN ESTONIA

The Estonian (population 1,4 million, ca 1/4th - Russian speakers, state language - Estonian) educational system consists of state, municipal, public and private educational institutions (ca 600). There are ca 130000 students in basic and secondary education.

Basic education (9 years) serves as the mandatory minimum of general education requirement, which can be acquired either partially in primary schools (grades 1 to 6), basic schools (grades 1 to 9) or secondary schools that also teach basic school curricula.

The basic school is divided into three stages: stage I – grades 1.-3., stage II – grades 4.-6., stage III – grades 7.-9.

Basic education is made available through the national curriculum (National curriculum 2011) of basic school or simplified curriculum for basic school. Graduating the basic school requires that the student learns the curriculum at least a satisfactory level together with passing three basic school graduation exams (the Estonian language or Estonian as a second language, mathematics and an exam on a subject of the student's choice) as well as completing a creative assignment.

Secondary education is based on basic education and divided into general secondary education, provided by upper secondary schools (gymnasium, 3 years, grades 10-12), and vocational secondary education (vocational schools). Pedagogical process is based on school curricula prepared based on the national curriculum for upper secondary schools. Graduation from upper secondary school requires the student to complete a curriculum consisting of at least 96 individual courses passed at a satisfactory level or higher, passing the state exams (Estonian language or Estonian as a second language, mathematics, foreign language), passing the school exam and completing a student research paper or practical work during the entire study period. (<https://www.hm.ee/en>)

In current paper terms "primary education" (1.-6. grade), "basic school/education" (1.-9. grade), "secondary education/school" or "gymnasium" (10.-12. grade) are used.

Teacher Professional Standard

The Professional Standard² is the basis for certification of newly qualified teachers; for in-service teachers, it acts as a recommendation for self-analysis and basis for application for higher qualification level. Professional standard describes professional activities and provides the set of skills, knowledge and attitudes or competency requirements needed for successful conduction of professional activities.

Structure

Part A Description of work: description of work, parts of work, environment and peculiarity of work, tools, personal qualities needed for work: abilities and

²Level 7 in English:

<http://webcache.googleusercontent.com/search?q=cache:zEjhoqB9RYsJ:www.kutseko da.ee/fw/fb/10552237+&cd=1&hl=et&ct=clnk&gl=ee&client=safari>

characteristics, professional preparation;

Part B Competency requirements: Structure of the profession, competencies (incl. activity parameters, knowledge, evaluation methods), planning of learning and teaching activities, development of learning environment, supporting of learning and development, reflection and professional self-development, counseling and mentorship, development, creative and research activities, recurrent competency of the profession of teacher;

Part C General information and appendices. (Õpetajakoolituse ...): It is important to note that evaluation methods for all teacher competences are self-analysis, portfolio, interview, survey.

Teachers' standards are described for level 6 (pre-school teachers), level 7 and 8 (primary, basic and high school teachers).

SOME HISTORICAL REMARKS ABOUT TEACHER EDUCATION IN ESTONIA

Estonia has long history in teacher preparation. The first institution for public school teacher preparation was Teacher Education Seminary (1684 - 1688) founded by Bengt Gottfried Forselius. Teacher (schoolmaster) profession was legalized for the first time in 1787. During 17-19 century the preparation of teachers was interrupted several times

At 1804 in the University of Tartu teachers' institute was founded. It prepared teachers for secondary schools (gymnasium) and state schools despite several reorganisations until 1867. Then, teacher preparation was interrupted up to 1911 when it was restored as courses at the University of Tartu. Preparation of primary school teachers started in 1828 as a two-year training in Tartu Elementary/primary School Teacher Seminar. Since 1830, a public school teachers' seminars worked in many parts of Estonia (altogether 9). The teaching in these seminars was in Estonian. At the end of 19th century seminars were closed because of russification and because more estonians entered gymnasiums and other high schools. (Sirk, 2001; Mikser, 2013)

The first institution in Estonia what provided training to the teaching staff in higher education was opened in 1827 at the University of Tartu as Professors

Institute. The law that harmonized the requirements for teachers was enacted in Livonia in 1849 and in Estonia in 1867. Since 1872, teachers had to take a professional exam.

During the independence years (1917 – 1940) Estonia Central Teachers' Union was one of teacher education initiators. Teachers Colleges and Seminars became centers for distribution and development of pedagogical thought, and they may have even scientific dimension. (Sirk, 2001) The seminars introduced the newest pedagogical and psychological knowledge and practices. Many of these innovations were implemented in primary education of Estonia and in neighbour countries (for example, the methodology of general study, study at an individual way, outdoor learning, etc.). Seminars worked under the special state act, students entered after completing the primary school (6 grades, at age 13-14) and studied 6 years. The high education and teacher education both were present, including placement/school practice, necessary singing, drawing and crafts skills. Teachers for gymnasiums were prepared in institutes or university.

In 1940, Estonia was occupied by the Soviet Union and then by Germany in 1941. The majority of university teacher educators escaped from Estonia before it was re-occupied by the Soviet Army in 1944 or were deported to Siberia as ideologically unreliable. During the Soviet period (1940 - 1991) in Estonia's teacher education was led by USSR-wide programs in general. (Kestere et al, 2013) The main institutions for teacher pre-service training were Tartu State University and Tallinn Pedagogical Institute (now - the Tallinn University) and seminars.

GENERAL CONSIDERATIONS ABOUT TEACHER EDUCATION

Teacher professionalism, lifelong learning and autonomy are a foundation of teacher profession and education. Focus on professionalism allows to prepare teachers for complex educational realities and futures (Davies, Fidler, Gorbis 2011), and enables to avoid reduction, highly standardized approach to teacher education and also sustains professional ethos and trust towards teachers in society. High professional level and autonomy enhances teachers' work motivation, commitment to developing the school and society, and the status of the profession (Sarv&Krabi 2015).

Teacher education (TE) is seen as a lifelong/careerlong process of learning, consisting of teacher preparation, beginning teacher (novice teacher) support

and ongoing professional development (CPD). This concept is central for all teacher education and practice in Estonia. CPD is carried out by universities, national centers, schools (especially as part of school-development and curriculum-development), private sector.

Teacher education curriculum is ideally seen in learner-centred approach as a set of planned and unplanned educational experiences and is always a selection, a choice and needs to be based on reflective practice in universities. Teacher education curricula is seen in Stake's model, considering the planning (intension), implementation and achievement of the curriculum. (Stake 1991) The intended curriculum is the way curriculum is presented in the written statements, the syllabi and the teaching materials; the implemented curriculum is the manner in which intentions are realizing in practice; and the achieved curriculum means what results are, esp. what is learned by future teachers (learning outcomes). In teacher education it is important that student-teachers experience the exemplary models of the learning and teaching during their studies (Sarv, Krabi 2015). The realisation of this approach is explored further in following overview of teacher education in Estonia.

In best practices teacher education curriculum is humanist and social constructivist – learner- and group-centred, not educator/professor- or subject-centred. Subject-centred design focuses on curriculum as a plan with pre-defined objectives and emphasis on efficiency. Learner-centred design equates to the process model that stresses personal, subjective, aesthetic and value nature of the curriculum and group-based co-operation. The most important aspect of the learner-centred curriculum is not the content per se, or learning goals, but the learner and the interaction and individual and group development (Correia 2013). The general aim of TE curricula in Estonia is to prepare students for active participation in development of school and society via their professional work.

Learning environments in information society: Teacher and teacher educators as professionals, lifelong learners need good libraries and information-literacy (e.g. online academic databases, research tools) as well as contemporary technology and networking facilities (computers, etc.) Libraries are becoming complex learning environments, and the librarians are considered educators

(teaching information literacy, using library web resources etc.). (MsAskill 2008) Contemporary library is the knowledge and learning centre for blended or e-learning with rich academic and virtual databases.

A significant feature in all teaching and studying is the use of modern technology that is conveniently accessible to all staff and students. In Estonia e-learning environments are developing rapidly. In recent years the most used e-environment is Module, e-learning objects (0,2 ECTS or more) are concentrated into over-Estonian central repository of HITSA³. There are more than 500 courses and e-learning objects for teacher initial education in HITSA repository. Most e-learning materials have Creative Commons licence.

Blended learning (mixture of lecture, seminar, online work, group work etc) needs flexible and technically well-equipped auditoria. For teacher initial education pedagogical and subject-related laboratories (physics, chemistry, etc), field work, schools, kindergartens, museums as places for placement (observation and teaching practice) create an important part of learning environment. The organisational culture and climate are part of learning environment.

Internationalization of teacher education is a process where international dimension becomes natural part of teacher education and involves students, teacher education and other staff in teacher education. (Hawawini 2011) The international exchange projects for students and teaching staff as well as researchers allow to experience other pedagogical cultures. Internationalisation is rapidly growing in self-directed or in occasional or loosely directed learning process as there are thousands of free courses, learning objects and other materials available via internet from over the world. It is not an aim by itself, but an important asset in order to develop teacher education in order to be on the level of international standards and answer to global challenges.

³HITSA - Information Technology Foundation for Education. The aims of HITSA are to assist in preparation of the highly qualified IT specialists and to support information and communication technology-related education development in Estonia. It administrates and develops different information systems, learning environments and learning resources (currently 4600 items of learning materials, look: <http://www.e-ope.ee/repository/> or <http://www.e-ope.ee/en/repository/>).

International projects for school-leaders, teachers, mixed student-teachers teams as well as exchange projects for academicians (ERASMUS, TEMPUS, etc.) are common in Estonia.

Academic personnel are the key factor in TE. It has to be highly competent (as teacher and as researcher), open-minded, co-operative.

