

# DECODE



## QUALITY FRAMEWORK FOR INTEGRATING ICT IN THE TEACHING-LEARNING PROCESS

**Innovative training models, methods and tools for teachers  
in the digital age**

**National report - Finland**

Authors: Sirje Hassinen & Anssi Kuisma



**Erasmus+**

DECODE: 2016-1-IT02-KA201-024234

Co-funded by the Erasmus+ Programme of the European Union



## TABLE OF CONTENTS

---

1. INTRODUCTION
2. OPPORTUNITIES AND CONSTRAINTS AT NATIONAL LEVEL REGARDING THE ICT-BASED EDUCATION
  - 2.1 Official provision
  - 2.2 Important documents
3. FURTHER OPPORTUNITIES FOR INTEGRATING ICT IN THE CURRICULUM
4. HOW ICT IS INTEGRATED IN THE EDUCATIONAL PRACTICES
5. EXEMPLIFICATION OF USES OF RELEVANT RESOURCES
6. RECOMMENDATIONS FOR EFFECTIVE INTEGRATION OF ICT IN THE TEACHING AND LEARNING PROCESSES
7. TEACHER TRAINING FOR ICT
8. OFFICIAL QUALITY ASSURANCE AND EVALUATION TOOLS AND PROCEDURES AT NATIONAL LEVEL
9. CONCLUSIONS
10. ANNEXES

**(Proposed National model for a School action plan, Tools for quality assurance and evaluation)**



## 1. Introduction

Finnish national report aims to identify *innovative training models, methods and tools for teachers in the digital age*. The main object of the report is identifying local situation, teachers' skills and competences and good or best practices of digitalization. The report describes training models and successful methodologies to integrate into the school staff digital, methodological and socio-relational skills requested by digital era.

For this report different national documents included laws and regulations for educations, strategies, curricula, recommendations for quality assessment were analysed. Also five key actors from Finland were interviewed: Ms. Sanna Brauer, Senior Lecturer, Vocational teacher education, Oulu University of Applied Sciences; Mr. Tero Huttunen, Manager of development, Division for General Education and Early Childhood Education, Ministry of Education and Culture; Mr. Tomi Kivelä, Manager of development, Department for Vocational Education and Training, Ministry of Education and Culture, Mr. Esko Lius, Key Expert in Digital Learning, Development service unit, Omnia and Mr. Teemu Vepsäläinen, Lecturer, Mechanical engineering, Tavastia Education Consortium.

Chapter 2 will give general description of the official documents handling digital skills and education in Finland. The basic right to education is recorded in the Constitution of Finland. Parliament and the Government define education policy. In addition to educational legislation, these policy definitions are specified in various development documents and in the state budget.

Trends, general regulations and guidelines for the education at national level are given for the following five calendar years 2016–2020 in 'Development Plan for Education within the Administrative Field of the Ministry of Education and University Research' (KESU) by the Finnish Government. Finnish government implements the general development of digital era by the action plan of government 2016.

A framework of the main national laws, regulations and legislative funding programs lay down the general national objectives and knowledges distribution of early childhood, pre-primary, comprehensive, general upper secondary and vocational upper secondary education, as well competence requirements for staff and general lines for organizing education and training in Finland. There are some major reforms and key projects, though, in the field of education that include furthering and development of ICT, described in the chapter 2.

Chapter 3 analyses how the ICT and digitalization are integrated in the curriculum. The Finnish National Agency for Education drafts the national core curriculum and qualification requirements for early childhood education and care, pre-primary, basic, general and vocational upper secondary education as well as for adult education and training in accordance with applicable legislation and in co-operation with stakeholders. Basically, ICT is integrated in the curriculum on different educational levels in Finland. The skills what are pointed in curriculum, are multiliteracy, digital literacy and ICT skills

Chapter 4 present best practices of the ICT integration in the educational practices. Some good practices (using iPhones and Ipads, Siri, teaching mathematic without books, experimentation of virtual reality tools and applications, Operation World Heritage, Gamification for studying the basics of music, Guild Schools etc.) are collected on the pages of Finnish National Board of Education as Best practices.

Chapter 5 discusses about some relevant resources for teaching, managerial purposes and indicate their value and how they are used.



Chapter 6 addresses the recommendations and development ideas of the interviewees and other experts in education.

Chapter 7 presents teacher training and opportunities for ICT, clarifies how initial and continuous teacher training is done in the country, provide a Classification of the profiles and skills of the operators of educational institutions in the field of ICT. The eligibility of teachers in Finland is set out in the Regulation. In addition to the other eligibility criteria, teachers' teaching assignments require 60 credit points of pedagogical studies.

Chapter 8 describes the quality assurance system and evaluation tools in Finland. The current quality assurance system in Finland comprises the quality management of education providers, the national steering of VET and external evaluation.

Chapter 9 summarises the main findings and setting for the integration of ICT.

## 2. Opportunities and constraints at national level regarding the ICT-based education

### 2.1 Official provision

Digitalisation is a new term in Finnish education system. Most used term is information and communication technology ('TVT'). During last years there are new fields included multiliteracy and social media in education. Digitalisation is understood as system change and management of operational culture to enable new activities. Informational technology includes data processing and automation, informational and communication technic (Finnish 'TVT') means more devices and technical equipment (IO2, Pohjolainen and Silander). Practical use of these terms varies from wider ('TVT') to narrower (differentiation between ICT and digitalization).

According to digitalization in EU, Finnish government implements the general development of digital era by the action plan of government 2016. Finnish government have taken five strategic priorities in the Government Programme to bring the Finnish economy onto a path of sustainable growth and higher employment and to safeguard sufficient financial resources for public services and social protection. These priorities are materialized in the 26 different key projects. One of the strategic priorities is digitalization. This programme will implemented during 2015–2019 in educational sector during different key project, for example 'New learning environments and digital materials to comprehensive schools'.

The basic right to education is recorded in the Constitution of Finland<sup>1</sup>: legislation provides for compulsory education and the right to free pre-primary and basic education. The legislation governing primary and secondary level education, as well as part of the legislation governing adult education was reformed on 1st January 1999. The education system has remained unchanged, but the new legislation has substantially increased the independent decision-making powers of the local authorities, other education providers and schools.<sup>2</sup>

The national administration of education and training has a two-tier structure in Finland. The Ministry of Education and Culture is the highest authority and is responsible for the strategic and normative steering of

---

<sup>1</sup> <http://www.finlex.fi/en/>

<sup>2</sup> [http://www.oph.fi/english/education\\_system\\_education\\_policy](http://www.oph.fi/english/education_system_education_policy)



education and all publicly funded education in Finland. The Ministry is responsible for preparing educational legislation, all necessary decisions and its share of the state budget for the Government. For the purposes of organizing education and training, the Ministry grants authorizations to education providers for provision of education and training, determining the fields of education in which they are allowed to organize education and that of their total student numbers. There are several expert bodies supporting the work of the Ministry. Usually social partners are represented in these bodies.

The Finnish National Agency for Education is the national development agency responsible for early childhood education and care, pre-primary, basic, general and vocational upper secondary education as well as for adult education and training. FNAE drafts the national core curriculum and qualification requirements in accordance with applicable legislation and in co-operation with stakeholders. Higher education is the responsibility of the Ministry of Education and Culture.

Parliament and the Government define education policy. In addition to educational legislation, these policy definitions are specified in various development documents and in the state budget. A central development document in the educational sector is the 'Development Plan for Education within the Administrative Field of the Ministry of Education and University Research' (KESU<sup>3</sup>), which the Government approves every four years for the year of its approval and for the following five calendar years. KESU 2016–2020 gives general regulations and guidelines for education:

- acts, decrees and regulations for education
- the basics of curricula and qualifications
- general guidelines and recommendations
- instructions on the internationality of education
- quality management guidelines
- instructions on safety and student care
- instructions on co-operation between training providers.

