



Czech Republic

Country Report on ICT in Education

Available on <http://insight.eun.org>

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1 THE EDUCATION CONTEXT

1.1 EDUCATION REFORM

A. Curricular Reform

A huge reform of the education system called **Framework Education Programme** was implemented in the Czech Republic between 2005- 2008. The main idea behind the reform was to make schools more independent from the central administration. The main aim was to allow teachers own initiative to develop a richer variety of teaching approaches with the emphasis on constructivist methods. As a consequence the reform should also strive for bigger competitiveness of different schools and programmes.

In accordance with the new principles of curricular policy, formulated in the National Programme for the Development of Education in the Czech Republic (the so-called White Paper) and embodied in Act No. 561/200, *On Preschool, Elementary, Secondary, Higher Vocational and Other Education* (hereinafter only mentioned as the “**Education Act**”), a new system of curricular documents for the education of pupils between 3 and 19 years of age is being introduced into the education system.

Curricular documents are developed at two levels – state and school. In the system of curricular documents, the state level is represented by the National Education Programme (NEP) and Framework Education Programmes (FEPs). Whereas the NEP formulates the requirements for the education which are applicable in initial education as a whole, the FEPs define the binding scope of education for its individual stages (for preschool, elementary and secondary education). The school level is represented by School Education Programmes (SEPs), on the basis of which education is implemented in individual schools. The School Education Programme is created by each school according to the principles prescribed in the respective FEP.

Framework Education Programmes:

- are based on a new education strategy, which emphasizes key competencies, their interconnectedness with the educational content and application of the acquired knowledge and skills in real life;

- build on the concept of lifelong learning;
- formulate the expected level of education stipulated for all graduates of the individual stages of education;
- support the educational autonomy of schools and professional responsibility of the teachers for the outcomes of the educational process.

Phases of development:

The system was verified in pilot schools. FEPs are in different phases of development.

- FEPs were approved for ISCED levels 0, 1 and 2 and for special education.
- *Mateřská škola* (nursery school, ISCED 0) works already in accordance to the FEP from 1. September 2007.
- *Základní škola* (elementary school) started teaching according to the FEP in 1st and 6th grades from the school year 2007/08.
- Special Elementary schools (for pupils with special needs) started teaching according to the FEP in 1st and 7th grades from the school year 2010/11.
- The FEP for upper secondary general education started teaching according to the FEP in 1st grades from the school year 2009/10.
- The FEPs for upper secondary technical and vocational education are prepared simultaneously with the new National Qualification Framework which defines 275 fields of education instead of former 800. The following technical education FEPs have been published (approved):

- Phase 1 (June 2007): 61 FEPs – schools are to start teaching according to their school educational programmes as from 1 September 2009

- Phase 2 (May 2008): 82 FEPs – schools are to start teaching according to their school educational programmes as from 1 September 2010

- Phase 3 (May 2009) 82 FEPs - schools are to start teaching according to their school educational programmes as from 1 September 2011

- Phase 4 (April 2010) 49 FEPs - schools are to start teaching according to their school educational programmes as from 1 September 2012



Preschool education:

Mateřská škola (nursery school) is a part of the education system with a long tradition. The education is based on the Framework Educational Programme which was approved by the MoE in 2004 and it is obligatory for schools from 2007/08. Attendance is not compulsory; nevertheless it covers nearly 86 % of the total age group (3-5 years), 92.8 % in the preschool year. Parents can be asked to pay a maximum of 50 % of the running (not educational) costs covered by the community.

Elementary Education:

Principles of the Framework Education Programme for Elementary Education (FEP EE):

- builds on the FEP Preschool Education and forms the basis for the framework education programmes for secondary education;
- defines all that is shared and necessary within the compulsory elementary education of pupils, including education in corresponding forms of six- or eight-year secondary schools;
- specifies the level of key competencies which should be attained by pupils at the end of elementary education;
- defines the educational content – expected outcomes and subject matter;
- integrates cross-curricular subjects with distinctly formative functions as a binding part of elementary education;
- supports a complex approach to implementation of educational content, including the possibility of interconnecting it appropriately, and expects that various educational approaches, different teaching forms and methods will be selected and all supportive measures utilized in accordance with the pupils' individual needs;
- makes it possible to modify the educational content for teaching pupils with special educational needs;
- is binding for all secondary schools when determining their requirements for the entrance procedure for studying at secondary schools.

Secondary Education:

Principles of the Framework Education Programme for Secondary General Education (FEP SGE):

- is intended for the development of the School Education Programme at four-year grammar schools and the upper stage of six- or eight-year grammar schools;
- prescribes the elementary level of education to be attained by all grammar-school graduates, which the school must respect in its SEP;
- specifies the level of key competencies which should be attained by pupils at the end of grammar-school education;
- defines the binding educational content – expected outcomes and subject matter;
- integrates cross-curricular subjects with distinctly formative functions as a binding part of education;
- supports a complex approach to implementation of educational content, including the possibility of interconnecting it appropriately, and expects that various educational approaches, different teaching forms and methods will be selected in accordance with the pupils' individual needs;
- makes it possible to modify the educational content for educating pupils with special educational needs and exceptionally gifted pupils.

The FEP SGE is an open document, which will be innovated at certain intervals based on the changing needs of society, teachers' experience with the SEP as well as the changing needs and interests of pupils.