In Estonia academic personal is chosen through a public contest according to the Law of Universities, the Standard of Higher Education and official documentation of University (election decree, etc.)The basis for becoming elected is meeting the qualification standard for a certain position. The criteria for the choice are the candidate's level of education,scientific and teaching abilities as well as practical knowledge in the field. Assessment commission evaluates the candidate's suitability for the position,the final decision is made by secret ballot in the Board of University or Faculty (depending on the rank of the position).

The candidate on academic position must be computer-literate within the demands set for his/her professional activities and be familiar with modern higher education teaching methodologies. The lecturer (assistant professor) must have MA or PhD degree (incl ongoing participation in doctorate studies) and practical experience in the field, be active in academic research. The docent (associate professor) and professor have to have PhD and research results equivalent to doctorate work/thesis in every 5-3 years (incl publications on CC 1.1, etc level).From 2018 onwards the PhD is required from all teacher educators.

According to Framework of teacher education (Framework ...): lecturers of subject-didactics have to have a minimum of three years of teaching experience; teacher educators of professional subjects/module have to teach related subjects in the relevant school at least 100 hours every three years.

ON TEACHER IN EDUCATION SYSTEM

The education system is divided as follows:

- Pre-school (pre-primary) education (age up to 7 years).
- Basic education (grades 1-9, age 7-16).
- General Upper Secondary Education (grades 10 – 12, age 16 -19 and more in schools for adults).
- Vocational Education (incl. Vocational Upper Secondary Education).

- Higher education.
- Adult education.

There is a wide area of hobby education⁴- music schools, art schools, sports and other out-of-school activities, what in many cases have curricula and certification. These are partly financed by state or local authority.

Teacher in Estonia is well-educated – most have MA degree, female (ca 90%), Teachers' salaries in Estonia are lower than the OECD average - Estonia was placed as 23-25th from 27 OECD countries represented in the recent study. (OECD ..., Education at a Glance). During last years teachers' salaries have increased but still are lower than nations' average, except master-teachers (level 8). This is seen as the main barrier why best school alumni, especially men, do not choose to become teachers.

Estonia joined the international comparative studies on learning outcomes at the beginning of this century. International studies indicate Estonian education as quite successful: TIMSS 2003 (49 countries) - 5th place in science and 1st place in geography; PISA 2006 (57 countries) - 5th place in science, 13th in reading literacy, 14th in mathematics; ICCS 2009 (IEA civic&citizen education study, 38 countries): 12th place in civic knowledge.

Teacher (quality) and national curriculum are the two important factors that are behind these results. (Ruus, Sarv 2010)

Despite high results of students, comparative studies and national research showed that generally Estonian teacher is rather unsatisfied with her/his work, is very dependent on textbooks, supports the constructivist approach, but uses relatively traditional teaching practices, has the 1st place (among 23 countries) in a classroom disciplinary climate, but is seen by students as caring and helpful. (Henno 2011, 47) Research has shown (Sarv& Ruus 2007; Sarv 2008): the Estonian students and teachers in many schools live in separate worlds, the classification of teachers according to teachers reflexivity,

⁴Hobby education is an area of youth work that provides young people with knowledge and skills outside formal education. Hobby education is organised by local governments and legal persons.

There are more than 300 sports, music, art, dance, language and drama schools, as well as culture and science centers in Estonia that provide young people with quality non-formal learning opportunities.

professional mastery, attitudes to curriculum and to research show the presence of negativist and passive, apathetic groups alongside of majority group of active, innovative research-oriented teachers (Sarv 2008).

So it can be concluded that, as stated by Ruus, Sarv (2010), the “self-portrait” of Estonian teacher does not fit enough to curriculum objectives and aspirations and to developments of educational reality. One source of this mismatch lays, and the “cure” can be found in teacher pre-service/initial education.

According to the Basic Schools and Upper-Secondary Schools Act, Estonia has an inclusive education policy and every child has the right to attend a school in their residential area or study in a mainstream school with an adapted curriculum (simplified national curriculum for basic schools) and to receive different kinds of support. It is also possible to offer classes for learners with special educational needs in mainstream schools. The values arising from the ethical principles specified in the Constitution of the Republic of Estonia, the Universal Declaration of Human Rights, the Convention on the Rights of the Child and the fundamental documents of the European Union are considered important. In the course of initial teacher training, all the teachers receive training modules to prepare them for working with pupils with SEN. Further education can be obtained as CPD via courses and virtual self-directed learning.

Current teacher education/training programmes got their paradigmatic and substantive basis for the beginning of the millennia. This was time when fresh, social-constructivist curricula for basic and high education was legitimized (1996) and implemented and was in rapid further development. It included new approaches towards learning, educational environment and general competencies. Active participation of students, teachers and community in school-curriculum development was part of the curriculum. So the discussions about Estonian teacher education framework (1998-2000) concentrated around more traditional, cognitive approach and more social constructivist, humanistic approach. The other influential aspect was the approach that followed from the scenarios "Estonian education - 2015" (1997-98). These scenarios show that sustainability and competitiveness of the society is highest when society develops as learning society, as learning organizations (incl schools) network, where high aspirations, innovations and inclusiveness, cooperation are valued and practiced. (Loogma et al, 1998, Sarv 1998) This

meant, that teachers' education had to prepare active, reflective, co-operative educators, not only subject-specialists. Differences among teacher education plan-developers appeared as some teacher education programme leaders followed traditional, postivist paradigm. For example, aims of Baccalaureate thesis in one university declare: "The aim is to teach based on acquired knowledge and literature to compose research work ". The aims of the same programme in another university says: "The aim is to enable students to develop an educational-scientific way of thinking and the ability to see the educational, pedagogic, or scientific problems; to achieve". It can be assumed that such disparities provide qualitative differences in the results of teacher education.

The overall development of compulsory education and teacher education was and is guided by documents such as The Framework Requirements of Teachers' Training (Framework ...), The Estonian Lifelong Learning Strategy 2020 ... (Estonian Lifelong ...) and The Strategy⁵ for Estonian teacher education development 2009-2013, and supported by teacher-education development project EDUKO. The Strategy was worked out by group what included representatives from higher schools, teachers' and students' organisations, school principals' association, parents' association and other NGOs, Ministry of Education and Science, etc. The process involved around hundred of specialists and experts, and Strategy was announced by Government⁶.

The main aim of teacher education according to Strategy is: to develop proposals for further development for pre-service/initial teacher education (content and organisation), for teachers' CPD, recognition of previous learning and work-experience in assessment of learning and professionalism, for changes of regulations about teacher education. The Strategy was necessary because of rapid changes in environment (incl. IT), education and curriculum and the need to involve funds from special programmes of EU.

The features of teacher education paradigm in Estonia according to Strategy:

1) Teacher is an active learner, who plans, leads/manages and evaluates her/his own learning and professional development;

⁵Referred as Strategy.

⁶2.02.2009, No 64, Ministry of Education and Science.

- 2) To become a teacher is the life-long process;
- 3) Teacher's becoming takes place in concrete work environment. Professional development (PD) is collegial process influenced by colleagues, school leaders, parents and teacher community in a wider sense. School as learning organisation is active in teacher's personal, professional and collegiate/community development;
- 4) PD of teacher is the factor (pre-factor) and result of development of school-organisation and curriculum;
- 5) PD is both - multidimensional and individual/personal. Teacher efficacy in work and motivation as a learner are influenced by school culture as well as by social, economic and political environment;
- 6) PD of teacher is holistic from pre-service education/training to induction year (beginner teacher) and forward via LifeLongLearning to master-teacher. (Strategy ...)

In all these documents, Estonia sees itself as learning, knowledge-based society, where the human resource is the main resource for development in global contexts.

INITIAL TEACHER EDUCATION IN ESTONIA

Regulations

Teacher initial training/education is state-regulated according to "The framework requirements of teachers' training" (Framework ...) and is seen as part of life-long learning (Continuous Professional Development, CPD). Teachers' training programmes/curricula is based on the "Institutions of Professional Higher Education Act", "Universities Act" and two regulations of the Government of the Republic: "The higher education standard" and the "The framework requirements of teachers' training".

All teacher training/education programmes have national or international accreditation from the accreditation institution/commission.

Interuniversity commission, commission at Ministry of Education and Research, as well as teacher and (teacher-) students NGOs contribute to and negotiate problems of teacher education. Educational process in university follows University Study Regulations.

In the university teacher education programmes are approved, coordinated and changed, new courses approved by the council/programme committee. All units involved in teacher education (subject institutes or faculties, Institute of education, centers of practice and induction year) are represented in council. Main decisions of teacher education council are negotiated and approved by University Seant. Programmes/curriculum and subjects/courses are managed at the Institute level by programme and subject leaders.

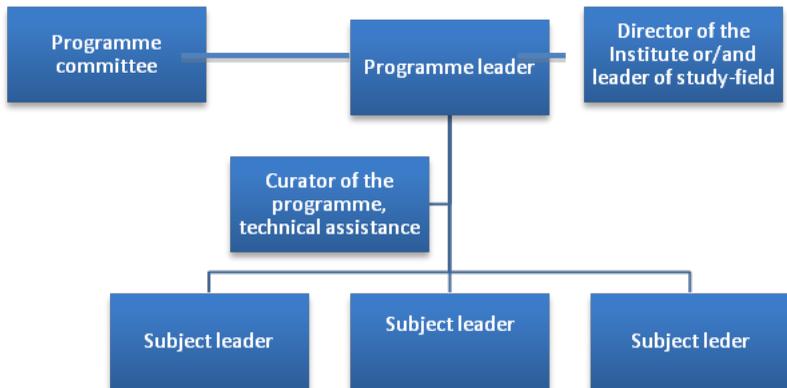


Figure 1. Teacher education programme/curriculum management at Institute of education, Tallinn University

Nomenclature of initial teacher education curricula and model of studies

Initial teacher education has to prepare educators, teachers for state, local authority, community and private schools so, that teachers are able to implement school curriculum based on state curriculum for basic or for secondary education. There is a growing number of private and alternative schools (Waldorf schools, Catholic schools, community-schools, etc.). Teachers for those schools have to meet the state qualification requirements. The specific teacher knowledge and skills (for example - Waldorf pedagogy and curriculum) are acquired in institutions abroad or courses and seminars in Estonia (independent NGOs, private or related to universities).