According KESU Finland will be one of the top countries of education, skills and modern learning on 2025. KESU 2016–2020 aim to develop of education and digitalization in Finland<sup>4</sup>: “Learning environments have been modernized, digitalization and new pedagogical opportunities are utilized in learning”.

According to Learning and Competence 2025 – Strategy of the Finnish National Board of Education (2015) EDUFI promotes increasing the use of information and communications technology in education and works toward establishing a national partnership between educational administration, education providers, the business sector and organisations for finding ways to accelerate the implementation of digital infrastructures and learning environments as well as their use in teaching.<sup>5</sup>

<sup>3</sup> <http://valtioneuvosto.fi/haku/-/q/koulutuksen%20ja%20tutkimuksen%20kehitt%C3%A4missuunnitelma%202016-2020>

<sup>4</sup> <http://valtioneuvosto.fi/haku/-/q/koulutuksen%20ja%20tutkimuksen%20kehitt%C3%A4missuunnitelma%202016-2020>, p. 25

<sup>5</sup> Learning and Competence 2025 – Strategy of the Finnish National Board of Education. FNBE 2015:

164907\_learning\_and\_competence\_2025\_finnish\_national\_board\_of\_education.



There are no specific laws regarding ICTs in education. There are some major reforms and key projects, though, in the field of education that include furthering and development of ICT. Provisions on the Finnish National Qualifications Framework (NQF) are laid down in an Act and Government Decree on the National Framework for Qualifications and Other Competence Modules (93/2017, 2 §:n 2) and entered into force from 1 March 2017. The Finnish NQF based on EQF and classified qualifications, syllabi and other extensive competence modules of the Finnish education and qualifications system into eight levels based on requirements.

The new comprehensive school –program (Uusi peruskoulu –ohjelma, OKM 2016)<sup>6</sup> aim to reorganize the working culture of schools through tutor-teachers and networks. A tutor is a teacher who directs other teachers to digital appropriate exploitation. Tutor-teachers support new pedagogy and promote digitalisation of teaching. Goal of the program is to have at least one tutor-teacher to each comprehensive school. Finnish government will give 7,5 millions euros for training 2500 tutor-teachers.

The Finnish National Agency for Education expects to support education providers by help of tutors to disseminate and implement ICT and digital knowledge, and deepening teachers' cooperation. The new tutor-model allows implementation and deployment of a new one pedagogics and good practices. Tutor teachers will networking with those who are doing the same job, and are working accompanied by students.

The education provider supports the development of the school culture where tutor teachers will be part of the basic activities of schools. Dissemination of the tutorial (digital) skills will be collected and documented in the development plan of the education provider. The implementation of the development plan will be monitored.<sup>7</sup>

Digitalisation is one of the evaluation themes of the National evaluation center for education KARVI (Koulutuksen arviointisuunnitelma vuosille 2016 – 2019)<sup>8</sup>.

## Important documents

Followed laws and regulations lay down the general national objectives and knowledges distribution of early childhood, pre-primary, comprehensive, general upper secondary and vocational upper secondary education, as well competence requirements for staff and general lines for organizing education and training in Finland:

Constitution of Finland: <http://www.finlex.fi/en/>

Regulation about the required education and competences of principals and teachers, as well as other staff in schools: [14.12.1998/986 Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista](http://www.finlex.fi/ajankohtaista/verkkouutiset/101/0/2500_tutoropettajaa_digiloikan_valmentajiksi)

Act on Early Childhood Education: [Varhaiskasvatuslaki \(36/1973\)](http://www.finlex.fi/ajankohtaista/verkkouutiset/101/0/2500_tutoropettajaa_digiloikan_valmentajiksi)

Decree on children's' day care: [Asetus lasten päivähoidosta \(239/1973\)](http://www.finlex.fi/ajankohtaista/verkkouutiset/101/0/2500_tutoropettajaa_digiloikan_valmentajiksi)

---

<sup>6</sup> <http://minedu.fi/uusiperuskoulu>

<sup>7</sup> [http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/2500\\_tutoropettajaa\\_digiloikan\\_valmentajiksi](http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/2500_tutoropettajaa_digiloikan_valmentajiksi)

<sup>8</sup> [https://karvi.fi/app/.../2016/.../KARVI\\_koulutuksen\\_arviointisuunnitelma\\_2016-2019...](https://karvi.fi/app/.../2016/.../KARVI_koulutuksen_arviointisuunnitelma_2016-2019...)



Decree on Eligibility Requirements for Educational Personnel: [Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista \(986/1998\)](#)

Act on Basic Education: [Perusopetuslaki \(628/1998\)](#)

Government Decree on the National Objectives of Education and the lesson distribution based on the Basic education act: [Valtioneuvoston asetus perusopetuslaissa tarkoitetun opetuksen valtakunnallisista tavoitteista ja perusopetuksen tuntijaosta \(422/2012\)](#)

Government Decree on the National Objectives of Education and the lesson distribution based on the Basic education act: [Valtioneuvoston asetus perusopetuslaissa tarkoitetun opetuksen valtakunnallisista tavoitteista ja perusopetuksen tuntijaosta \(1435/2001\)](#) (started before 2012)

Act on General Upper Secondary Schools: [21.8.1998/629 Lukiolaki](#)

Government Decree on the National Objectives of Education and the lesson distribution based on the General Upper Secondary Schools act: [Valtioneuvoston asetus lukiolaissa tarkoitetun koulutuksen yleisistä valtakunnallisista tavoitteista ja tuntijaosta \(942/2014\)](#)

Government Decree on the National Objectives of Education and the lesson distribution based on the General Upper Secondary Schools act: [Valtioneuvoston asetus lukiokoulutuksen yleisistä valtakunnallisista tavoitteista ja tuntijaosta \(955/2002\)](#) (started before 1.8.2016)

Act on Vocational Education: [Laki ammatillisesta peruskoulutuksesta \(630/1998\)](#)

Decree on Vocational Basic Education: [Asetus ammatillisesta peruskoulutuksesta \(811/1998\)](#)

Government Decree on the Establishment of a Vocational Qualification: [Valtioneuvoston asetus ammatillisen perustutkinnon muodostumisesta \(801/2014\)](#)

Act on Vocational Adult Education: [Laki ammatillisesta aikuiskoulutuksesta \(631/1998\)](#)

Decree on Vocational Adult Education: [Asetus ammatillisesta aikuiskoulutuksesta \(812/1998\)](#)

Decree of the Ministry of Education and Culture on the qualification structure for vocational education and training: [Opetus- ja kulttuuriministeriön asetuksessa ammatillisen koulutuksen tutkintorakenteesta \(835/2014\)](#)

Act on University of Applied Sciences: [14.11.2014/932 Ammattikorkeakoululaki](#)

Government Decree on University of Applied Sciences: [18.12.2014/1129 Valtioneuvoston asetus ammattikorkeakouluista](#)

### 3. Further opportunities for integrating ICT in the Curriculum

ICT is integrated in the curriculum on different educational levels in Finland.





National Core Curriculum for Early Childhood Education and Care 2016<sup>9</sup> (VASU 2016 in Finnish) is a national regulation issued by the Finnish National Agency for Education. According to the VASU<sup>10</sup> early childhood education has to support developing of **multiliteracy, digital literacy and ICT skills** as the basic skills to promote the children's educational equality. Role of the teachers is to direct the children to information for the versatile and safe use of ICT. **Media education** has to support the children's ability to act actively and express themselves in their community. ICT and media education will treat with children using learning-by-playing method, for example, during sports games, drawing or drama.