B. Reform of upper-secondary school leaving exam (“State Secondary School Leaving Exams”)

Upper-Secondary school leaving exam is a necessary condition for further education (entering university or college). Until school year 2010/2011 all upper-secondary schools organized their own final examination. The exam consisted of 4 subjects and only Czech language was compulsory for all the schools. Part of the examination in Czech language was writing an essay. All the subjects were then examined orally (including Czech language) and the form, length, desired level of knowledge etc. was fully in the competence of schools (apart from the basic conditions set by FEP SGE).

A new amendment to the school law reforming secondary school leaving exams significantly changes the procedure of organizing this important exam which will be divided into two parts: one part, so called “state”, is common to all upper-secondary schools in the Czech Republic, and the other specialized one – the so called “profiled” part. The secondary school leaving exam in its “new coat” will be launched in school year 2010/2011 in a bit simplified version (in terms of subject to be chosen in the state part) and then in the 2011/2012 in the full version. The first national piloting (mock exam) of the exam took place in October 2010. The testing of the new exam was voluntary and 96% of all schools took part in this piloting (most of the rest 4% were private secondary schools).

CERMAT (Centre on Measurement in Education, www.cermat.cz) is directly responsible (for both content and form) to the Ministry of Education (MoE) for developing exams for the centrally prepared common part of the exam. The state part consists of two groups of subjects:

1) A group of compulsory exams, each of them offered on two levels of difficulty; the students take three exams: Czech language, foreign language (choice of 5 languages) and for the third exam, students can choose from the following options: mathematics, social science “block”, and ICT “block”. Language exams are divided into three parts: a test, essay and oral exam.

2) A group of optional exams. Students can choose as a maximum three more exams (e.g. Biology, Chemistry, Geography, History...) and the result here have no influence on the result of the compulsory part – there is no risk when failing the exam.

The profiled part stays in the competence of secondary schools. Students should take it in two - three additional subjects – i.e. the total number of subjects will be 5-6.

The exam in ICT in the common “state” part of the upper-secondary leaving exam consists of two parts: a theoretical part (achievement test for 45 minutes) and a practical part for 75 minutes (problem solution working with computer). The whole examination is focused primarily on practical ICT experience of pupils and approximately one third of the exam is composed of tasks and problems from the field of theoretical informatics and computer science areas. All tasks arise out of FEP SGE. First sample test is currently (spring

2011) being prepared and, what concerns the practical exam, special studies focused on practicability/feasibility of the exam are being elaborated as well, with the objective to monitor the conditions on Czech schools in terms of preparedness and facilities for the exam).

All exams, ICT included, are based on specification called “Catalogue of Requirements” which is downloadable from www pages of CERMAT. Catalogues are prepared in two levels of examination – basic level and upper level for subjects in a group of compulsory exams (ICT included).

1.2 KEY CHALLENGES /PRIORITIES FOR EDUCATION

Educational Trends Encouraged and Supported by the Framework Education Programme:

- to take pupils’ needs and potential into consideration when attempting to achieve the educational objectives at elementary schools ;
- to apply more variable organization and individualization of education in accordance with pupils’ needs and potential and to utilize internal differentiation of instruction;
- to create a wider offer of obligatory optional subjects in order to develop pupils’ interests and individual capabilities;
- to create a positive social, emotional and working atmosphere founded on effective motivation, cooperation and engaging instructional methods;
- to implement changes in the assessment of pupils towards continuous diagnostics, individual assessment of their achievements and a wider use of verbal assessment;
- to maintain, as long as possible, natural, heterogeneous groups of pupils and weaken the reasons for segregating pupils into specialized classrooms and schools;
- to emphasize efficient cooperation with pupils’ parents.

Other challenges:

The new state upper - secondary school leaving exam and its successful implementation is the most discussed issue at the moment (see 1.1).

Among other challenges belongs a successful implementation of the grant initiative EU money to schools (see 2.2.).

2. ICT POLICY

2.1. RESPONSIBILITIES

Regional authorities (there are 14 regions in the Czech Republic) are responsible for ICT in secondary schools, while local authorities are responsible for ICT in nursery and elementary schools. Regional or local authorities are school founders. School founders are the main responsible for money and control; the MoE, to a lesser extent, has some responsibilities, according to the number of pupils. There are also school boards, with mainly a control role, and composed by: 1/3 authorities, 1/3 parents and 1/3 teachers.

The ICT issue is included in the Framework Educational Programmes for elementary and secondary levels of education. The use of information and communication technologies is an inseparable part of the strategic objectives and planning of schools today. Conceptual steps to be taken in this area are, as a rule, part of an ICT plan and the majority of schools, when organizing teaching, take into account the use of ICT. In period 2000 – 2006 there was National Strategy for ICT in Education (see 2.2) and the use of ICT was a condition for schools to get additional grants from MoE for the development in ICT – ICT equipment, ICT staff in schools etc. In 2006 88% schools had a plan and from 2007 till 2010 some school still renews plans for new school years only in case they see it is useful for their own work.

Due to the existence of European Social Fund (ESF) and other granting schemes organized by independent region or local authorities schools are able to gain financial support for various areas of development of education in/with ICT (see 2.2).

Usage of ICT in Czech schools is evaluated by the Czech School Inspectorate (see 3.6).