The programmes of offered in Estonia are :

- . Early childhood and preschool teachers for age 0-7 (kindergarten), BA, MA;
- . Primary/elementary school teachers (class-teachers) for age 7-13 (1. -6. grade), MA;
- . Primary school subject teachers or several subjects (humanitarian and natural branch) teachers for age 13/14 -16/17 (7. -9. grade), MA;
- . Secondary school subject teachers for age 16-19 (grades 10-12), MA;
- . Teachers for vocational schools, BA, MA;
- . Teachers for other institutions (hobby-schools, sports, museums, musical and art schools, etc), SEN teachers, social pedagogues, etc.

Teachers are prepared mainly in University of Tartu (Faculty of Social Sciences and Education, Pedagogicum⁷), in Tallinn University (School of Educational Sciences in cooperation of Centre for Innovation in Education⁸ and institutes) and their colleges. Teachers of arts are partly prepared in Estonian Academy of Arts, teachers of music – in Academy of Music and Theatre in cooperation with University of Tartu, vocational teachers – in Tallinn University and in cooperation of Tallinn Technical University and University of Tartu. In Tallinn University educational innovation⁹ is one of six focus fields. Teacher education is supported by *Centre of Excellence in Educational Innovation*¹⁰. The initial teacher education/training programmes

⁷UT Pedagogicum is a consortium whose goal is to promote the sciences of education and science-based teacher education at the <https://www.tlu.ee/en/centre-for-innovation-in-education> international level and to coordinate the necessary activities within the university. Faculties and colleges of UT participate in the work of Pedagogicum.

⁸Look: <https://www.tlu.ee/en/centre-for-innovation-in-education>.

⁹The University chose educational innovation as a focus field since the difference of the needs of the school and the society has increased considerably in the past decade. The aim is to support the development and application of a 21st century learning culture in the Estonian education sphere.

¹⁰The purpose of the TU Centre of Excellence in Educational Innovation is to develop an interdisciplinary research field that focuses on innovative and evidence-based

and process in two main institutions - Tallinn University and University of Tartu - have some minor differences.

The special programme Young People back to school¹¹ for MA-graduated young people provides an educational module for those who decide to work in school and become a teacher. The 2-year programme includes preparatory studies, observational practice, 60 ECTS¹² of teacher training in Tallinn University. During a two-year programme, courses are held every two weeks. The beginner teacher has constant help from: The Tallinn University lecturer/professor, the school's mentor, the Young people to school tutor and alumni.

Today higher education is free (except learning via Open University) for those who complete required study-programme. The number of state-financed students is set by Ministry in negotiations with universities. Some years ago study-groups could have some additional students who pay the tuition fee. Teachers, who after graduation start work in country-side schools, have financial support from state.

The **standard model of teacher education** (Figure 1) represents a comprehensive, continuous lifelong learning process. It includes:

Bachelor studies – 3 years (6 semesters), 180 ECTS (ends with 6-10 ECTS exam or thesis);

Master studies – 2 years, 4 semesters, 120 ECTS (ends with 15-30 ECTS thesis);

Induction year (ends with developmental portfolio);

Continuous professional development via independent learning, courses, etc.

teacher education, school management and educational policy. Look: <https://www.tlu.ee/en/TU-Centre-of-Excellence-in-Educational-Innovation>.

¹¹ Webpage in Estonian: <http://www.nooredkooli.ee>

¹² ECTS - The [European Credit Transfer and Accumulation System](#) (ECTS) was developed by the European Commission in order to provide common procedures to guarantee academic recognition of studies abroad. ECTS is a student-centred system based on the student workload required to achieve the objectives of a programme, objectives preferably specified in terms of the learning outcomes and competences to be acquired.

Doctoral studies – 4 years, 180 ECTS (120 ECTS doctoral thesis) in educational sciences are required for teacher educators and researchers and recommended for teachers, administrators, etc.

(1 ECTS = 26 hours of academic work, that includes 4-12 contact hours. One academic year is equal to 60 ECTS.)

Studies to obtain the qualification for teaching extra subject have to be minimum 20 ECTS (including 6 ECTS of didactics and practice).

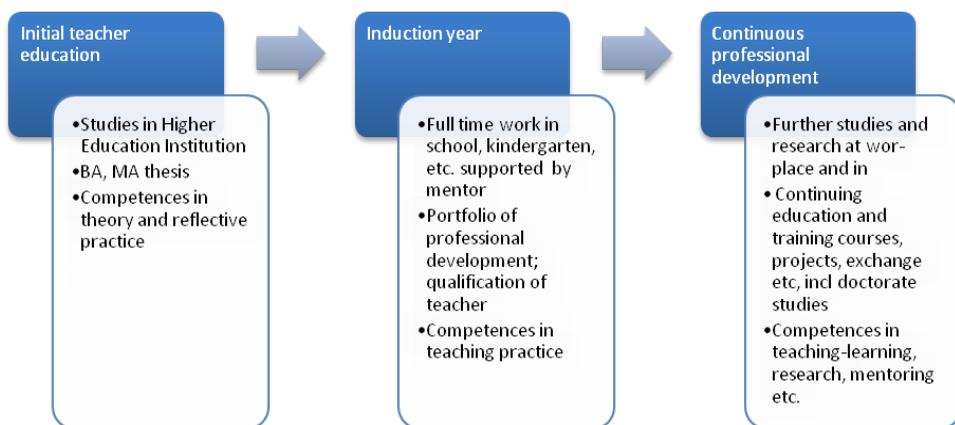


Figure 2. Scheme of teacher education in Estonia (activity, completion, acquired competence)

The spectrum of teacher education curricula needs to cover society's needs for teachers with different competences. The rapid development of ICT and the emergence of new areas of work, global environment and cultural environment change, liberalization and simultaneous humanization of society and education, multiculturalism and integration of children with special needs into school are just some of the factors affecting teachers and teacher education. Small population, and desire for education (and science, culture) in native language mean that almost all the needed teachers have to be trained in an Estonian-language environment, in Estonia.

Appendix1 gives an overview of teacher education programmes/ curricula in Estonia's universities and colleges. Different kinds of subject teachers and teachers/pedagogues/couches for all sorts of hobby schools, music and sports schools and bees are not explained in detail. In addition to their speciality studies all they must generally overtake the MA level teacher training or professional training 60 ECTS.

Requirements at Entrance / Access Conditions to Teacher Initial Education Programmes

Requirements at entrance to teacher initial education programmes are determined by the law of higher education. According to needs of university content and form of entrance exams may vary. Winners of international Olympiads and national scientific or artistic competitions have free access to certain programmes.

Requirements at entrance to bachelor studies: Secondary School Leaving Certificate, Certificate of Vocational Secondary Education or a corresponding qualification giving access to higher education.

At entrance to the programme, the admission conditions may vary. Mostly, the system takes into account results of national examinations (50%) and of entrance examination (50%). The exam may include interviews or group discussion, essays, tests (including cultural competency test), practical tests (such as music, art). Decisions on exam content and results are done by the admission committee of the programme.

Requirements at entrance to master studies vary according to programme specifics. In general, an applicant must have completed studies at least of one subject (minimum 45 ECTS) that is taught in school and have a Bachelor's degree. For admission, a student must pass an exam (interview, essey etc.).

There is the official European system that allows to take into account previous studies and work-experience at the entrance or in the process of teacher education. So some subjects, placements, etc. may be assessed without passing full programme.

General Principles, Aims and Outcomes of Initial Teacher Education

General/basic principles, aims and outcomes of teacher education in Estonia arise from regulatory documents, from national curricula and social ideals.

These express needs and ideals of interest groups and partner organizations of teacher (initial) education.

Teacher training aims at securing Estonia with teachers, who are competent professionally, in speciality and who:

- 1) comply with the ethical principles common to all humanity and respect the dignity of the learner;
- 2) orientate in the educational needs of society and are capable to operate in changing educational environment/situation;
- 3) take into account individual development of personality, and use supportive teaching methods;
- 4) are capable to carry out aspirations of institution's/organisation's curricula and development plans;
- 5) participate in the promotion of education, both within and outside educational institutions;
- 6) develop, advance their professional and speciality competence.
(Framework ...)

The basic principles of teacher education state, that teacher education is based on (social) constructivism where the teacher is a reflective practitioner and active learner who plan his or her personal professional development; teacher education is the life-long process where the teacher evaluates her/his previous knowledge in practical situations; the development of a teacher takes place in a working context and is connected with the teacher's everyday practice and is a collegial process in schools what are becoming professional learning communities, learning organisations.

Aim of teacher initial education is to achieve teacher's

- . Readiness for self-reflection and self-lead learning,
- . Competence in subject and didactics-methodology,
- . Readiness to create a favourable learning environment and lead a learning process, taking into account that a great deal of learning is taking place outside a school,
- . Readiness to apply scientific research methods in a learning process and environment analysis and to apply research results in practice,
- . Competence in management and communication skills.

With some variations these principles, and aims together with outcomes (of curriculum, of module and of subject) describe the intended teacher initial education curriculum. Its implementation depends on syllabi (intended and implemented).

Educational Process in Teacher Training

The full time studies are the main form of initial teacher education. However, in all institutions the cyclical study (2 days per week or 3-4 days per month, or one week per half-semester) or studies via Open University are possible. Some programmes are provided only as cyclical studies or via Open University.