With children will explore and observe followed subjects:

- the role of ICT in everyday life
- getting familiar with various ICT tools, applications and games
- using of digital documentation in play, exploration, movement, artistic experience and production.
- experimenting to produce content by using ICT yourself and together with other children.
- getting to know the different media and experimenting with media production in leisurely safe environments
- guiding and practicing developing source and media criticism
- analyzing media content and its realities related to children's life
- guiding children to use the media responsibly taking into account the well-being of one's own and others.

The National Core Curriculum for Pre-primary Education<sup>11</sup> describes **multiliteracy, digital literacy and ICT skills** on general level and promotes them as essential basic skills in the perspective of the learning, individual, interaction between people, society, citizenship and working life. Multiliteracy skills involve a broad understanding of texts, both written, spoken, **audiovisual or digital texts**. The role of pre-primary education is to support the development of children's multiliteracy skills in co-operation with caregivers. The ICT skills are part of the digital literacy and the media and learning skills needed for studying and working life. The role of pre-primary education alongside the home is to promote children's ICT skills.

Pre-primary education integrates ICT in an appropriate manner. During lessons will be **introduced various ICT tools, services and games**. Through ICT will supported the children's interaction skills, learning skills, and gradually developing literacy and literacy. Opportunities to experiment and produce themselves promote the creative thinking and collaboration skills of children.

<sup>9</sup> <https://www.ellibs.com/fi/book/9789521363290/national-core-curriculum-for-early-childhood-education-and-care-2016>

<sup>10</sup> [www.oph.fi/download/179349\\_varhaiskasvatussuunnitelman\\_perusteet\\_2016.pdf](http://www.oph.fi/download/179349_varhaiskasvatussuunnitelman_perusteet_2016.pdf), 23 – 24, 44 - 45

<sup>11</sup> <https://www.ellibs.com/fi/book/9789521362620/national-core-curriculum-for-pre-primary-education-2014>





The new national curricula for compulsory basic education is implemented in all municipalities and schools as of 1 August 2016. According the curriculum reform the general aims for the new curriculum are<sup>12</sup>:

- enhancing pupil participation, increasing the meaningfulness of study and making it possible for each and every pupil to experience success,
- developing operating methods in order to increase the pupils' interest in learning and motivation to learn
- developing the learning environments and work methods to more inspire learning by learning outside the classroom and by using technology
- promoting transversal competence skills include thinking and learning-to-learn, interaction and expression skills, and multiliteracy, which is the ability to produce and interpret variety of different texts, ICT competence
- familiarisation with the **fundamentals of programming**: programming has been integrated in the curriculum as part of the objectives set for mathematics

According the core curriculum for basic education 2014<sup>13</sup> opportunities for pupils to develop their information and communication technology skills have been improved in all subjects, with technology being included more in instruction and study. The core curriculum (§3.3) describes the seven broad-based knowledge sets and justify their significance: L1 Thinking and learning-to-learn, L2 Cultural competence, interaction and self-expression, L3 Managing daily life and taking care of oneself, L4 Multiliteracy, L5 ICT competence, L6 Working life competence and entrepreneurship, L7 Participation, involvement and building a sustainable future.

Learning environments are described on followed way §4.3<sup>14</sup>: "ICT is a key part of versatile learning environments. It can help to reinforce the pupils' participation and skills in communal work and support their personal learning paths. The diverse media culture is taken into consideration in the development of learning environments. New ICT solutions are introduced to promote and support learning. /---/ At the same time, it must be ensured that all pupils have possibilities for using information and communication technology." "Diverse and appropriate use of ICT expands the pupils' possibilities for developing their working approaches and networking. skills. This builds their capabilities for independent, interactive and critical acquisition and processing of information and its creative production. The possibilities offered by games and gameful learning are exploited in the selection of working methods." There pointed that possibilities of using ICT and giving oral demonstrations of knowledge and skills are also ensured where necessary.

According the regulation for distance learning (§5.4)<sup>15</sup> it have to be used in basic education to complement the instruction and to offer versatile opportunities for studying different subjects for examples in less common languages and religions and optional subjects. Distance learning promotes the pupils' equal access to versatile basic education regardless of the size or location of the school. It may be relied upon to respond to the pupils' individual needs.

<sup>12</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/basic\\_education](http://www.oph.fi/english/curricula_and_qualifications/basic_education)

<sup>13</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/basic\\_education](http://www.oph.fi/english/curricula_and_qualifications/basic_education)

<sup>14</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/basic\\_education](http://www.oph.fi/english/curricula_and_qualifications/basic_education) , 53 - 54

<sup>15</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/basic\\_education](http://www.oph.fi/english/curricula_and_qualifications/basic_education), 73



Aims of multiliteracy on the grades 1 – 2 (§13.2) are to guide pupils to develop their multiliteracy by giving them opportunities to interpret, produce, and evaluate different kinds of age-appropriate texts, to find information from different sources and communicating it to others and to guide to protective support in media use. Aims for ICT competences on the grades 1 – 2 are to practice basic ICT skills, learn to use them in studies, learn related key concepts, different applications and uses of ICT in their surroundings and the importance of ICT in daily life. Practical skills and personal production aim:

- to practice using devices, software, and services and learn their key use and operating principles
- to practice keyboard skills and other basic text production and processing skills
- to gain and share experiences of working with digital media
- to gain experiences of age-appropriate programming tasks
- to use gamification to promote learning
- to train search for safe ways of using ICT and the related etiquette
- to guide the pupils to use key search engines, try different tools, and complete small assignments of acquiring information on different topics and matters of personal interest
- to gain experience in using social networking services that support learning as well as practice using ICT in different interactive situation.

Aims of multiliteracy on the grades 3–6 (§14.2) are to utilize ICT diversely in various subjects and other school work, reinforcing collaborative learning:

- to learn to use different devices, software, and services and to understand the logic of their use and operation
- to practice producing and processing texts fluently using different tools and learn about working with image, sound, video and animation
- to try programming and have understanding how decisions made by people affect the way technology works
- to train responsible and safe use of ICT, good manners, and knowing basic copyright principles
- to practice using various communication systems and educational social media services
- to train information management and inquiry-based and creative work by finding information in several different sources by using search engines; by using sources to produce information and to practice evaluating information critically
- to seek modes of expression that are suitable for them as well as to use ICT in documenting and assessing their working process and products
- to discuss and assess the role of ICT as a means of involvement
- to using ICT in interaction with actors outside the school, also in international contexts.



Aims of multiliteracy on the grades 7–9 (§15.2) are to use of ICT as an integral part of the learning and the school community's learning as well to utilize ICT in studying different subjects, in later studies and working life, and in societal activities and involvement:

- to reflect on the significance of ICT in the society and its effects on sustainable development during working on different learning tasks
- to encourage pupils to use their multiliteracy when participating and being involved in their own surroundings, the media and the society
- to develop media literacy by being involved in and working with various media
- to encourage pupils to utilize ICT independently in different learning assignments and guide in the selection of working approaches and devices appropriate for different tasks
- to systematize, organize and share files and producing different digital products independently and together with others
- to practice programming as a part of the studies of different subjects
- to train responsible and safe use of ICT by using ICT ethically sustainable, to protect themselves from possible information security risks and to avoid losing data
- to guide pupils towards responsible activities by reflection on the meaning of the concepts of information protection and copyrights and the potential repercussions of irresponsible and illegal activities
- to guide pupils to seek and produce information diversely and to use sources of information in versatile ways as a foundation for exploratory and creative work
- to practice source criticism and evaluate the way of work and produce information by different search engines and databases
- to using social media services and experiencing the importance of cooperation and interaction for learning, exploratory work, and creativity during teaching and learning
- to guide pupils to find suitable communication channels and styles for different uses, as well in the global world level.