2.2 ICT POLICIES FOR SCHOOLS

Past initiatives

The National Strategy for ICT in Education (SIPVZ) began in 2000 and was meant to last until 2010 but after the parliamentary elections in 2006 it was hastily cancelled without any substitute. The MoE provided schools with Internet connection via the government administration communication infrastructure. There was a co-ordination centre represented by some 20 leading independent ICT specialists among educators as well as from the Government. This body co-operated closely with the MoE. It recommended the steps proposed by the MoE, and evaluated how successful the achievements were. An important part of the SIPVZ programme was teacher training for the use of ICT in education (see 5.3).

The national strategy (SIPVZ) also organized:

- national ICT projects
- computer competitions for schools
- regional centres to support ICT teaching
- a central database of schools' ICT activities
- a national repository where educational software could be evaluated
- repositories developed by universities.

In October 2008 a new document “**The Concept of ICT Development in Education for the period 2009-2013**” was accepted by the Czech government. This legal concept outlines 9 main areas which should support ICT development in education in the next years. At the beginning of 2009 the MoE introduced the Action Plan of this concept which has not been endorsed and the document can be considered only as a strategic document outlining the needs in this area. Below are the main programmes of support designed for elementary schools, secondary schools, colleges and music academies:

- Connectivity - Support of the quick Internet connection by the Ministry of Education as the basic condition for the further development of ICT usage at schools
- Infrastructure
- Supporting education of teachers in the field of ICT usage in the lessons



- Monitoring
- Quality Management
- Support of Entrance Exams Management
- Results in Education
- Integration into the Concept of eGON (it is a strategy, process, plan for eGovernment – in all national sectors)
- Portal for Education

Current initiatives – Grant Schemes

The Education for Competitiveness Operational Programme (ECOP) is a multi-year thematic programme under the jurisdiction of the MoE, within which it is possible to draw financial means from the European Social Fund (ESF), one of the structural funds of the European Union (EU), in the programming period 2007–2013. The ECOP focuses on the area of the development of human resources through education in all its various forms with an emphasis on the comprehensive system of lifelong learning, creation of an appropriate environment for research, development and innovative activities and stimulation for cooperation among the entities involved. The range of receivers of support within the ECOP depending on the individual areas of support is very wide. All information (in English) are available on <http://www.msmt.cz/areas-of-work/education-for-competitiveness-operational-programme-period>. ECOP is a wide programme, various projects are financed from ECOP and some of them focus on purchase of ICT equipment and teacher training in the field of ICT. These projects are managed mostly by regional authorities or regional universities.

A special initiative under ECOP adopted in May 2010 - **EU money to schools (2010-2012)** - is managed by the MoE and it is aimed only at elementary schools (excluding elementary schools in the capital city). It supports various innovative curricular approaches in different areas of teaching: MST, financial literacy, reading and information literacy, foreign language teaching, inclusive education, usage of ICT in all the subjects. Schools can apply for a grant directly to MoE; examples of supported areas within ICT are: digitalization of textbooks, e-learning, further teacher training, modernization of schools' equipment – purchase of DVDs, cameras, netbooks, notebooks, computers, software programmes, IWBs, etc. It is expected that approximately 2/3 of the whole budget 4, 5 billion CZK

(1,8 mil. EUR) distributed over the next two years will be invested to ICT equipment such as netbooks and IWB technologies. For more information about the programme see the website: <http://www.eupenizeskolam.cz/>.

Current initiatives – Methodological projects

An important project under ESF is **Methodology II**, planned for 2009-2011. The project focuses on systemic support of teachers in the area of methodology and didactics of teaching. The main result of this project is the **national methodological portal for teachers** - www.rvp.cz - which aims to assist teachers in curricular reform and its implementation into schools, to provide methodological support for increasing the quality of the teaching profession. Currently the portal has more than 5000 registered users (of about 150.000 Czech teachers) and it offers such services as personal blog, active participation in thematically organized forums, jointly developed Wiki pages containing elementary pedagogic materials, E-learning modules or repository of digital learning materials (For more see points 4.2. and 4.3.).

The Czech Republic also currently has a national curricular project called "**Literacy Support**" covering five areas including mathematics, science and ICT literacy. The project is an initiative of MoE and it is realized by Research Institute of Education in Prague. The project which focuses on elementary education is a reaction on deteriorating results of Czech pupils in the international researches PISA and TIMSS. The aim of the project is to find out whether the current curriculum adequately supports the development of literacy of students or not. It should also provide teachers with effective methodological support for further development of students' literacy. The project was running in 2010, recommendation for curricula innovations may follow in 2011.

Other initiatives

A non-profit organization, the **Czech Union of Informaticians in Education** (www.jsi.cz) supports ICT coordinators and ICT teachers in their work.

Other initiatives are run and financed by private companies, for example:



- project Vzdělání 21 (Education 21) – an initiative supporting the design of 21st century learning space, which aims at usage of digital learning resources financed by private companies

Conferences

- There is a number of smaller conferences aimed at ICT organized by universities, secondary schools (conference “Počítač ve škole”) or private companies.