Primary/generalist teachers (class-teachers) are trained according to the integrated curricula of Bachelor's and Master's study (5 years, concurrent/integrated model), other teachers are trained according to the consecutive model in three-year Bachelor's study followed by the two-year Master's study (Appendix 1).

Entrance exams can be seen as first phase of the teacher education process. For some programmes at the BA and Master's level there is a career suitability examination in the form of oral interview in two parts. First, an individual discussion is carried out with the aim to understand the applicant's motivation to work as a teacher. The second part of the examination is the group work in which the students have to find a solution for a pedagogical problem situation and ground it.

The introduction week in some universities allows becoming familiar with learning environment (libraries, e-learning environments), registration to university e-networks and systems, registration system to courses, creation of the individual learning plan, etc. The introduction of student academic organisations and developmental possibilities (sports, chorus, orchestra, etc.) is done as well.

Teachers' education programme has four components: general educational studies; studies related to specific subject(s); professional studies (education science, psychology and didactics, including practical training); a final thesis that includes exploratory pedagogical aspects or final exam. All components are module based and include required and elective courses.

Table 1

Example of Module-Based TE Curriculum¹³ (Primary School Teacher, TU)

Module	ECTS		
	Total	Required courses	Electives
Introductory courses	45	22	23
Creativity-Related Subjects and Didactics	22	12	10
Study of Education and Psychology	51	40	11
Study of Subjects	37	37	-
The English Language Teacher	54	54	-
Study of Subjects -Specific Didactics	37	37	-
Professional Placement	27	27	-
Electives	12	-	12
Master's thesis	15	15	.

Besides traditional lectures contemporary and learner-oriented teaching methods are intensively used. An important role is played by collective work methods: discussions (in prepared and unprepared topics), group work, group

¹³Aims, outcomes and contents of module are presented in Appendix 2.

presentations, project work, role-playing and seminars. Students prepare essays or reports on many subjects (which are often a prerequisite for examinations) and make PowerPoint, Smart-board, online, etc. presentations, create e-materials, blogs and e-portfolios. Peer-assessment and group reflections as part of blended, inquiry-based learning are combined with a developmental portfolio. These teaching methods develop students' competences, essential for further work. Skills of team-work, understanding of knowledge management and mind models and especially self-reflection are developed via complex auditorial and field work. Evaluation in e-learning is often based on formative and cumulative on-line assessment.

Information about teacher education curricula, course/subject syllabi and support materials can be accessed. In most universities all programmes, syllabi and study materials are freely available via Learning Information System¹⁴ (except personal materials and assessment results of students). Module-based and other e-materials are in everyday use besides the well-equipped libraries.

Professional practice/placement

The results of longitude research on teacher trainees' professional identity suggest that teacher training is started with naive ideas about teacher's work, based on one's personal experience of the previous school. During studies teacher-students' perceptions of the teacher's role and work becomes more complex, by the end of studies, the pedagogical expertise is most valued. The strongest influence on perceptions of future teacher's identity has pedagogical practice, however. (Poom-Valickis, Lõfström, 2014)

Every teacher education programme has assigned chief-methodist. They coordinate, have negotiations and agreements with placement-organisations, organise the feedback, etc. The instructors/supervisors from university are mainly teachers-specialists on didactics. They do preparation, observe lessons, carry consultations, read placement-portfolios, give feedback.

In the placement organisations (schools, etc.) responsible for practice is the leader of the placement-group, usually head teacher or specially trained teacher. The instructors/tutors are teachers who have at least 3-5 years of experience, who have passed courses for mentors or special training for placement instructors.

¹⁴Learning Information System – ÕIS in Estonian.

Table 2

Overview of Professional Practice/Placement for Different Programmes

(Example of Tallinn University)

Programme	Subject	Amount ECTS	Weeks	Semester
Class teacher (primary teacher, 1-6 grade), (joint BA+MA)	Diploma placement in 1-6 grades	9	6	9., 10.
	School placement (1-3 grade)	6	4	5.
	School placement (4.-6 grade)	6	4	8.
	Child's first school-week	1	1	9.
	Observational placement (1-3 grade)	3	2	4.
	Observational placement (4-6 grade)	2	1	7.
	Placement for minor subject	3	2	
Teacher of several subjects, humanitarian subjects in compulsory school (up to 9 th grade) (MA)	Pedagogical placement	18	12	Free choice
Teacher of natural sciences in gymnasium (10-12 grade), (MA)	Pedagogical placement in natural sciences	15	10	4.
Music teacher (MA)	Pedagogical placement	15	10	1.-4.
Leader of and teacher of creative areas	Pedagogical placement	12	8	8.

In TU, practice is reflected in the student's practice-portfolio from the pre-practice to basic practice stage II and minor practice. The guidance materials, task descriptions, work-sheets, etc. are provided. For example, the introductory practice for a class-teacher (semester 2, parallel to subject School pedagogy) has six tasks (worksheets): school as organisation ... (group-interview with school-leaders and study visit), social processes in class, physical environment in class/school, teachers' style of behaviour and leadership, teacher's different roles, partnership of teacher and support-system¹⁵.

The developmental portfolio of pedagogical practice gives for both, student and supervisor, an overview of the trainee's progress and development needs in teacher formation. In many programmes part of placement-related activities can be or have to be reflected in e-portfolio. The portfolio is evaluated and assessed at the final practice-seminar in practice-school and in university.

The amount of teaching is usually minimum 2-4 lessons per ECTS (required: plans and analyses presented in the portfolio). In reality, the teaching can vary up to 10-18 lessons per week, fortunately not in many cases.

Pedagogical practice in all HEI was analysed by the Center of Educational Policy Research Praxis in 2011 (Kirss et al 2012). Structure, management, involved organisations and specialist, time expenditure and cost were analysed as well as implementation of the fundamental principles of practice. The general conclusion was, that in all institutions, the principles are implemented, system of practice (incl. cooperation between schools and HEI) has established, but not always fully documented and transparent. Not all students have two supervisors (from school and from university) as prescribed.

The system of professional practice differs somewhat in TE institutions and is in continuous development.

INDUCTION YEAR

The aim of the induction year is to enable graduates to apply their knowledge and skills acquired in teachers' training and to develop the readiness for the teaching profession. A person undergoing the induction year is a novice teacher (paid), who shall, in case the qualifying phase is successfully passed,

¹⁵Chief-methodics homepage (in Estonian): <http://airikukk.edicypages.com>.

be granted the qualification as a teacher. The obligation shall not extend to those who have completed a teachers' training curriculum in parallel to working in a pedagogical position.

At the end of the induction year, a novice teacher shall submit an application to the teachers' attestation commission for being granted the qualification as a teacher. A certificate of the completion of the support programme issued by a university, an individual development portfolio and a school's evaluation of induction year, which must reflect the correspondence of the novice teacher to the requirements of the professional standard, shall be attached to the application.

The induction year programme is designed for novice teachers of pre-school child care institutions, special education teachers, speech therapists, teachers of general education schools and vocational educational institutions. This was a national initiative (started around 2000¹⁶), which found its realisation and is based on the framework requirements set out in the National Teacher Training Development Plan. During induction year novice teacher works, and is paid as other teachers. Programme is financed by the Ministry of Education and Research and provided by the University of Tartu and the Tallinn University.

The role of university centres in supporting professional development:

- .Support programme for junior teachers. Training sessions/seminars for novice teachers are held during school holidays. The participants analyse their experiences gained during the first working year(s), discuss and analyse the problems they encountered and find solutions together or with the help of experts, if necessary.
- .Mentor training. The course is designed to clarify some aspects relating to the implementation of the induction year programme and to support the development of supervising skills.
- .Information exchange for mentors and junior teachers. Electronic lists of junior teachers and mentors facilitate the exchange of information and offer an opportunity to find solutions to the issues related to the implementation of the induction year programme.

Seminars are organised 2 to 3 times a year for mentors who have received mentor training, management training or intern supervision training. Mentors

¹⁶In Estonia, the support for novice teachers was widely used in 1930ies. (Krull, 2007).

are given an overview of the activities taking place in the given year, provided counselling and engaged in discussions about future activities.

Supervision of teachers who have participated in the induction year programme. Becoming a teacher is a lengthy process and therefore, junior teachers who have participated in the programme are given an opportunity to continue training in supervision groups¹⁷.

According to research the novice teachers experienced support for personal development and professional knowledge development, feedback, collegiality, reciprocity of the relationship, mentor availability and mutual trust as components of the mentor–mentee relationship. The study identified undeveloped potential in mentoring related to three main areas: 1) facilitation of reflection, 2) mentor training, and 3) integration of mentoring into the school community as a whole. (Löfström, Eisenschmidt, 2008)

Initial teacher education programmes

Next section gives some concrete examples of teacher education programmes. Explanation highlights different aspects (like structure, aims and outcomes, etc.) to illustrate the intended, planned, implemented and achieved curriculum. The full programmes can be accessed via study information system (ÕIS in Estonian) of university, there most programmes and part of syllabi are available in English translation. Many aspects are similar in different programmes – like entry requirements, assessment of placement, qualifications of teaching staff, etc. These are not repeated.

INITIAL TEACHER TRAINING PROGRAMMES FOR TEACHING AT COMPULSORY SCHOOL (Age Group 7 yrs to 16 yrs): 1. PRIMARY SCHOOL STAGE (AGE GROUP 7-13 YEARS), 2.BASIC SCHOOL STAGE (AGE GROUP 13/14 - 16/17 YEARS)

1. Initial Teacher Training Programmes for Teaching at primary Schol (Age Group 7 Yrs To 13 Yrs)

Title of the Course: Primary School Teacher (or Class-Teacher).

Nomenclature of the Certificate / Diploma/ Degree: MA, Master of educational sciences (class teacher).

¹⁷Ministry of Education: <https://www.hm.ee/en/activities/teacher-policy/training-and-development-activities>. Also look Eisenschmidt, 2006.