The National Core Curriculum for General Upper Secondary Schools 2015<sup>16</sup> (both for young and adult students) lines ICT in the §3.2 Learning environments and methods. Students are guided to utilize digital learning environments, learning materials, and tools to acquire and evaluate information presented in a variety of forms, as well as to generate and share new information. Students are responsible for the purchase of tools, equipment and materials for personal study purposes, unless the training provider provides them. Distance learning opportunity are offered as one learning method and path. This will support students' individual progress and personal learning pathway. Schools will support the development of online learning skills of students.

<sup>16</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/general\\_upper\\_secondary\\_education](http://www.oph.fi/english/curricula_and_qualifications/general_upper_secondary_education)



The distance learning course consists of a self-directed study guided by the teacher and uses a variety of information networks and other information and communication technologies. Distance learning also seeks to use community methods of work. The course can also be organised by using of different methods, including both face-to-face (classroom) teaching and guiding as well online distance learning learning and teaching.

ICT and multiliteracy are integrated to common general subject entities (§5.2):

- Active citizenship, entrepreneurship and working life
- Welfare and safety
- Sustainable lifestyle and global responsibility
- knowledge of cultures and internationality
- Multiliteracy and media
- Technology and society

Aims for Multiliteracy and media are: to deep interaction skills and being involved by developing their own and shared media production in different communication channels and by using different tools; to become acquainted with media critique and know the general norms and regulations of copyright and freedom of speech, to be able to analyze ethical and aesthetic issues related to media, be able to use multiliteracy skills and media in self-expression and interaction and to act responsibly as a content producer, user, and sharer.

Finnish National Board of Education gives the requirements for Vocational Qualifications in Finland<sup>17</sup>. The ICT skills and competences are described in all requirements in the session of Key competences for lifelong learning, are integrated to vocational skills and are included in the objectives of the requirements of vocational qualification modules and their assessment criteria.

The key competences for lifelong learning based on 2005/0221 (COD) made by the European Union Parliament and the Commission:

1. Learning and problem solving
2. Interaction and cooperation
3. Vocational ethics
4. Health, safety and ability to function
5. Initiative and entrepreneurship
6. Sustainable development
7. Aesthetics
8. Communication and media skills
9. Mathematics and natural sciences
10. Technology and information technology
11. Active citizenship and different cultures

<sup>17</sup> [http://www.oph.fi/english/curricula\\_and\\_qualifications/vocational\\_upper\\_secondary\\_education](http://www.oph.fi/english/curricula_and_qualifications/vocational_upper_secondary_education)



These key competences increase the vocational civilisation and civic readiness needed in all fields and help the students or candidates to keep up with the changes in society and working life as well as to act under changing conditions. The key competences for lifelong learning are taken to mean such competence as is needed in continuous learning, in seizing future and new situations as well as in coping with the changing working life environment, and influences an individual's intellectual flexibility and ability to manage different situations.

Communication and media skills aim to show the skills to observe, interpret and assess different media products critically as well to use the media and information technology, and to produce media material. ICT skills aim to make versatile use of computer technology as a professional and a citizen.

---

#### 4. How ICT is integrated in the educational practices

##### a. Vocation exercises using the Siri function

Ipad and iphone have the basic function called Siri, which changes the spoken voice to writing. A language student can use Siri to compare whether the pronunciation is correct. When that is the case, the text on the device screen corresponds to the original text. App is in use e.g. in Luostarivuoren lukio in Turku (general upper secondary).

<https://hyvatkaytannot.oph.fi/kaytanto/1920/?q=b99df39828f876963084fa3f6f86c2da#>

##### b. Teaching Mathematics without books

Especially in maths, pupils' learning rhythms differ significantly. Often when using a textbook, there is a pressure that all things in the book should be taught, even though not all the contents are mentioned in the curriculum. This makes the timetable tight and it feels that there is too little time for the weighted issues in the curriculum or there is not much to learn. Teachers thought that this dilemma could be solved by differentiating learning and using laptops.

Pupils are divided into four groups according to teachers' assessment based on the learning style. Lessons often begin with checking of homework and a common teaching term. With quick learners matters shall be reviewed at a faster pace and with other groups more thoroughly, things concretely illustrating. After the tutoring session, it follows the stage of self-employment, whether through computer, concrete tools, or booklet work. At times, pupils can choose whether they want to rethink the lessons learned or to work with "extra" content outside the curriculum. There also a lot of pair work during lessons.

The e-learning platform (Fronter) contains the instructions for the math section on its own page. The site contains also additional tasks related to the same period, many of which were game-like. The links will open



the instructions for each lesson. Lesson-related tutorials include hours related exercises, homework assignments, and homework assignments.

The chosen working methods have enabled an efficient and discreetly unobtrusive way to differentiate both up and down. Students are accustomed to the fact that not all students may do the same tasks during the lesson. The group capable of working independently without adult guidance, has made the teacher resource more accessible to those in need. Method is in use at least in Veromäen koulu in Vantaa (primary and lower secondary).

<https://hyvatkaytannot.oph.fi/kaytanto/1519/?q=68aafa0df29730d050030c3a120ff440#>

### c. Experimentation of virtual reality tools and applications

Virtual reality is made up of many different conceptions and no clear boundary can always be made. In virtual reality (VR) the entire field of view is comprehensively covered by artificially produced content. The learning experiment also includes using AR = Augmented Reality in conjunction with Arilyn platform, and mixed reality (MR = Mixed Reality), where ThingLink creates educational material by taking 360-degree images of the real world. Devices and applications are not yet well-established teaching equipment and both areas are constantly evolving. There is little education in the field. However, even with single devices it's possible to achieve a lot of new development.

With HTC Vive virtual glasses and drivers you can create and experience things, situations, and worlds that seem totally unrealistic. You can travel to galaxies, explore the planets, sink into the seabed and swim among the incredible creatures, draw most varied things in three dimensions, or travel virtually along the world cities and sightseeing without leaving from your computer. The most popular applications have been Google Tilt Brush, Universe Sandbox2, and Google Earth VR. All of these are downloadable from the Steam community where you need to create an account to use downloadable software. Experimentation has been executed in Vuosaaren koulu in Helsinki (primary and lower secondary).

<https://hyvatkaytannot.oph.fi/kaytanto/2343/?q=b90d77ddaef37b18e58767a764c8e4cf#>

### d. Operation World Heritage

Operation World Heritage is a free web game opened on the International World Day of Independence on 18 April 2016. It is a web game for lower secondary students, where pupils get to know Finland's World Heritage Sites. The game takes approximately one lesson and can also be played individually. The game can be found at <http://www.operatiomp.fi>

The game begins with the arrival of aliens in the Earth orbit. Military superhuman aliens want to dismantle Earth and move people to other planets. As the military power does not help, players try to save Earth by justifying the aliens how unique the sphere is. The right arguments change in each game so players have to think about the world heritage and its importance from many different perspectives. Also the leader of the game (eg a teacher) has a versatile opportunity to participate in the game. To overcome the game - and to





save the world heritage - players must act together as active players. The implementor of the method is Finnish Society for Cultural Heritage Education.

<https://hyvatkaytannot.oph.fi/kaytanto/2090/?q=7501ed3de354ce906a67b99361b54fbb#>

#### e. Gamification for studying the basics of music

The students of the Raahe Music School play Name That Note! and Young Music Genius: Classical Wiz games, "fishing games" at musiikkiseikkailu.com, and Educaplay and Quizlet games with iPads and iPhones. Learning games and playing materials are very well suited to enriching teaching, for example in vocabulary, intervals, key signatures, key names, octaves and musical instruments. Linking the materials to a teacher's own blog or Padlet wall makes them easier to find. During gaming, the tutor-guiding activity plays a major role in goal-orientation. Since there is little or no access to games and game materials suitable for teaching music in Finnish, gaming is also integrated with the addition of English vocabulary. Method is implemented at least in the Raahe Music School.