2.3. ICT FOR INCLUSION

Basic information on education of pupils with special needs

According to FEP are pupils with special educational needs are those who suffer from chronic health conditions, physically handicapped pupils and socially disadvantaged pupils. Special schools exist from pre-school to upper secondary level. Their curricula and qualifications are as close as possible to those of mainstream schools, the methods are appropriate to the specific educational problems (mainly mental, physical, visual or hearing disability).

At compulsory level, the *základní škola speciální* can be established for pupils with medium and severe mental disabilities and multiple mental disabilities and *základní škola praktická* for pupils with mild mental disabilities. Pupils with mild disabilities are educated according to the appendix to the Framework Education Programme for Elementary Education. Pupils with severe mental retardation, pupils handicapped with multiple disabilities and pupils with autism who attend a special elementary school are educated according to an individual Framework Education Programme. For more information see: http://www.vuppraha.cz/wp-content/uploads/2009/12/RVP_ZV_EN_final.pdf (pag. 111 - 116)

After elementary education pupils with mild disabilities can continue their education in courses at *praktická škola* (ISCED 2C) or *odborné učiliště* (ISCED 3C) – two secondary schools set up for pupils with lesser study prerequisites – or in other special vocational courses at upper secondary level (ISCED 3C) for pupils with mild mental disabilities and for those who

have not successfully completed lower secondary education.

Special needs and ICT

There is no national strategy in use of ICT to support inclusion on mainstream classes. A range of smaller projects/initiatives are going on, most of them are financed from ESF.

The Institute of pedagogical and psychological consulting in the Czech Republic (run by MoE) coordinates a project financed from ESF that supports work of regional “centers of support of inclusion education”. These centers offer a wide range of services including counseling in the field of ICT.

A number of Czech universities run special centers that support university students with special needs. One of the biggest is the Teiresias Centre (the official name is the Support Centre for Students with Special Needs - <http://www.teiresias.muni.cz/?lang=en>) of Masaryk University in Brno. Since 2001 the Centre has been entrusted with the printing of the tactile version of the state secondary school leaving exam for the blind, and the center also provides the National Comparative Exams for Students with Visual and Hearing Disabilities, especially for those preparing for the entrance exams to universities. TyfloCentrum Brno, active in the regions of Brno and southern Moravia, provides social services to visually impaired people. This centre offers also IT center (<http://www.centrumpronevidome.cz/en/itcentre.php>) and a summer camp for youth focused on ICT.

Among other initiatives there is a project called **Blind Friendly** (www.blindfriendly.cz) focusing on webpage accessibility for visually impaired people. An annual conference INSPO (<http://www.helpnet.cz/inspo>) on ICT for users with special needs is being organized by a union of different NGOs.

2.4. ICT PRIORITIES

Area	High	Middle	Low
Initial ICT related Teacher Training			X
In service teacher training		X	
Curriculum development		X	
ICT based assessment		X	
Infrastructure and maintenance		X	
Digital learning resources	X		



School-home connections		X	
ICT for learners with disabilities / special needs		X	
ICT related research		X	
esafety		X	
Reducing the Digital Divide		X	
Interactive Whiteboards	X		
Netbook/notebooks		X	
Developing key competences		X	
Developing 21st century skills		X	

Legend: FEP PE – Framework Education Programme for Preschool Education; FEP EE – Framework Education Programme for Elementary Education and Appendix to the Framework Education Programme for Elementary Education Regulating the Education of Pupils with Mild Mental Retardation (FEP – EE MMR); FEP SGE – Education Framework for Secondary General Education (Grammar Schools); FEP STVT – Framework Education (Programme) Programmes for Secondary Technical and Vocational Training.

The NEP, the FEPs and the SEPs are public documents, available to the teaching as well as general public.

3. THE CURRICULUM AND ICT

3.1. THE CURRICULUM FRAMEWORK

System of Curricular Documents (see also 1.1)

Curricular documents are developed at **two levels – state and school** (see Diagram). In the system of curricular documents, the state level is represented by the **National Education Programme (NEP)** and **Framework Education Programmes (FEPs)**. Whereas the NEP formulates the requirements for the education which are applicable in initial education as a whole, the FEPs define the binding scope of education for its individual stages (for preschool, elementary and secondary education). The school level is represented by **School Education Programmes (SEPs)**, on the basis of which education is implemented at individual schools. The School Education Programme is created by each school according to the principles prescribed in the respective FEP.

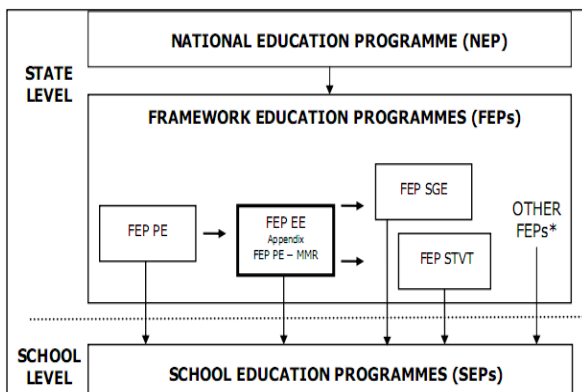


Diagram 1 – The system of curricular documents

Framework Education Programmes:

- are based on a new education strategy, which emphasizes key competencies, their interconnectedness with the educational content and application of the acquired knowledge and skills in real life;
- build on the concept of lifelong learning;
- formulate the expected level of education stipulated for all graduates of the individual stages of education;
- support the educational autonomy of schools and professional responsibility of teachers for the outcomes of the educational process.