Entry requirement: Secondary School Leaving Certificate, Certificate of Vocational Secondary Education or a corresponding qualification giving access to higher education.

Study level: Integrated BA and MA studies

Duration of the course: 5 years (10 semesters), 300 ECTS.

Minimum qualifications of teachers: MA, subject leaders –recommended PhD or candidate (former USSR system) in the field.

Number of lessons/duration of practical teaching in schools: Practice/placement at school includes placements on 27 ECTS: preparatory professional placement (observation); basic teaching practice in grades 1-3 and 4-6 that can include outdoor works (natural sciences); child as a first grade student, etc. The number of lessons and other pedagogical activities observed or taught is regulated by practice guide. The number of lessons planned, analysed and presented in the development portfolio for assessment is minimum two lessons per ECTS. The real number of lessons taught is much higher.

Qualifications and experience of supervisors of lessons taught in school: University specialists on subject didactics need to have MA or PhD and teaching experience. In school – class teachers or/and subject teachers and head teachers have to be experienced teachers with higher-education diploma of USSR or MA in education (if graduated after 1991).

Strategies for Evaluating Theory: formative assessment and evaluation of seminars, tasks and group-works; written or oral examinations, portfolio-based exams, tests (in person or in e-environment), essay.

Strategies for evaluating practical work: Evaluation of practical work and teaching is done by supervising teacher, head teacher in school, by university supervisor (methodologist, didactic) based on visited lessons and following conversation (usually, minimum two lessons per ECTS, or per every subject taught). Self-analysis, self-assessment, self-reflection are required. The self-evaluation form has to be filled upon every (visited) lesson and assessed/signed by the head of practice or supervising teacher in school and by methodologist/didactic in university. If it is organisationally possible - peer evaluation, and pupils' feedback are used. The concrete requirements are established according to practice guide and may vary (for example, schools on islands may be not always reached by university specialist). All evaluation materials have to be presented for final assessment in the practice development portfolio. Final assessment by the supervising methodologist takes place after the closing practice seminar where a student presents the development portfolio.

In order to become a qualified teacher (level 7) candidate after completing the programme has to overtake induction year as a novice teacher.

Example of programme in Tallinn University¹⁸(10 semesters, 300 ECTS)is given in Appendix 2.

2. Initial Teacher Training Programmes for Teaching at Basic School (Age Group 13/14yrs to 16/17 Yrs)

Teachers for 7. -9 grades are prepared on the 2-stage model. The first 3 years, bachelor level (2.1) provide general educational preparation in three directions – Humanities, Natural sciences, Mathematics and sciences. Studies are completed by BA thesis. Following completion of their studies students are able to pursue master studies in the chosen field of study (2.2) or in some other master programme. Programmes 2.1 and 2.2 have to be completed as whole to be certified as a teacher (integrated programme). The teacher qualification will be obtained after induction year.

2.1.Education (TU) or Educational science (UT).

Title of the Initial Teacher Training Course: Education

Nomenclature of the Certificate / Diploma/ Degree: BA(Bachelor of Arts in Education).

Entry requirement: Secondary School Leaving Certificate, Certificate of Vocational Secondary Education or a corresponding qualification giving access to higher education.

Duration of the course: 3 years.

Minimum qualifications of teachers for such courses: MA, subject leaders eligible PhD or candidate (former USSR system) in the field.

Number of lessons/ duration of practical teaching in schools: preparatory placement “Introduction into teacher training”–3 ECTS, 2 weeks, is part of module “Studies of educational sciences”. This is mainly observation (during the fourth semester of the Bachelor’s level). The objective is to provide the student a possibility to integrate knowledge in educational sciences into the school reality and the development of professional self-consciousness. Evaluation: students have to compile a professional portfolio, which will be presented and analysed at the conclusion seminar in the university.

¹⁸ Look details: http://ois.tlu.ee/pls/portal/ois2.ois_public.main.

Qualifications and experience of supervisors of lessons taught in school:

Supervisors - teachers of pedagogical subjects in university programme Education. At school the students have also a mentor, usually the principal or head teacher of the school.

Strategies for Evaluating Theory: portfolio, essay, exam, reflection.

Strategies for evaluating practical work: Reports, essays, portfolio.

Placement evaluation is carried out by specialist/supervisor from university and mentor from school on the basis of observation, interviews, self-reflection materials and portfolio (performed at special seminar in university). The tasks for observation in different domains of a teacher's work help to promote readiness of the future teacher to reflect and analyse the school reality from the teacher's viewpoint:

- general organisation of work at school,
- learning environment (physical and social) at school,
- the learner's development,
- carrying out a lesson (incl the guidance of a pupil's learning, the support for a pupil's development, social skills and competence of the teacher).

2.2. Basic school teacher of several subjects (TU).

Title of the Initial Teacher Training Course: Basic School Teacher of Several subjects (Humanities or Natural sciences)

Nomenclature of the Certificate / Diploma/ Degree: MA (Master of Arts in Education, basic school teacher of several subjects).

Entry requirement: An applicant must have completed at least one subject (min 45 ECTS) that is taught in general school and have a Bachelor's degree. For admission a student must pass an exam.

Duration of the course: 2 years (4 semesters).

Title of the Certificate after successfully completing the course: Master of Arts in Education (MA) (teacher of several subjects).

Minimum qualifications of teachers for such courses: MA, subject leaders eligible PhD or candidate (former USSR system) in the field.

Number of lessons/ duration of practical teaching in schools:

- **Professional placement** of the first and second minor – 9 ECTS, ca 9 weeks totally. The student experiences teaching of two subjects chosen by him/her at the university. Besides teaching the student teachers deepen their knowledge and skills in supporting the pupils' development and in guiding their learning.

- **Integrated professional placement** (the third minor and complex of all subjects and class advisor's practice) – 5 ECTS, min 5 weeks totally (during the fourth semester of the Master's level). Placement is supervised by the teachers of the Subject-Specific Didactics and of the area of Education/Pedagogy. Besides the mentioned tasks the student gets to know the school and its staff, the organisation of work and learning environment, observes the classes of the working teachers.

Qualifications and experience of supervisors of lessons taught in school: the **professional placement of the first and second minor** is supervised by the university teachers of the subject didactics (MA) and teacher in school.

In order to conclude the curriculum the student shall pass the curriculum in the foreseen amount and defending a Master's Thesis. The curriculum stipulates the following condition for the graduation: knowledge of one foreign language at B2 level according to the Common European Framework of Reference for Languages; the necessary level of computer driving skills; for graduates from schools with Russian as the language of instruction - the knowledge of Estonian at the level of C1.

Initial Teacher Training Programmes for Teaching at Secondary School (Age Group 16 Yrs to 19 Yrs)

Secondary school teachers are mainly subject teachers. The teacher preparation for secondary school is integrated activity by subject department (speciality studies) and Institute of Education. There are some conceptual and organisational differences in two universities what are explained in following chapter.

Title of the Initial Teacher Training Course: Teacher of ... (physics, chemistry, English, etc.)

Nomenclature of the Certificate / Diploma/ Degree: MA (Master of Arts in Education,)

Entry requirement: Bachelor's Degree, Diploma of Professional Higher Education or a corresponding qualification in subject, or subject passed as a subsidiary (minor) subject in the minimum amount of 45 ECTS.

Duration of the course: 2 years, 4 semesters.

Title of the Certificate after successfully completing the course: Diploma and Diploma Supplement.

Minimum qualifications of teachers for such courses: MA, subject leaders eligible PhD or candidate (former USSR system) in the field.

Number of lessons/ duration of practical teaching in schools:

Professional teaching placement: 12 weeks per major totally (during the third, fourth semester); 3 weeks per minor (usually 4th semester). Number of lessons taught vary from 6 per week to 10-18 per week.

Qualifications and experience of supervisors of lessons taught: in school - experienced teachers, MA; in university – teaching staff – MA, subject leaders eligible PhD or candidate (former USSR system) in the field.

Professional placement is supervised by the university teachers of the subject didactics and subject(s) teacher(s).

Strategies for Evaluating Theory: formative assessment or evaluation of seminars, group/individual work; written or oral examinations, portfolio-based exams, tests (in person or in e-environment), essay.

Strategies for evaluating practical work: Evaluation of practical work and teaching is done by supervising teacher, head teacher in school, by university supervisor (methodologist, didactic) based on visited lessons and following conversation (usually, minimum two lessons per ECTS, or per every subject taught). Self-analysis, self-assessment, self-reflection are required. The self-evaluation form has to be filled upon every (visited) lesson and assessed/signed by the head of practice or supervising teacher in school and by methodologist/didactic in university. If it is organisationally possible - peer evaluation, and pupils' feedback are used. The concrete requirements are established according to practice guide and may vary (for example, schools on islands may be not always reached by university specialist). All evaluation materials have to be presented for final assessment in the practice development portfolio. Final assessment by the supervising methodologist takes place after the closing practice seminar where a student presents the development portfolio.

In order to become a qualified teacher, successful induction year is required.

Example 1. Subject Teacher pre-service education programme. Tallinn University

Subject teacher pre-service education programme was developed through extensive knowledge-rich team-work at 2004-5 and has gone via continuous renewal. Aims, outcomes, main issues and assessment criteria have been negotiated every year. All subjects and topics are supported by sufficient learning materials in Estonian, English and some other languages. The Moodle, open e-environment and e-learning objects are natural part of

learning environment¹⁹. Since 2013, the Centre of Educational Innovation with most contemporary facilities is used.