<https://hyvatkaytannot.oph.fi/kaytanto/2073/?q=41b6a9280fa5b15a0d29942393de5eb5#>

#### f. Best Practices service

The Finnish National Agency for Education maintains an open service on its website called "Best Practices". Proposals for a best practice may be made by anyone who wishes to share a best practice they have developed on their own or working with other people in the field of education. All the practices above have been gathered from the service.

A best practice may be a method or a procedure that has been developed to support teaching and learning, to enhance co-operation, to plan and organise operations, or for networking, training teaching staff or assessment – in other words, virtually any working method suitable for any level of education from pre-primary to liberal adult education and for continuing professional development of educational staff.

In the fields of primary and secondary education there's 621 best practices listed from the past five years.

<https://hyvatkaytannot.oph.fi/etusivu/>

#### g. GuildSchools

GuildSchools is a teacher's network and co-operation over schools and professions. As a pedagogical models, GuildSchools use project based learning, "master-journeyman-apprentice model" and "Learning from equal"-model.

<http://www.kiltakoulut.fi/guildschools.html>  
[https://prezi.com/espzphzms1kt/teaching-social-media-and-mobile-devices/?utm\\_campaign=share&utm\\_medium=copy](https://prezi.com/espzphzms1kt/teaching-social-media-and-mobile-devices/?utm_campaign=share&utm_medium=copy)





## 5. Exemplification of uses of relevant resources

There are not very clear information about of relevant resources, both money and work hour, named directly for digitalisation support. According the education level there will be some ICT teachers (teachers of some other and ICT subjects or just ICT) in the schools. Much more clear resources are for technical devices for schools (computers, IPads, whiteboards, different programs) and mostly each teacher have to use computer/ICT skills in everyday life in the school (reporting of presence, assessment etc). Participation in different further training courses ('ICT licence') are free and carried out mostly during working hours. On the other hand, there is not special resources for personal training (supported working by digi-tutor) or development of own digital material during working hours.

For example, during 2015 and 2016 Omnia has used € 68 000 to software within about € 83 million revenue.<sup>18</sup>

According the key projects, the Finnish government implements the general development of digital era by the action plan of government 2016. EUR 40 million will spent on further training of teachers and EUR 7 million for the development of programme for core and continuing professional education for teachers.

## 6. Recommendations for effective integration of ICT in the teaching and learning processes

The basis for effective integration of ICT in teaching is right knowledge about the current situation. For example in Finland some e-platforms (Opeka.fi and Ropeka.fi) collect and report consistently self-assessment of teachers and principles.

As naturally as pedagogical skills, digital skills should be taught and required in teacher training. In shortage of any official recommendations, Oulu University of Applied Sciences in Finland has started to use [OpenBadges](#) to recognize learning with visual symbols of accomplishments packed with verifiable data and evidence. The first level is obligatory in the their curriculum, second and third level are optional. According to Brauer, teachers who have achieved the most demanding badge of digital developer during their training, are the first to get employed.

Also the software used in schools should be reoriented. So far programs have usually been developed from managerial point of view considering official records and documents. As important as formal information management is, in the schools the usability and accessibility of learning environments for students is a lot more important. It is of course possible to overdo the consumer-orientation, too. Redesigning large software systems is challenging and expensive. Maybe in the future schools can use the assistance of artificial intelligences to organize the functions of digital environments in the schools.

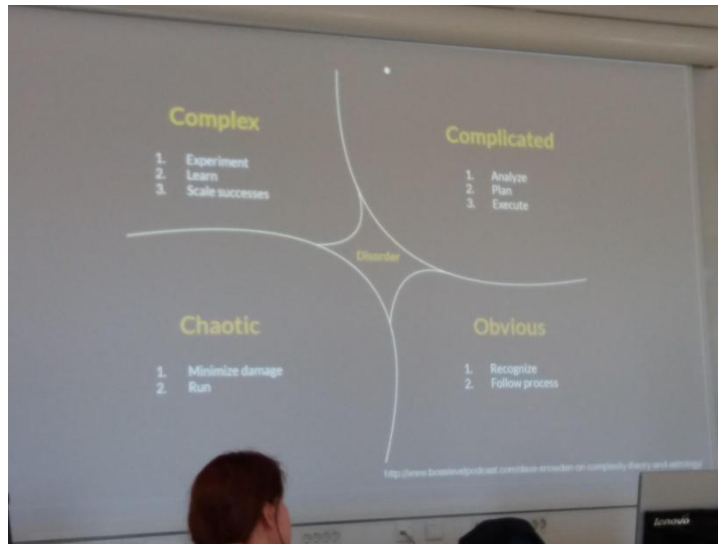
Digitalization, not only in education but of the whole society, forces schools to change their policies and practices in a hurry. It can be asked if it's even possible to plan development of the digital competence from purely analytical basis. A finnish CEO, Podcast host, Speaker and Blogger [Sami Honkonen](#) applies the

---

<sup>18</sup> Omnia's Financial statement 2016



[complex theory](#), supports the culture of experimentation and says that digidevelopment in education can best be advanced by experimenting and learning from trial and error.



Presentation of Sami Honkonen in a seminar of digital competences of vocational education in Tampere 16.5.2017. Photo: Anssi Kuisma

EDUFI promotes increasing the use of information and communications technology in education and works toward establishing a national partnership between educational administration, education providers, the business sector and organisations for finding ways to accelerate the implementation of digital infrastructures and learning environments as well as their use in teaching (Learning and Competence 2025 – Strategy of the Finnish National Board of Education).

According KESU (2016 - 2020) learning environments have been modernized, digitalization and new pedagogical opportunities are utilized in learning.

## 7. Teacher training for ICT

The eligibility of teachers is set out in the regulation<sup>19</sup>:

- [Asetus sosiaalihuollon ammatillisen henkilöstön kelpoisuusvaatimuksista \(varhaiskasvatus\)](#)
- [Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 \(esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus\)](#)
- [Ammattikorkeakoululaki 351/2003](#)
- [Yliopistolaki 558/2009](#)
- [Finlex](#)

In addition to the other eligibility criteria, teachers' teaching assignments require 60 credit points of pedagogical studies. Pedagogical studies at universities and polytechnics provide general pedagogical qualifications, which means that they can then work as a qualified teacher at various educational

<sup>19</sup> <https://opintopolku.fi/wp/aikuiskoulutus/opettajan-pedagogiset-opinnot/>



establishments. Polytechnic can also study as a music pedagogue and dance teacher. A trainee's special vocational qualification gives eligibility to act as a traffic instructor. The eligibility of teachers is set out in the Regulation. In addition to the other eligibility criteria, teachers' teaching assignments require 60 credit points of pedagogical studies.