3.2. ICT IN THE CURRICULUM

Educational content of **elementary education** has been divided into nine, roughly defined educational areas in the FEP EE. Individual educational areas consist of one or more educational fields of similar educational content. One of them is *Information and Communication Technologies*. The nine educational areas are as follows:

- **Language and Language Communication** (Czech Language and Literature, Foreign Language)
- **Mathematics and Its Application (Information and Communication Technologies Man and His World)**
- **Man and Society** (History, Civics)
- **Man and Nature** (Physics, Chemistry, Natural Sciences, Geography)
- **Arts and Culture** (Music, Fine Arts)
- **Man and Health** (Health Education, Physical Education)
- **Man and the World of Work** - the educational content of this field is divided into four compulsory thematic areas, one of them is



Use of Digital Technologies focusing on pupils' digital competences.

tember 2009 (Czech School Inspectorate, see 3.6)

Educational content at **four-year grammar schools** and at the upper level of six- or eight-year grammar schools has been divided into eight (generally: upper-secondary education) roughly defined educational areas in the FEP SGE. Individual educational areas consist of one or more educational fields of similar educational content.

- **Language and Language Communication** (Czech Language and Literature, Foreign Language, Second Foreign Language)
- **Mathematics and Its Application Man and Nature** (Physics, Chemistry, Biology, Geography, Geology)
- **Man and Society** (Basics of Civics and Social Sciences, History; Geography)
- **Man and the World of Work Arts and Culture** (Music, Fine Arts)
- **Man and Health** (Health Education, Physical Education)
- **Information Science and Information and Communication Technologies** The usage of ICT in school education and its related support of information literacy ranks among the priorities of the curricular reform in the Czech Republic. The position of ICT within the curricula is defined not only as an independent school subject but as a tool for solving problems and as a basis for creating an educational environment. The issue of ICT is included in the Framework Educational Programmes for individual levels of education.
- The Framework Education Programme for Elementary Education (Research Institute of Education in Prague), http://rvp.cz/informace/wp-content/uploads/2009/09/RVP_ZV_EN_final.pdf
- Framework Education Programme for Secondary General Education (Research Institute of Education in Prague), http://rvp.cz/informace/wp-content/uploads/2009/09/RVP_G-anj.pdf
- A study concerning usage of ICT at schools in last two years (2007-2008) published in January 2008 and a study targeted at usage of ICT at elementary schools published in Sep-

3.3. STUDENTS' ICT COMPETENCE

Digital Competence (neither in FEP EE nor in FEP SGE) is not considered as a key competence, but it is integrated in the curriculum as a separate educational area called ICT. The position of ICT within the curricula is defined not only as an independent school subject but also as a tool for solving problems and as a basis for creating an educational environment.

FEP EE

Stage 1 (age of pupils 6 – 10)

Basics of working with a computer

- use the basic, standard functions of a computer and its most common peripheries
- observe safety rules when working with hardware and software, and proceed in an informed manner in case they are faulty
- protect data from damage, loss or abuse

Information searching and communication

- utilize simple and suitable ways when searching for information on the Internet
- search for information on web portals, in libraries and in databases
- communicate by means of the Internet and other common communication devices

Information processing and application

- work with text and pictures in text and graphics editors

Stage 2 (age of pupils 11-15)

Information searching and communication

- verify the credibility of information and information sources and assess their importance and interconnectedness

Information processing and application

- be able to work with text and graphics and table editors, and use suitable applications



- apply basic aesthetic and typographic rules for the work with text and pictures
- work with information in accordance with legislation on intellectual property rights
- use information from various information sources and evaluate simple relationships between data
- prepare and present information in text, graphic and multimedia forms at user level

Attitudinal targets are part of the expected outcomes.

FEP SGE

Digital technologies

Expected Outcomes, the pupil shall:

- manage, combine and apply the ICT tools available
- utilize his/her theoretical as well as practical knowledge of the functions of individual components of both hardware and software to solve problems creatively and effectively
- organize data effectively and protect it from being destroyed or abused
- be familiar with the possible uses of ICTs in various areas of social knowledge and practice

Information resources and searching, communication

Expected Outcomes, the pupil shall:

- utilize the services of information networks available to search for information, to communicate, as well as for self-learning and teamwork
- make the best of the offer provided by information and educational portals, encyclopedias, libraries, databases and educational software
- assess topicality, relevance and reliability of information resources and information creatively; use information and communication services in compliance with ethical, safety and legislative requirements

Information processing and presentation

Expected Outcomes

The pupil shall:

- process and present the outcomes of his/her work while using advanced functions of application software, multimedia technologies and the Internet
- apply an algorithmic approach to problem solving

3.4. ASSESSMENT SCHEME

General Assessment

Teachers' assessment of pupils is continuous (during the school term) and then final (at the end of the term). Pupils/secondary school students are assessed for the results in particular subjects and they also receive the overall assessment of study results. Pupils and students receive paper school reports in the mid-term (January) and then at the end of the school year (June). Assessment rules in each school are part of the school regulation. The concrete tools for continuous assessment are usually set by teachers of particular subjects.