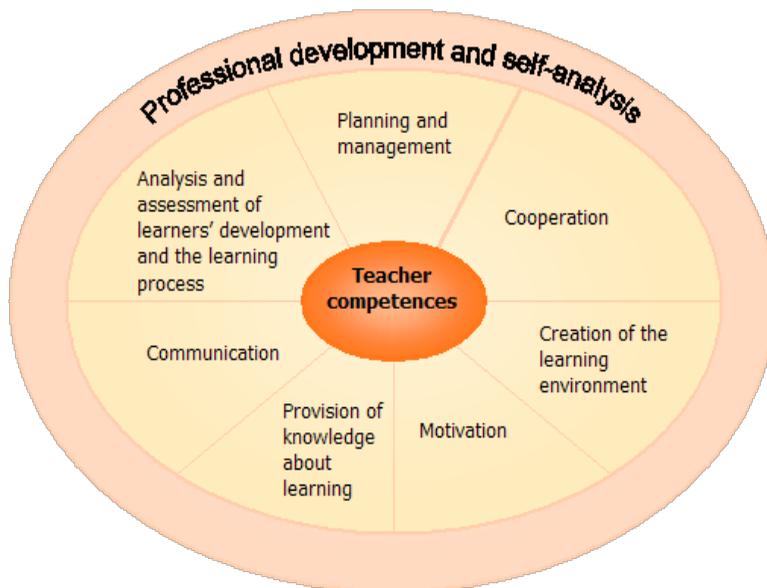


Figure 3 Schema of areas of initial teacher education for subject teachers.

Teacher initial education process is competency-based. Competences of planning and management, cooperation, creation of the learning environment, provision of knowledge about learning, communication, analysis and assessment of learner's development and learning and motivation are a matter of all courses in teacher education. Self-analysis is the basis for professional development as during studies in university so in work-life.

Physics teacher (basic and secondary school, grades 8-12) programme states the objectives and learning outcomes as follows.

¹⁹For example, subject/course "Philosophy and science of education" (4 ECTS, finalises theoretical studies of programme, 3rd semester) is Moodle-based and has 2 obligatory and 10 suggested e-learning objects (like: Humanistic pedagogical systems; Paradigms of educational sciences and methodology of educational research; Observatin as cognition, etc.). Teaching is integrated, blended process, there lecture, seminar, group- and teamwork, observation and artistic activities are mixed. Evaluation – self-reflection, self- and peer assessment, portfolio-based.

Objectives of pre-service (physics) teacher education programme:

- to promote the development of a scientifically based and exploratory approach to the teaching job and of the preparedness for constant professional self-education;
- to promote the development of the teaching competencies required for the induction year and for working as a teacher of Physics;
- to promote the shaping of the competencies required of a primary or secondary school teacher of Physics, who has a high level of environmental awareness and an integrative grasp of science.

General outcomes of teacher education programme

By the end of studies prospective teacher:

- knows the basic concepts, theories and research methods of general, field and subject didactics, distinguishes among different educational paradigms and can assess critically the possibilities of their application;
- acts according to professional and ethical standards, participates in civil society;
- is competent to plan and manage the teaching process, design the learning environment, guide the learning process and support learning motivation;
- is capable of teamwork, also as head of the team involving different partners, such as learners, colleagues, other participants in the educational system;
- is able to use different teaching and scientific methods as well as educational technology tools in teaching and learning Physics, in analysis and design of the learning environment and in evaluation of the learners' development, knows different methods for passing on knowledge;
- knows how to integrate different Physics topics with other subjects taught at schools of general education, is able to find associations of fresh expertise with school curriculum, and the topics taught as well as with everyday life.

As said earlier – aims/objectives and outcomes reveal the core of intended curriculum. In outcomes we see ideal competent teacher. The implementation of curriculum takes place via teaching environment, subjects' nomenclature and syllabi. Table 3 gives general overview of modules and subjects, except electives.

Table 3

Teacher Professional Studies, MA, Tallinn University

Modules	Semester / ECTS			
	I	II	III	IV
General studies: science of education, psychological studies 30 ECTS	School and Teacher in Society / 3	Teacher as Leader and Councillor / 4	Science and Philosophy of Education / 4	
	Development and Learning / 3	Teacher as Researcher / 2		
	Learning Environment and its Creation / 4	Learners with Special Needs / 4		
		Elective related to Sciences of Education / 6		
Subject Didactics (major, minor) 15 ECTS major, elective – minimum		Subject Didactics I / 6	Subject Didactics II / 6	
			Subject Didactics III / 3	

required - 0			Elective Subject Didactics in Minor / 6	
Special Studies of /at the Subject Department 30 ECTS (11 compulsory + 19 electives)	Core subjects + minor	Core subjects + minor	Core subjects + minor	Core subjects + minor
Professional teaching practices / placement 15 ECTS major, (elective minor – minimum required –0)	Observation /preliminary practice / 3		Teaching practice in major I / 6	Teaching practice in major II / 6
				Teaching practice in minor / 3
				Teaching practice in minor /3
Electives 8 ECTS				
Master's Thesis 16 ECTS				Master's Thesis

Electives (8 ECTS):

Learning Game Design / 3 ECTS; Educational Technology In School / 4; Cultural history of Education / 4; Multicultural Learning Environment / 3; Qualitative and Quantitative Methods in Educational Studies / 3; Student with Learning and Behavioural Difficulties in the Classroom / 2.

Example 2. Teacher Professional Studies in University of Tartu

Professional studies of Teacher Training²⁰ are part of all the curriculum, where the teachers are taught. Since September 2013, content and structure of the module of professional study has been fully renovated: subjects and themes are increasingly integrated with each other; the amount of lectures decreased and the number of seminars and training sessions/practices increased; diversification of placements/practices, including constant pedagogical practice took place; all students undergo an intensive communicative training. The teacher professional studies curriculum is the result of intensive team work. Modules, subjects and main topics; aims and outcomes are interrelated. Teams are responsible for the quality and further development of curriculum.

Professional studies consist of three modules:

- . Basic module (24 ECTS),
- . Practice module (24 ECTS),
- . Didactics module (at least 12 ECTS).

All parts of professional studies, all subjects are linked to each other and to the practice/placement.

Base Module

Base module (24 ECTS) offers a practical approach to the output of the main topics needful for teachers. On completing the module, the student will be able to cope as a teacher in the school and is motivated for further learning. The module has been prepared based on the teacher's competences shown in professional standard. To increase the attractiveness and efficiency, the volume of seminars and practical part has increased significantly since 2013.

²⁰Translated and refereed by E-S Sarv from
<http://www.pedagogicum.ut.ee/et/opetajakoolitus/opetajakoolituse-kutseopingud>

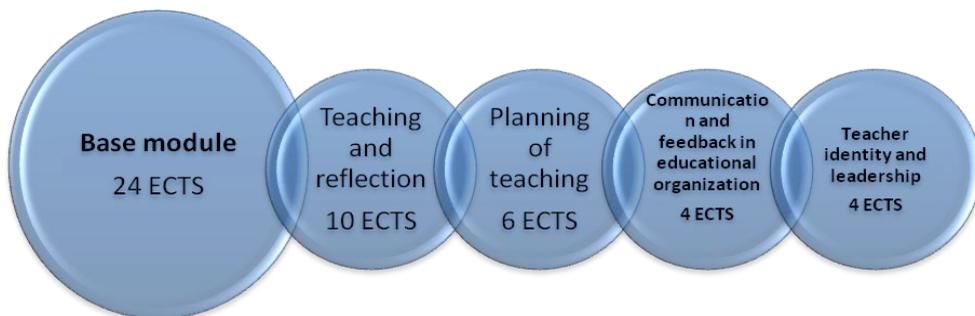


Figure 4. Teacher professional studies. University of Tartu. Base module.

Main topics represented in all or most courses/subjects of the base module are: professional ethics and identity, evidence-based approach, motivation of learning; communication, interpretation of curriculum, learner's special needs, assessment and feedback, contemporary learning environment and materials, development of learner, research methods, teacher identity and dilemmas. These topics are associated with the practice through tasks.

Student, having passed the module

- 1) is able to communicate under different circumstances, to shape students' communicative skills, while analyzing and practicing those skills him/herself;
- 2) is informed and understands main theories of learning and teaching (instruction), able to apply those theories into practice and reflect upon;
- 3) is able to design instruction, institutional development, and assessment, considering ICT options, legal environment, student's personality development, group dynamics, security and special needs;
- 4) is able to plan, conduct and supervise research, considering both ethics of social sciences as well as field-of-study related ethics;
- 5) is able to identify him/herself and act as a teacher, is informed about

teachers' code of practice (professional ethics).²¹

The base module subjects start in the autumn term at the beginning of professional studies and will take place for three consecutive semesters. In order to establish the links between theory and practice, in parallel with the base module subjects "Continuous teaching practice" takes place. Through the practice-related tasks, students link the contents of the base module and real life in educational organization.

The assessment content, forms and criteria are described on the module and subject syllabi. The achievement of the learning outcomes is assessed.

Didactics module

In the didactics module (12 ECTS) the field didactics and subject didactics are distinguished. On completing the module, the student will be able to cope at school as the subject teacher, and is motivated to learn further.

Practice module

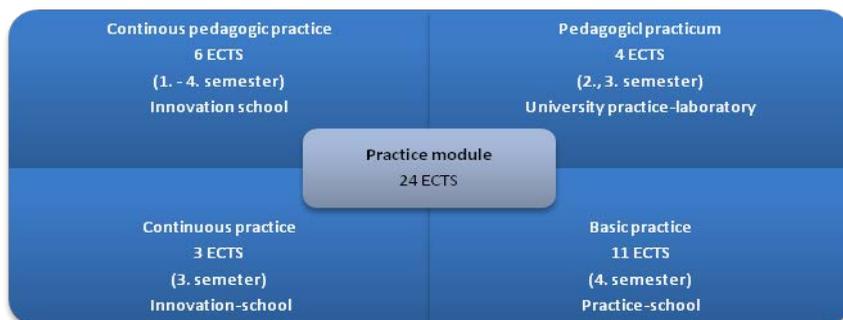


Figure 5. Teacher Professional studies. University of Tartu: Pedagogical practice/placement.