Table 1: Teacher's education in Finland<sup>20</sup>

Teaching level	Regulation	Scope of pedagogical studies	Requirements	Qualification
Preprimary education	<a href="#">Asetus sosiaalihuollon ammatillisen henkilöstön kelpoisuusvaatimuksista (varhaiskasvatus); Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 7 § (3.11.2005/865)</a>	180 credits  120 credits	The major subject of the degree program is education. The studies include at least 60 credits for early childhood education skills giving the studies. Eligibility requirement: high education (university) degree.	Kindergarten teacher: bachelor's degree. Possibility to continue studies as a Master's Degree in Early Childhood Education
Comprehensive education (primary)	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 4 § (3.11.2005/865)</a>	300 credits	The major subject of the degree program is education including at least 35 credits for subjects be taught in primary or elementary education and at least 35 credits of pedagogical studies and internship. Eligibility requirement: Master's degree.	Class teacher ( <i>Luokanopettaja</i> ) Master's Degree in Educational Sciences
Comprehensive and general upper secondary education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus) 5 § (3.11.2005/865)</a>	300-330 credits	Including at least 35 credits for each teaching subject and at least 35 credits of pedagogical studies and internship.  Eligibility requirement: Master's degree.	Subject teacher ( <i>Aineenopettaja</i> ) Master's Degree in Educational Sciences
Comprehensive and general upper secondary education, vocational education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 8 § (23.2.2012/105)</a>	300 credits	The major subject of the degree is special pedagogy. Another way to graduate is to complete at least 60 ECTS credits for a special teacher or special school teacher training in or after another teacher training. Eligibility requirement: Master's degree.	Special education teacher ( <i>erityisopettaja</i> ) Master's Degree in Educational Sciences

<sup>20</sup> [www.oph.fi/download/163626\\_opettajankoulutuksen\\_tilannekatsaus.pdf](http://www.oph.fi/download/163626_opettajankoulutuksen_tilannekatsaus.pdf)



Comprehensive and general upper secondary, vocational education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 11 § (3.11.2005/865)</a>	300 credits	Pedagogical studies or, another way of completing the guidance is to complete at least 60 credits in special need pedagogic.	Students and study counselors (Oppilas ja opinto-ohjaaja) Master's Degree in Educational Sciences
Vocational education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 13 § (16.12.2010/1168)</a> Regulation A 352/2003	60 credits	Eligibility requirement: appropriate Master's degree (as a general rule a university degree), 3 – 5 years work experience in own sector and pedagogical degree.	Competence for Vocational teacher (AmO Ammatillinen opettaja) Qualification organized by polytechnics
Vocational education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 13 § (16.12.2010/1168)</a> Regulation A 352/2003	60 credits	Eligibility requirement: appropriate Master's degree (as a general rule a university degree), 3 – 5 years work experience in own sector and pedagogical degree.	Vocational special education teacher, organized by polytechnics (after VET teachers' education), not qualification-leading education
Vocational education	<a href="#">Asetus opetustoimen henkilöstön kelpoisuusvaatimuksista 986/1998 (esi-, perus-, lukio- ja ammatillinen koulutus, vapaa sivistystyö ja taiteen perusopetus): 13 § (16.12.2010/1168)</a> Regulation A 352/2003	60 credits	Eligibility requirement: appropriate Master's degree (as a general rule a university degree), 3 – 5 years work experience in own sector and pedagogical degree.	Study counselor in VET, organized by polytechnics (after VET teachers' education), not qualification-leading education

## Training of digital skills for teachers

Although the teacher education has been trying to take a long time for the development of information and communication technologies (ICT) training for teachers-students, number of studies have demonstrate that it has not become natural daily activities in the teaching process in schools. Therefore, the further development of basic and continuing teacher training remains challenges. Practically there is a wide range between schools in the practical application and teaching of information and communication technologies. The National Board of Education has also funded teacher further training in ICT.<sup>21</sup>

<sup>21</sup> [www.oph.fi/download/163626\\_opettajankoulutuksen\\_tilannekatsaus.pdf](http://www.oph.fi/download/163626_opettajankoulutuksen_tilannekatsaus.pdf), 2014: 116



Since the 1990s, the Ministry of Education has published the use of information and communication technologies Strategies (KTT 1995; SETRIS 2000), on which schools and universities have been designed their own ICT strategies:

Year	Strategy	Aims	Teachers education
1995	Information Strategy for education and research (Koulutuksen ja tutkimuksen tietostrategia) 1995	Support for producing web pages and web-based learning environments	Teacher training courses for creating web sites for example in physics and chemistry didactics courses Piloting of distance learning
2000	Information Strategy for education and research (Koulutuksen ja tutkimuksen tietostrategia) 2000-2004	Funding for virtual schools or new learning environments Support for the development of ICT infrastructure and Device appropriations. Ope.fi 1, Ope.fi 2 and Ope.fi 3 training in schools and universities	Online learning environments for teacher training Establishing eNorss for networking of training schools
2004	Information Society program for education and research (Koulutuksen ja tutkimuksen tietoyhteiskunta-ohjelma) 2004-2006	ICT breaks through the whole curriculum, no separate ICT training. Information Society Services and acquirments Innovations in community media	eNorssi portal reform. 2006 pilots of e-learning in Jyväskylä and Savonlinna, Helsinki
2007	National information society strategy (Kansallinen tietoyhteiskunta-strategia) 2007-2015	Funding for creating Learning Environment; Further Training for Teacher	Training schools had right to apply for FNBE grants for the development and training of ICT
2008	The Everyday Information Society Program (Arjen tietoyhteiskunta ohjelma)	Building a Broadband Service (3G) - The Next 100 Mega Broadband Requirement (2008) Learning Environment Projects	Opit/ SmartBoard projects Developing the teaching for use of social media
2010	Osaava-program	Development from technical and pedagogical support to support and peer support of ICT Guidelines for Community Communications (FNBE) Networking	Different projects Norssiope.fi; Coordination Projects of FNBE Fingers / Molla Projects
2016	New Primary School Program 2016	Tutor teacher program: tutors will be trained in comprehensive schools to develop the use of digital tools, an average tutor for every 220 pupils.	Training for tutor teachers, peer teaching Further training of teachers Development of programme for core and continuing professional education for teachers
2017	DIGIOPE 2017	Getting information on the current state of the digital guidance skills and cooperation in vocational education and training staff and providing information on promoting reform in vocational education and identifying future needs.	Mapping future perspectives with regard to digitalisation and working life cooperation

The main objective of these strategies have been to integrate the pedagogical use of ICT for all courses and traineeships of the teachers' education. The degree requirements have become the basic skills of ICT (so called 'Driving license of ICT') supporting courses, courses for versatile working methods and pedagogical use



of ICT and mobile devices. Universities have been developed different physical and virtual learning environments. Virtual learning environments are used as a forum for interaction, platform for return material/tasks and as a teamwork environment. The Media Education Center of the University of Helsinki<sup>22</sup> was founded almost 20 years ago and its goal has been exploring and developing the use of information and communication technologies and media education.

According Lonka (2013)<sup>23</sup> the weak utilization of opportunities of social media and mobile devices affects pupils motivation in schools as they are born like the "digniquets" and have the effect of the Internet, the use of social media and mobile devices is a significant part of their daily lives their social activities. Pedagogical departments are currently working on similar development work how to integrate the topic to teachers' training program from point of view of mobile learning and social media support, and to benefit personal learning environment and network - Personal Learning Environment (PLE), ePortfolio, Personal Learning Network (PLN) - perspective. The education offered by educational institutions must be able to provide future skills of the open, global and ubiquitous learning environment, self-guidance and the ability to build different networks to support their own learning, to students already during the studies.

There was organised some optional courses in social media teaching use over the years 2008–2011 in pedagogical departments<sup>24</sup>. Teacher training should be recognise the pedagogical possibilities offered by mobile learning. In teacher training, mobile learning can be implemented under the guidance of teaching practice or by learning paths utilizing as well during gaming. Acquainting with mobile learning and the required online tools should be to become part of a normal teacher training process, that the trained teachers would be ready to implement their skills and knowledge themselves practice. Pedagogical models of mobile learning developed in the Mobiilisti project (HAMK) will support teachers to design a larger entity in the learning process or individual mobile learning situation<sup>25</sup>.