ICT assessment

ICT competencies are assessed in the same way as other competencies; a common assessment framework scheme dedicated especially to ICT competencies has not been defined. ICTs are considered as "ordinary" tools for learning. In secondary education digital competence (knowledge, skills and attitudes) is assessed as part of the ICT subject, in elementary education it depends whether the elementary school has ICT as a separate subject or not.

Students at secondary schools are obliged to pass the subject "Information Science" and they are graded (classification scale: 1 - 5; 1 is the best mark, 5 – fail) at the end of every term. Assessing ICT knowledge rests in the competence of each school (as mentioned above) but it has to comply with the national curriculum in the area of ICT. ICT is both taught as a separate subject and regarded as a support in all the other subjects.



Knowledge is assessed (ICT based) during single students and collaborative projects, written examinations (unseen, written or in the computer), multiple choice tests, oral examination (open book), oral questioning after the submission of a research project direct observations and presentations, self-assessment etc. One example of assessment of ICT subject:

The fields of assessment:

- Ability to manage, combine and apply the ICT tools
- Utilize his/her theoretical and practical knowledge of the functions of hardware and software
- Capability of using the Internet as a source of information, searching the information, ability to assess its topicality, relevance and reliability
- Work on projects – in pairs, individual work

Special initiatives

In 2010 the **IT Fitness test** was offered to schools and the wide public as a part of the e-Skills Week 2010 campaign organized by European Schoolnet. The test was free and was available on webpage of Centre for International [Services www.dzs.cz/itfitness](http://www.dzs.cz/itfitness) in period 1.3. 2010 – 21.6. 2010. Almost 30 000 people got tested; most of the respondents were elementary and secondary school pupils coming from almost 1400 schools in the Czech Republic. The test consisted of 32 questions aimed at computer hardware and software, operating systems, internet, email, word processing.

As a part of commercial activities of the “SCIO Company”, which mainly organizes the entrance tests for some universities in the Czech Republic, there was a so called TIGR (Test informační gramotnosti - Test of IT Literacy) in 2010. The test was aimed at pupils of 8th and 9th grades of elementary schools and tested their level of ICT competencies. The test was not obligatory and schools paid for every tested pupil. In school year 2010/2011 the test is not offered again because of lack of interest from Czech schools. Teachers and students in the Czech Republic also have the possibility to obtain the “European Computer driving license” (ECDL). This license certifies the level of ICT knowledge of the graduates.

3.5. ICT BASED ASSESSMENT

It is an individual initiative of some schools. There is a wide range of possibilities for ICT based assessment available to schools, but the utilization rate varies from school to school. Basically, pupils are assessed by means of ICT in the Computer Science subjects. Then there are other subjects where ICT is used from time to time as a means of assessment – physics, mathematics, general science, languages. Students either work on various projects or are tested on the computers.

Some schools use e-Learning courses which are also assessed electronically. “Electronic” teachers’ books are getting more and more popular. Teachers add information to these books via the Internet or school’s intranet/extranet. In the majority of cases, schools use one of the licensed school information systems/programmes such as dm Software, Bakaláři, Škola OnLine, SAS, iŠkola, aSc, Relax KEŠ. Thus pupils and students have access to their results (grades), number of hours they missed, or current activities and events. Parents can access these programmes easily via the Internet (using a simple login and password) and check the study results of their children.

3.6. QUALITY ASSURANCE OF THE USE OF ICT IN SCHOOLS

Škola 21

The Research Institute of Education in Prague, a research institute established and run by the MoE, launched in the end of 2010 an online tool designed to enable schools to assess their current usage of technology and plan how to improve the level of effectiveness across six key elements:

- Management and planning
- ICT in school curricula
- Professional development
- Integration of ICT
- ICT infrastructure

This tool defines 4 level of ICT involvement

- ICT beginners



- First experience
- Self-confident users
- Example for others

The online tool Profil Škola21 is available on <http://skola21.rvp.cz/> is based on Irish tool ICT Planning Matrix (<http://www.ncte.ie/>) and Becta's tool. Since the tool is newly launched, no results are available yet.

Czech School Inspectorate

Usage of ICT in Czech schools is evaluated by the Czech School Inspectorate. In September 2009, two special thematic reports describing the level of ICT were published in previous years: a study concerning usage of ICT at schools in last two years (2007-2008) was published in January 2008 and the second study targeted at usage of ICT at elementary schools was published in September 2009. These thematic studies are published every third year.

Overview: The study published in 2008 aims to establish the level of progress in ICT implementation at elementary and secondary schools in the preceding two years.

Age range of children: 6 - 16. Sample size: 513 elementary schools.

Type of study: A combination of qualitative and quantitative methods was used.

Methodology: Data was collected from 513 schools using interviews and lesson observations. Respondents included head teachers, ICT teachers, subject teachers and pupils.

The study found out that when compared with data from previous surveys in 2005 and 2006:

- The usage of ICT in schools is more extensive.
- Schools have better prepared curricular documents and ICT plans, and these are important for effective ICT implementation.
- Teachers have a greater interest in training to enhance their ICT skills and the didactics of education with ICT support.

- Head teachers and teachers have a greater interest in innovation processes using ICT (despite the limited economic resources).
- Teachers have a greater interest in preparing their own electronic educational content.
- There is an increased awareness that ICT utilization in the lessons is attractive for pupils (and parents – e.g. looking for and selecting schools).