Practice module consists of four practice-subjects: pedagogical practicum in university practice-laboratory, continuous pedagogic practice and continuous practice in innovation-school, basic practice in practice-school. The aim of different practices is versatile support to student's learning in base and didactics modules. Practice is distributed among all the semesters.

²¹Look: <http://www.sh.ut.ee/et/teaduskond/alusmoodul>.

DISCUSSION

The teacher professional studies in universities have to lead to the same result – competent, responsible teacher who is ready for induction year and to achieve the professional standards (level 5, 6 or 7). In both universities, most subjects have Web-based support (Module, thematic e-learning objects). In TU open e-learning environment is used by some educators, that combine Wikis, blogs, Wordpress, Youtube or Facebook, Scribd, Dropbox, etc.). Nevertheless there are some differences. In UT some broad courses/subjects are taught by team (for example "Teaching and reflection", 10 ECTS). TU used deep and extensive team-work process of all involved in teaching academicians when curriculum was developed. The basic values, aims, outcomes, keywords, etc. have been negotiated and systemised. So the team is present in other ways.

There is the chance to compare the same programme (in general, having in mind UT and TU curricula) with the teacher preparation programme in 8 universities in Georgia. The following is based on two reports of INNOVE-UNICEF missions "Development of teacher pre-service training programmes in Georgia Universities" by E-S Sarv (2014) and E-S Sarv, K Krabi (2015).

The fundamental differences are in

- 1) Structure of a study process: In Georgia, lectures last 50 minutes (in Estonia – 90 minutes and often 2x90' is used, especially for group-work); semester is divided by obligatory assessment-weeks; all learning is face-to-face, e-learning is rarely used;
- 2) Imbalance of quality control and academic freedom of teaching staff : In Georgia, the quality assurance/management often means control over professors on contents, methods and time-use. In Estonia academic freedom means trust and responsibility, quality assurance uses students' feedback in education information system, quality of research publications, participation in and organisation of international conferences, etc.;
- 3) Learning environment, materials and methods to implement teacher professional studies curriculum: In Estonia, during 30 years of educational reform and 25 years of independence consistent development of learning environment has taken place. The centuries of national educational traditions, EU politics of and support for teachers initial education has allowed to create fully contemporary libraries (with rich literature, journals and online sources

in Estonian, English, Finnish, German, etc.), auditoria and laboratories, innovation centres. Free Wi-Fi in all university campuses has become natural. Cooperation in research, participation of TE staff in international organisations (like EERA) is rather easy due to existence of Estonian Academic Pedagogical Association, good level of English (and other foreign languages) among academic staff. The system of continuing education in higher school pedagogy and andragogy have supported the use of active methods and e-environments. All this allows high quality of curriculum implementation and achievement.

Georgia has very rich old culture, but the troubled decades of independence have not supported internationalisation and modernisation of teacher professional studies. Many teachers, especially in kindergarten, did not have higher education or had just professional preparation of 60 credits. Last decade, attempts were made to develop contemporary TE standards and curricula (professional training, BA, MA), and achievements are significant. Curricula make standardizing, knowledge, skills as goals and ways of their achievement, outcomes are described. The important difference lays in amount of, spectrum and quality of study materials in libraries as well as in the system of professional development and requirements to academic staff, use of contemporary teaching methods. So the intended, planned curricula may differ for implemented and achieved curricula in many cases.

CHALLENGES FOR INITIAL TEACHER TRAINING, UPCOMING CHANGES AND DEVELOPMENTS IN ESTONIA

Teacher initial education is under pressure of decreasing number of students, economic restrictions, change of academic generations, technological (media) revolution, and other factors.

Observing and analysing trends of changes in Estonian teacher education (as part of changes in education and society as a whole during last decade) the following becomes evident:

1. Disappearance of subjects/courses from a curriculum due to merge of smaller courses into bigger ones or curriculum optimisation. For example, 2-4 ECTS subjects like Introduction to philosophy of education, History of Estonian school/education was integrated into Introduction to science of education (TU). It usually means, that the content of previous courses

becomes marginal or vanishes. The change can be positive if the integration and further teaching are team-based.

2. Differences of the same TE programmes in two main universities are decreasing in some areas (research based, reflective study process in all TE) and increasing in others (for example, example philosophy of education, educational paradigms and alternatives are represented as subjects only in TU). This means that qualitative differences in "product" - young teachers - are generated. That is the important source for creative, innovative educational process and school-life.

3. Change of generation of academic staff sometimes means loss of professor-related subjects and methodologies. For example, subjects like Pedagogical ethics, History of educational cultures, School as learning and knowledge creative organization, Observation as cognition, Teacher's word and Voice, etc. and methods like extensive group-work in the form of educational or foresight rotator (ca 14 hours + after-seminat for 4 hours), fieldworks for philosophy, etc. are in danger as senior members retire and younger generation have other directions and skills. This means that knowledge base of TE institutions is changing, and the knowledge management in TE is rather weak, un-leaded.

4. The economic optimisation is threatening to concentrate the teacher education programmes so that, that there will be no parallel programmes in different universities. This means the unification of teacher initial education and loss of paradigmatic and methodological diversity as in learning experience of students so in research area of academics.

5. Last decade has revealed some important aspects implemented into teacher pre-service education (as electives or as topics in obligatory subjects). These are, first of all, value-education, gender-education, multicultural education and related competencies.

The upcoming changes and developments have several reasons. Some of them are visible, some follow from research .

1. The decreasing number of students (1. -12. grade) and their migration into the cities means the decrease of the number of classrooms and decrease of the work-load of teachers. Centre of political research Praxis has analysed the possible change in Estonian school numbers and location in 2020. Based on

the present birthrates, economic situation and migration, and the conventional criteria of school-network by the Ministry of Education and Research, the number of basic schools and the number of gymnasiums in 2020 will be reduced by one third. (Pöder, K et al, 2014, 4) This means change in work load and number of teachers, as well their migration.

2. The universities' vision on quality research, education process and academic staff development is contrary to the economic pressure. This leads to the reducing the number of curricula, and the disciplines, reducing the number of contact hours and elimination of high-cost methods of teaching. As result, teacher initial education may lose its quality and flexibility.

There is a tendency towards formation both, the more complex teacher education programmes and compact, effective pedagogical modules to serve needs/interests of students from various specialities (media, actors, economists, medical personnel, etc.).

Increasing plurality of sources of information has calls for new teacher competencies. Teacher needs to understand and analyse the children / student's knowledge and experience to be able to help the child develop and structure the existing chaos, to assess the veracity of the existing.

3. As all compulsory schools that have traditionally worked in Russian have to widen teaching of Estonian and have to teach 10. -12. grade curriculum in Estonian the teacher initial education needs to provide primary and secondary school teachers who are aware of language differences and able to support students with different mother-tongue.

4. Here follows the list of teacher education related problems extracted from development plans of Tallinn University and Estonian Education Forum, as well as from student group-projects in 2015.

- . There is the need to integrate sustainability and environmental studies in all levels of education, including teacher initial education/training.

Deepening and widening e-literacy, programming skills (introducing programming in primary school/lessons), robotics, etc. needs the appropriate introduction in teacher initial preparation as by content and skills so by methodology.

- . Preparing teachers for changing parenthood and teacher-parent relations is actual, as there are more pedagogically un-educated parents who break of

generations traditions in parenting.

- . Teacher-parent alienation is taking place (e-school, pseudo-liberal freedom, etc.), teachers do not have enough rights to influence family environment. This needs actions from teacher and parent NGOs to change law. From teacher education special attention is needed to prepare young teachers for family-therapy.
 - . De-culturation of teachers (marginality of knowledge body, absence of cultural “must”) is noticeable. It is not clear, that it means for pedagogical process in schools.
 - Lack of futures' views and aspirations affects teachers' coping and optimism.
5. Change of the educational environment, ICT gives wider opportunities for information, collaboration, continuous / lifelong learning as for teachers, so for students and academic staff.

Minister of Education recently announced the programme “All school studies digital by 2020”.²² The state is investing more than 40 million euros to ensure that by 2020 it will be possible, where desired, for all teaching and learning in schools to take place digitally. With the support of the investment, Estonian-language e-study materials will be developed and made more widely available and a gradual transition will be made to completely paper-free e-exams. This means new challenges for all teacher initial education. Digi-didactics have been developed and taught in universities. However, implementation of complex digital-teaching-learning means totally new approach to education and many unanswered questions about child development.

CONCLUSION

Teacher initial education in Estonia is well established during 25 years of independence and meets the needs of society. The planned, intended curricula is contemporary in their content and learning process. The competent, responsible and co-operative academic staff guarantee high quality of implemented and achieved curricula. Most syllabi in teacher initial education support development of responsible, competent, team-work and inquiry orientated and self-reflective teachers. Rapidly changing environment, culture, digital and media world as well as internationalisation of learning and cooperation in education is initiating continuous development of existing

²²Look: <https://www.hm.ee/en/news/minister-ligi-all-school-studies-digital-2020>

teacher education programmes and creation of new programmes, new teacher specialisation.

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Appendix 1. Initial teacher education, training in Estonia – programmes and institutions

UT – University of Tartu

TU – Tallinn University

EAMT – Estonian Academy of Music and Theater

EAA – Estonian Academy of Arts

TUT – Tallinn University of Technology

* TE programmes of university colleges are included under the name of university. Some programmes can be studied only in Open University or in cyclical learning or just in a stationary form, some – in different forms of study.