Teachers ICT skills are followed during years 2012 – 2017 by e-platform <http://opeka.fi/fi> . Teachers from basic and general upper secondary schools can give feedback about their skills and competences of ICT using on this self-assessment platform. The school leaders have the other e-platform for following the digital environments and development needs in their schools (self-assessment tool <http://ropeka.fi/fi> ).

Finnish national report IO2 described projects Ope.fi 1, Ope.fi 2 and Ope.fi 3 what were developed for training and supporting of teacher's ICT skills. Oppiminen online is a part of the "OsaOppi III – Osaamispisteet pelissä" and OsaOppi IV project in which the requisite skill sets, as defined by the [Ope.fi standards](#) (in Finnish), are provided over 3 levels and 3 locations around Finland: Espoo, Hämeenlinna and Oulu.<sup>26</sup>

According the reforms and by the action plan of Finnish government there were started some new clarification project (New Primary School Program 2016, DIGIOPE clarification project 2017) for analyzing the digital skills of the teachers on the different educational levels.

<sup>22</sup> [www.oph.fi/download/163626\\_opettajankoulutuksen\\_tilannekatsaus.pdf](http://www.oph.fi/download/163626_opettajankoulutuksen_tilannekatsaus.pdf), 2014: 119

<sup>23</sup> Survey of Schools: ICT in Education Benchmarking Access, Use and Attitudes to Technology in Europe's Schools 2013, 9–12

<sup>24</sup> [www.oph.fi/download/163626\\_opettajankoulutuksen\\_tilannekatsaus.pdf](http://www.oph.fi/download/163626_opettajankoulutuksen_tilannekatsaus.pdf), 2014: 131

<sup>25</sup> [www.oph.fi/download/163626\\_opettajankoulutuksen\\_tilannekatsaus.pdf](http://www.oph.fi/download/163626_opettajankoulutuksen_tilannekatsaus.pdf), 2014: 128

<sup>26</sup> <http://www.oppiminenonline.com/in-english/>





Director General in Finnish National Agency for Education Aulis Pitkälä worried about the weak level of the digital skills of teachers and the fact that only 14% of teachers have a personal development plan <sup>27</sup>. He pointed that the skills gap is not just about technology but its pedagogical use. According to Pitkälä, continuing education of teachers is not good model. According to the New Comprehensive School Program (Uusi peruskoulu –ohjelma, 2016<sup>28</sup>) each Finnish elementary school is trained with a tutor teacher who guides their colleagues to the digital world and new pedagogical solutions. During 2017 - 2019, 2 500 tutors will be trained in comprehensive schools to develop the use of digital tools. This would be an average tutor for every 220 pupils.

EUR 40 million will spent on further training of teachers and EUR 7 million for the development of programme for core and continuing professional education for teachers. The teacher training program will be announced in October 2017. The aim of the program is to give teachers the opportunity to develop their skills through a career. Reforming teachers' core and continuing professional education aims to start use of the existing networks and peer learning, experimental schemes and workshops on new pedagogies, digital learning and new learning environments. According the New Comprehensive School Program access to massive open online courses for all teachers in continuing professional education will be secured: Teacher education units, teachers and business operators will work together to create an online continuing professional education model and will produce digital material.<sup>29</sup>

The DIGIOPE clarification project<sup>30</sup> aims to get information on the current state of the digital guidance skills and cooperation in vocational education and training staff. The project also provides information on promoting reform in vocational education and identifying future needs. The survey is carried out by the HAMK Vocational Teacher Education School. During the spring of 2017, a large-scale inquiry will be conducted, which will be deepened by expert interviews. In addition, the aim is to map future perspectives with regard to digitalisation and working life cooperation. The target group for the survey is vocational education and training staff. The survey will be completed in December 2017.

Survey/number of answers Levels	1108 teachers/instructors 84 % leaders 6 % experts 5 % management 4 % others 1 %		
Age groups	41-50 and 51-60 (76 %)		

<sup>27</sup> <http://www.ksml.fi/kotimaa/Peruskoulun-kehitt%C3%A4miseen-90-miljoonaa-euroa-%E2%80%93-kouluihin-digitutorit/832908>

<sup>28</sup> [https://www.google.fi/search?q=The+new+comprehensive+school+action+plan&ie=utf-8&oe=utf-8&client=firefox-b&gfe\\_rd=cr&dcr=0&ei=hfrmWY\\_blsPi8AfAy6TwDQ](https://www.google.fi/search?q=The+new+comprehensive+school+action+plan&ie=utf-8&oe=utf-8&client=firefox-b&gfe_rd=cr&dcr=0&ei=hfrmWY_blsPi8AfAy6TwDQ)

<sup>29</sup> [https://www.google.fi/search?q=The+new+comprehensive+school+action+plan&ie=utf-8&oe=utf-8&client=firefox-b&gfe\\_rd=cr&dcr=0&ei=hfrmWY\\_blsPi8AfAy6TwDQ](https://www.google.fi/search?q=The+new+comprehensive+school+action+plan&ie=utf-8&oe=utf-8&client=firefox-b&gfe_rd=cr&dcr=0&ei=hfrmWY_blsPi8AfAy6TwDQ)

<sup>30</sup> [http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/uutta\\_tietoa\\_opettajien\\_ja\\_ohjaushenkiloston\\_digitaalisista\\_ohjaustaidoista\\_digiope\\_selvityksella](http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/uutta_tietoa_opettajien_ja_ohjaushenkiloston_digitaalisista_ohjaustaidoista_digiope_selvityksella)





Pedagogical degree	89 %		
Further training	80 % 67 %	during last 3 years digital training	

According the first outcomes answers shows followed digital skills<sup>31</sup>:

Good skills of using digitalization in teaching and guidance process

- using of digital teaching material (more as 50 % of answers)

Basic level skills of using digitalization in teaching and guidance process

- guidance for students by using of digital tools and applications
- planning and creating number of e-tools and environments for didactic use
- following of students activities and progress in digital environment
- utilizing different digital application (simulation, games etc.) of my own subject
- guide and instruct the work placement learning via digital devices
- guiding students by using digital tools for self-assessment and reflection
- guide student by using ePortfolio and making visible their competence
- Manage and recognise basic rules for data protection in digital environment
- manage and recognise basic rules for copyright in digital environment

Weak level skills of using digitalization in teaching and guidance process

- using multimodal feedback during guidance (voice, video etc)
- utilize digital assessment methods (video, sharing services etc)
- using of digital feedback discourse

I can not say

- using multimodal feedback during guidance (voice, video etc)- more as 30 % of answers
- using of digital feedback discourse (mobile/e-platform)- more as 20 % of answers
- utilize digital assessment methods (video, sharing services etc) - more as 20 % of answers
- using peer assessment and feedback during teaching and guidance - more as 20 % of answers
- utilizing different digital application (simulation, games etc.) of my own subject - more as 15 % of answers

<sup>31</sup> <https://www.slideshare.net/SannaRuhalahti/digiope-selvitys-2017>



- guide and instruct the work placement learning via digital devices- more as 15 % of answers
- planning and creating number of e-tools and environments for didactic use

## 8. Official quality assurance and evaluation tools and procedures at national level

Finnish National Agency for Education defines quality of education and training as a key factor related to the efficiency and excellence of education and training as well as the equality of individuals.<sup>32</sup>

The earlier quality assurance was largely based on norms and inspections until the 1990s. The education administration was decentralised early 1990s in Finland after abolishment of school and textbook inspections. The current quality assurance system in Finland comprises the quality management of education providers, the national steering of VET and external evaluation. As one of the main policy priorities education providers in VET were obligated to have systems for effective quality assurance and improvement from 2015. The recommendation for VET is based on the Common Quality Assurance Framework (CQAF)<sup>33</sup> in vocational education and training and it forms an important part of Finland's implementation of the Copenhagen process measures. The European Quality Assurance Reference Framework (EQAVET)<sup>34</sup> is designed to promote better vocational education by providing authorities with common tools. There is strong focus on both **self-evaluation and peer evaluation** of schools and education providers and national evaluations of learning outcomes.