The usage of ICT and digital competencies of pedagogical staff are mentioned in the annual general report of the Czech School Inspectorate published in December 2010.

Findings include:

- ICT involvement in the classroom varies depending on the level of education - least involvement in pre-school education and most in secondary school education.
- The level of information literacy among pedagogical staff is also highest in secondary school education while teachers in pre-school education have less knowledge and experience concerning the involvement of ICT in the education of younger children (appropriate educational software etc.).

The Institute for Information on Education

In 2009 the Institute for Information on Education (an organization directly run by the MoE) published in 2009 a report on ICT in schools and IWB technologies based on a survey responded by almost 2900 elementary and secondary schools in the Czech Republic (<http://www.uiv.cz/clanek/17/1765> - only available in Czech). This report focuses on schools' internet connection, administration of schools' webpage and email accounts, use of ICT in classroom. A special attention was paid to the use of IWB.

4. DIGITAL LEARNING RESOURCES AND SERVICE

4.1. CONTENT DEVELOPMENT STRATEGIES

The content development of educational resources is supported and controlled by the MoE only via the cen-



tral reviewing system of textbooks and learning resources. Learning resources are produced by tens of publishers who have to first obtain the “approval stamp” for each book from the MoE according to the firmly set rules. (It is open for all companies and each book has to be approved by expert evaluators from the MoE. It is up to schools and teachers to choose which book they would like to use).

4.2. E-CONTENT DEVELOPMENT

The Methodical Portal <http://rvp.cz/> (see also 2.2 and 4.3) which has been running already for 3 years under the supervision of The Research Institute of Education in Prague (VUP) and The National Institution of Technical and Vocational Education (NUOV), is primarily targeted on curricular reform. All visitors, including not registered ones, have free access to these articles and to an accompanied repository of digital learning materials (<http://dum.rvp.cz>). This repository contains about 3000 learning materials created by teachers mostly for their own use. Each of the resources is first reviewed and approved by an expert before it is published on the portal. This portal is also connected to LRE portal and it allows users to find digital learning resources either in national repository or in LRE. The Centre for International Services is member of the EUN’s LRE Sub-Committee; the connection between RVP.cz and LRE is being continuously developed.

Apart from the national portal, there are several partial projects focusing on specific areas such as Metodik.cz - methodical help for using e-Learning. There is also a wide range of examples of regional and school projects which gather digital content on a local basis such as <http://www.ucimeinteraktivne.cz/>. So far no system, evaluation or rules for sharing the digital educational content has been introduced in the Czech Republic. Despite this fact, digital content and on-line services have become integral part of modern education in schools and their importance is constantly rising.

The Centre for International Services, as a member of EUN’s Interactive Whiteboard Working group, published a Czech translation of practical guidelines for teachers “*Make most of your interactive whiteboard*” in 2010. This publication is a result of work of this working group and the Czech translation is freely available at www.dzs.cz/eun. These guidelines focus on an effective usage of IWB including development of digital learning materials and their sharing.

Modern educational methods which are not primarily aimed at education and are accessible on-line (so called Primary Resources) are being widely used. This type of resources includes various archives, newspapers, websites of museums, memorials, national parks, cities or town, personalities, events, archives of various TV stations, radios, etc. It is highly important to ensure the maximal on-line accessibility of these materials including radio and TV educational programmes.

As a part of eTwinning activity there is a number of e-content done by pupils themselves – for ex. <http://www.learn-interactive.blogspot.com/>.

4.3. USER - GENERATED CONTENT

The most important initiative is the ESF project Methodology II involving the national methodological portal www.rvp.cz (see. 2.2 and 4.2). There are about 5.000 daily unique visitors - teachers. All the content is free and is built mainly upon the contributions of teachers’ resources. Part of the portal is guaranteed (reviewed by teacher-specialists), part is a community web. The web is based on Web 2.0 principles.

It covers 7 main areas:

- **Article** – database of methodical articles.
- **Learning object** – database of learning resources, connected to Learning Resource Exchange (EUN).
- **Discussions** – new module for teachers of all type of schools.
- **Wiki** – place for sharing learning objects, common pedagogical knowledge and other materials; place for cooperation when creating materials
- **Blog** – electronic diary
- **Digifolio** – professional and leisure e-portfolio.
- **E-learning** – module focused on the self-education that offers teachers courses connected to the ongoing reform (e.g. development of the key competencies of pupils, designing and realization individual learning plans etc.).

4.4. WEB 2.0

- The national portal <http://rvp.cz/> (see 2.2. and 4.3) is based on web 2, 0.

- Czech schools are widely using moodle system and they still more often use cloud computing system (administration of schools' webpage and email accounts).

4.5. CONTENT SHARING

Methodical portal www.rvp.cz assisted by localization of Creative Commons licenses which are applied to almost all resources on the portal. See also 4.2.

4.6. LEARNING PLATFORMS

There was strong accent on teachers' learning during implementation of the SIPVZ (2001-2006). All courses for teachers controlled by the MoE were accompanied by e-learning LMS support. The system which was chosen as the LMS was Moodle.

Currently, Moodle is almost the only LMS used in Czech schools. The methodical portal also uses Moodle for e-learning. Other open-source systems used on the portal are: Mahara, WordPress, phpBB, Mantis etc. (and as in other countries TwinSpace).