Teacher education programme	ECT/volume of BA or MA thesis, exam	Institutions*	Programme grants the right to teach students ages ...
Special Education	BA (180 ECT) + MA (120 ECT) specialisation	UT, TU	all
Special Education	MA	UT	all
Consultant in Special Education	MA (120)	TU	all
Early Years Teacher	BA (180)/6	UT	(0) - 7
Early Years Educator	MA (120)/24+6	UT	(0) - 7
Early Years Teacher in Multilingual Learning Environment	BA (180)/6	UT	(0) - 7
Early Childhood Education	BA, MA	TU	(0) - 7
Primary School Teacher*	BA+MA integrated studies (180+120)/ 6+24 UT, 16 TU	TU, UT	7-14
Education/Educational Science	BA (180)/6(to be	TU, UT	-

(Humanities or Natural Sciences)	followed by MA studies)		
Educational Science (Math and Sciences)	BA (180)/6(to be followed by MA studies)	UT	-
Teacher of natural and exact sciences in Basic School	MA (120)	TU	14-16
Teacher of Several Subjects in Basic School <ul style="list-style-type: none"> • Teacher of chemistry and biology in Basic School • Teacher of mathematics and physics in Basic School 	MA (120)	UT, TU	14-16
Teacher of Vocational Training	BA (180)/8	UT, UT+TUT	16 -
Vocational Pedagogy	BA (180), MA (120)	TU	16 -
Adult Education	BA (180), MA(120)	TU	adults
Educational Management	MA (120)/30	TU, UT	
Educational Sciences	MA (120)	TU, UT	
Leisure Time Manager-Teacher	professional higher education (240)/15 (Graduation paper or exam)	UT	all
Teacher of Arts	MA /20	EAA	7-19
Music pedagogy	MA	UT+EAMT	7-19
Instrumental-Pedagogy	Professional module (60)	EAMT	all
Humanities in Multilingual School	BA (180)/6	UT	
Physical Education and Sport	BA	UT	
Primary School Teacher in Multilingual School ²³	(BA)+MA integrated study	UT	7-14

²³Several specialities for teaching in 1st and 2nd School Stages may be obtained: Teacher of Estonian as a Second Language, Teacher of English as a Foreign

	(300) /Master's examinations (7+8 ECTS) or Master's Thesis (15 ECTS).		
Teacher of...	MA (120)/ 15-30 (UT), 16 (TU)		
... History and Civics	MA	UT, TU	14-19
... Estonian Language and Literature	MA (120)/15	UT, TU	14-19
... Estonian as a Foreign Language	MA (120)/15-30	UT, TU	7-19
... Arts, Handicraft and Home Economics	MA (120)/15-30	UT, TU	7-16
.... Mathematics and Informatics	MA (120)/15 Master's Exam in Subject and General Didactics	UT	14-19
... Secondary School Science (Physics Teacher, Chemistry Teacher, Biology Teacher, Geography Teacher)	MA (120)/15	UT	16-19
... Physical Education and Sport	MA (120)/15-30	UT, TU	7-19, and older
Religion pedagogy	Special arrangement in theology programme	UT	

Appendix 2. Initial teacher education. Primary school teacher (TU).

General aims of programme:

- To create opportunities for the development of an ethical and active teacher;
- To form the readiness to develop pupils with different needs and personal characteristics;
- To support the formation of pedagogical-psychological, subject and subject didactical competence;

Language, Language Immersion Teacher, Primary School Teacher in Multilingual School, Teacher of Remedial Learning, Social Educator.

- To develop the readiness to cooperate with colleagues and parents;
- To develop the readiness for self-development and continuous learning.

General outcomes. Graduate:

- understands knowledge in child development and learning, is able to use this knowledge to support pupils with different abilities and personal characteristics;
- can plan a study activity and analyse it pursuant to the established objectives;
- can manage, as a class teacher, a learning process in the I and II school stage;
- can manage a learning process until the end of compulsory school in one selected subject (minor);
- can develop a motivating learning environment for pupils;
- is capable of cooperating with colleagues and parents;
- can design, analyse and reflect professional development as a pedagogue.

Programme consists following modules: Introductory courses, Creativity-Related Subjects and Didactics, Study of Education and Psychology, Study of Subjects, Study of Subjects-Specific Didactics, The English Language Teacher, Professional Placement, Electives, Master thesis.²⁴

Module: Introductory courses (45 ECTS)

Required courses (22 ECTS): Students with Special Needs, Education in Estonian Culture, Educational Science and Philosophy, Overview of Psychology, Social Psychology

Electives (37 ECTS, at least 23 ECTS): Estonian Writing Skills, Creativity as Component of Education and Upbringing, Studying at University, Educational Technology, Child and Adolescent Development and Developmental Theories, Introduction to Educational Research, Educational Sociology and Politics, Learning in Adulthood, Andragogy.

MODULE: Creativity-Related Subjects and Didactics (22 ECTS).

Required courses (12 ECTS): Handicraft's Theory and General Didactics, Theory and Didactics of Art Studies, Theory of Physical Education and Didactics, Theory and General Didactics of Musical Education.

Electives (at least 10 ECTS): Handicraft's Theory and Didactics in Classes 1-3, Theory and General Didactics of Art in Classes 1-3, Theory and General

²⁴Look tabel 1.

Didactics of Physical Education in Classes 1-3, Theory and General Didactics of Musical Education in Classes 1-3.

MODULE: Study of Education and Psychology (51 ECTS).

Objectives. Develop a theoretical and experiential base for understanding the peculiarities related to child learning and development, acquire primary knowledge and skills for research; Develop critical thinking and the ability of self-analysis; Identify oneself as a future teacher, a subject of educational sciences and teacher education.

Learning outcomes. Is able to analyse child development and the factors that influence it; Knows how to create a favourable learning environment in classroom; Cooperates with students, colleagues and parents; Conducts pedagogical research; Is able to critically evaluate his/h er ability to support child development.

Required courses (40 ECTS): Teaching of Speech and Drama, Design and Development of Curricula, Proseminar, Research Paper, Basic Research Methods, Research Seminar, School Pedagogy and School Management, Basics of Didactics, Pedagogical History and Ethics, Awareness of and Influencing Child Development.

Electives (at least 11 ECTS): Pedagogical Communication, Specific Learning Disorders, Multicultural Learning Environment, Leisure Time Activities, Media Education, subjectivity in Outdoor Education, Language Immersion in Preschool and at the First Stage of School.

MODULE: Study of Subjects (37 ECTS).

Objectives. Develop subject-related competence in mother tongue, mathematics and natural sciences to enable the teaching of these subjects at the two first school levels (grades 1-6).

Learning outcomes. Knows the general principles of didactics; Has acquired subject-related skills in mother tongue, mathematics and natural sciences; Is able to connect subject -related knowledge with the requirements established in the national syllabus; Can connect subject -related knowledge with practical activity.

Required courses (37 ECTS): Estonian I, Mathematics I, Estonian Language II, Mathematics II, Geometry in Basic School, Elementary Mathematics in Basic School, Inanimate Natural Environment, History and Society, Living Nature.

Module: Study of Subjects-Specific Didactics (37 ECTS).

Objectives. Develop professional skills of future teachers and facilitate the

ability of self-analysis.

Learning outcomes. Has knowledge of the didactics of different subjects and their correlation; Can plan study activity; Can apply teaching methods that motivate students; Is able to relate the objectives and content of teaching in different subjects with the syllabus of general schools.

Required courses (37 ECTS): Children's Literature and Reading Programmes, Didactics of Mother Tongue I, Didactics of Mathematics I, People Studies, Science Didactic, General Geography and Didactics, Didactics of Mother Tongue II, Didactics of Mathematics II, Didactics of History.

Module: The English Language Teacher (54 ECTS).

Required courses (54 ECTS): Linguistic Analysis of Texts I, Linguistic Analysis of Texts II, Practical English Grammar: Morphology, Practical English Grammar: Syntax, Integrated Skills, Practical Phonetics, British Society and Culture, Society and Culture of English Speaking Countries, Critical Reading, Didactics of English, Didactics of English II, English Teacher Practice, Progressive Writing Skills.

MODULE: Professional Placement (27 ECTS).

Objectives. The aim of professional placement is to develop the student's ability of self-analysis and professional skills by applying the knowledge of child development and learning as well as pursuing the professional skills established in the professional standard.

Learning outcomes. Designs the study environment; Motivates students of different levels and with different behaviours; able to analyse the learning process and student development; Critically analyses his/her activity; Is able to do teamwork.

Required courses (27 ECTS): Introductory Practice to the Teacher Profession, Basic Teaching Practice in grades 4-6, Natural Sciences - Outdoor Works, Child as a First Class Student, Basic Teaching Practice in grades 1-3.

MODULE: Electives 12.0 ECTS

Objectives. Provide wider freedom of choice in the following options: Realization of individual development needs and special interests within open electives; Develop proficiency of a foreign language for students in daytime studies at B2 level of the Common European Framework of References for Foreign Languages, and for periodic learning students at B1 level of the Common European Framework of References for Foreign Languages; Acquire the computer skills necessary for studies Acquire the

necessary didactical and practical knowledge and skills for teaching a minor specialisation.

Learning outcomes. Has knowledge and skills in freely selected subjects; Has the computer skill necessary for university study; Masters one foreign language in daytime studies at B2 level of the Common European Framework of References for Foreign Languages and in periodic studies at B1 level of the Common European Framework of References for Foreign Languages; The graduates of Russian language general schools master Estonian at C1 level.

MODULE: Master's Thesis 16.0 ECTS

Objectives. Create opportunities for conducting educational research and writing academic text as well as develop the theoretical base and experiences for professional work.

Learning outcomes. Has in-depth knowledge of working with specialised academic literature; Sees a research problem and ways of solving it; Can use different research methods; Is able to perform data analysis; Can write academic text; Has in-depth knowledge of student development and the general regularities of learning and peculiarities arising from age, gender and the individuality of students.

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