The quality assurance can understand as method to develop education and training. The ideology is to steer through information, support and funding. Local autonomy in education is extensive in Finland and education providers are responsible for the practical teaching arrangements as well as for the effectiveness and quality of the education provided, also on a voluntary basis. National authorities support the quality assurance process by providing tools and support, such as quality awards in VET and quality recommendations. The activities of education providers are guided by objectives laid down in legislation as well as the national core curricula and qualification requirements. The system relies on the trust and proficiency of teachers and other personnel. All personnel are encouraged to develop their work as well as participate in the quality improvement of their institutions. Teaching personnel are required to hold a master's degree.

National evaluations of learning outcomes are done regularly according to the evaluation plan of the Ministry of Education and Culture. From the schools' perspective, the evaluations are not regular as they are sample-based.<sup>35</sup>

<sup>32</sup> [http://www.oph.fi/english/education\\_development/quality\\_assurance\\_and\\_evaluation](http://www.oph.fi/english/education_development/quality_assurance_and_evaluation)

<sup>33</sup> [http://www.oph.fi/saadokset\\_ja\\_ohjeet/laadunhallinnan\\_tuki/vertaisarviointit/cqaf\\_viitekehys](http://www.oph.fi/saadokset_ja_ohjeet/laadunhallinnan_tuki/vertaisarviointit/cqaf_viitekehys)

<sup>34</sup> [http://www.oph.fi/saadokset\\_ja\\_ohjeet/laadunhallinnan\\_tuki/eqavet](http://www.oph.fi/saadokset_ja_ohjeet/laadunhallinnan_tuki/eqavet); <http://www.eqavet.eu/>

<sup>35</sup> [http://www.oph.fi/download/146428\\_Finnish\\_Education\\_in\\_a\\_Nutshell.pdf](http://www.oph.fi/download/146428_Finnish_Education_in_a_Nutshell.pdf)



Teachers ICT skills are followed and assessed according on the self-assessment method by e-platform <http://opeka.fi/fi> (2012–2017). The school leaders have the other e-platform for following the digital environments and development needs in their schools (self-assessment tool <http://ropeka.fi/fi>). The DIGIOPE clarification project<sup>36</sup> aims to get information on the current state of the digital guidance skills and cooperation in vocational education and training staff.

The education provider supports the development of the school culture where tutor teachers will be part of the basic activities of schools. Dissemination of the tutorial (digital) skills will be collected and documented in the development plan of the education provider. The implementation of the development plan will be monitored.

Digitalisation is one of the evaluation themes of the National evaluation center for education KARVI (Koulutuksen arviointisuunnitelma vuosille 2016 – 2019).

## 9. CONCLUSIONS

The report describes training models and successful methodologies to integrate into the school staff digital, methodological and socio-relational skills requested by digital era.

Finnish society is currently undergoing a transition that includes big structural reforms. One framework for the changes is provided by digitalisation. It challenges the existing methods and practices and to make them more effective and flexible. In the future, work life requires a new kind of competence, while there are fewer financial resources available for education. Education has to respond more swiftly to the changes in work life and operating environment and to adapt to individual competence needs.

Digitalisation is a new term in Finnish education system and is understood as system change and management of operational culture to enable new activities. Finland is already one of the leading countries in the world in public electronic services. Furthermore, studies show that the digital skills of Finns are the best in the EU. On the other hand, there are no specific laws regarding ICTs in education. ICT is integrated in the curriculum on different educational levels in Finland and there are pointed multiliteracy, digital literacy and ICT skills.

The actions targeted to the integration of the ICT and digitalization to school's daily activities based on experiences of projects (Ope.fi Standards, Oppiminen online, Digi-tutor) spread in Finland. 'New learning environments and digital materials to comprehensive schools' –program (Uusi peruskoulu –ohjelma, OKM 2016) aims to reorganize the working culture of schools through tutor-teachers and networks. The Finnish National Agency for Education expects to support education providers by help of tutors to disseminate and

<sup>36</sup>[http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/uutta\\_tietoa\\_opettajien\\_ja\\_ohjaushenkiloston\\_digitaalisista\\_ohjaustaidoista\\_digiope\\_selvityksella](http://www.oph.fi/ajankohtaista/verkkouutiset/101/0/uutta_tietoa_opettajien_ja_ohjaushenkiloston_digitaalisista_ohjaustaidoista_digiope_selvityksella)



implement ICT and digital knowledge, and deepening teachers' cooperation. The new tutor-model allows implementation and deployment of a new one pedagogics and good practices. Tutor teachers will networking with those who are doing the same job, and are working accompanied by students. Although the teacher education has been trying to take a long time for the development of information and communication technologies (ICT) training for teachers-students, number of studies have demonstrate that it has not become natural daily activities in the teaching process in schools.

The pedagogic degree requirements have become the basic skills of ICT (so called 'Driving license of ICT') supporting courses, courses for versatile working methods and pedagogical use of ICT and mobile devices. Universities have been developed different physical and virtual learning environments. Virtual learning environments are used as a forum for interaction, platform for return material/tasks and as a teamwork environment.

The weak utilization of opportunities of social media and mobile devices affects pupils motivation in schools as they are born like the "digniquets" and have the effect of the Internet, the use of social media and mobile devices is a significant part of their daily lives their social activities. The education offered by educational institutions must be able to provide future skills of the open, global and ubiquitous learning environment, self-guidance and the ability to build different networks to support their own learning, to students already during the studies.



## 10. APPENDIX

### 10.1 CQAF – yleinen laadunvarmistuksen ja laadunhallinnan viitekehys ja vertaisarviointi



### 10.2 EQAVET CIRCLE





### 10.3 Quality Assurance<sup>37</sup>

The importance of quality of education is a central issue because of the rapid changes in working life, labour market and skills needs. Also the sustainability of public economy and needs of effectiveness require that the education system produces high quality skills flexibly and cost-effectively. Quality assurance is on all levels of education the responsibility of education providers and the educational institutions themselves.

In Finland the sample-based and thematic evaluations form the basis of the national evaluation and quality assurance system. There are no inspections of education at any level of education. The main objective of these evaluations is to develop education and support learning, to be part of the quality assurance processes for education and to provide data and information for evidence-based planning, policy decisions and performance-based steering locally, regionally and nationally. Information is also used for international reviews.

Evaluation plays a significant part in the educational management system in Finland. The current legislation introduced in 1999, and even some activities implemented prior to that, aimed at delegation of decision-making powers closer to the local authority. Hence, local educational administration has an imperative role in how education is provided and organised as well as how local curricula are designed and implemented. The 1999 educational legislation strengthened the importance of evaluation as a tool for managing education.

Education and training providers have a statutory duty to evaluate their own activities and participate in external evaluations. Evaluation of basic, general upper secondary, vocational upper secondary, basic education in the arts, vocational adult education and liberal adult education is stipulated in the respective acts. The education provider has to evaluate its own education and its effectiveness as well as to take part in the external evaluations.

In May 2014 the Finnish Education Evaluation Centre (FINEEC) started its operations. The centre was established for national evaluations of education on all levels. The aim of the evaluations is to develop education and to support learning while ensuring the quality of education. Moreover, the evaluations produce information for local, regional and national decision-making on education as well as development work and international comparison.

---

<sup>37</sup> [https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Finland:Quality\\_Assurance](https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Finland:Quality_Assurance)