5. TEACHER EDUCATION FOR ICT

5.1. ICT IN INITIAL TEACHER EDUCATION

Teacher Training curricula - for elementary and secondary education - are defined at the local level by the university or teacher training institution itself. There are separate curricula for elementary and secondary education.

Digital competence is not regarded as a key competence and the desired level of teachers' ICT competencies is not explicitly stated in the profiles of university graduates from faculties of education or in the professional profiles of teachers (except ICT teachers). The system of university education of future teachers includes usually, but not always one obligatory ICT subject (one-semester course with the aim to teach students user skills of ICT) and then many optional courses from the ICT field.

Generally, the system of university education of future teachers looks as follows:

- 3-year bachelor study programme: nursery school teachers
- 3-year bachelor + 2- year master study programme: elementary school teachers
- 3-year bachelor + 2- year master study programme: lower secondary school teachers
- 3-year bachelor + 2- year master study programme: upper secondary school teachers
- 3-year Ph.D. study programme

Future teachers usually choose two specializations/subjects and one of them can be ICT (the study programme is usually called "Information technologies in education"). In some universities there is a joint programme within ICT specialization that allows future teachers to teach both at elementary and secondary schools, other universities offer two different programmes within ICT – one for future elementary school teachers and one for future secondary school teachers.

Some universities offer a special PhD programme within ICT (usually called ICT in education), other universities do not offer it as a separate PhD programme but integrate it in PhD in Pedagogy.

There is also a special 1, 5 year programme (3 semesters) within lifelong education for teachers in elementary, secondary and vocational schools - "ICT Coordinator" (see 5.3).

5.2. EFFECTIVE TRAINING MODELS FOR INITIAL TEACHER EDUCATION

One example of successful model of training is an eTwinning seminar which is one of the optional courses for students of the Pedagogical faculty of Masaryk University in Brno. It takes 14 lessons and covers the theory of project teaching methods, information about eTwinning and practical work on the eTwinning tools (Twinspace and Desktop). The students simulate finding a partner on the eTwinning desktop, discuss a project idea and finally create a project outcome.

5.3. ICT IN IN-SERVICE TEACHER EDUCATION

Past initiatives

At the end of the year 2006, almost all the teachers were trained in the basic user ICT skills within the



frame of this policy (SIPVZ – State Information Policy in Education“– see also 2.2), 84 % of all the pedagogical workers passed the level “Z” test of this course (approving basic ICT skills), and 13.4 % reached higher level (“level P” – advanced ICT users). Since the MoE stopped the financial support of this project, the targets of SIPVZ are successfully fulfilled only at the active schools. At the end of 2006 there were 291 information centers and 745 training centers of SIPVZ. Most of them are currently “dying out” because of the lack of finances.

Current situation

According to STEPS-report 83 % of elementary level teachers have good or very good ICT user skills and the Czech Republic ranks 13th in Europe. Only 5 % of teachers haven't ICT user skills and 12% can be classified as novice ICT users. Digital competence is not a required competence for in service teachers and can be part of in service training (not always compulsory).

There is no national strategy in this field, training courses offered by different organizations, regional centers for further teacher education, universities and private companies. These courses prove mostly basic ICT training, the methodology of application of ICT in particular subjects is offered only in fewer cases. The new initiative EU money to schools under the Czech Operational Programme Education for Competitiveness (more in 2.2.) supports among other usage of ICT in all the subjects. Apart from procurement of ICT equipment, further professional development of teachers in ICT can be supported from this grant initiative. There is a necessary condition that courses financed from this initiative must have accreditation of MoE.

In-service teachers can also enroll for the study of “ICT Coordination” to become an ICT coordinator at school. (Only teachers with advanced ICT knowledge can apply - typically ICT teachers and teachers with a Master degree from Faculty of Education or with a Master degree in other specializations and completed the so called “pedagogical minimum” study. The next condition is 2 years of experience in pupils/students education.) This training last 1, 5 – 2 years and the main objectives are:

- to deepen and broaden graduates' competencies in methodology of efficient usage of ICT at schools

- later on - to lead other teachers to the usage of ICT in the lessons
- the creation of school ICT plan
- qualified planning and management of the fulfillment of ICT services standards

The ICT coordinators at schools receive either special benefits or the obligatory number of lessons they have to teach is lowered.

5.4. EFFECTIVE TRAINING MODELS FOR IN SERVICE TEACHER EDUCATION

No information available.

5.5. NEW INITIATIVES

A new and the biggest initiative is the programme EU money to schools – see points 2.2. and 5.3.

5.6. ASSESSMENT SCHEMES

Initial- teacher assessment

During the initial teacher education there is usually one compulsory ICT subject to be passed in the length of one semester which provides future teachers with the basic ICT competence. Additionally, there is a wide range of optional ICT courses (creation of web 2.0, working with moodle tools etc.). Graduate profiles from Faculties of Education do not define ICT competencies. Students undergo only one compulsory assessment of their ICT knowledge: the exam in the basic ICT subject.

In- service teacher assessment

An assessment took place during the mass ICT training of teachers within the frame of SIPVZ (see 5.1.) up to the year 2006. Presently, knowledge about ICT and digital skills in using ICT can be assessed within ICT courses which have different forms and can have an accreditation of MoE (see more about current initiative EU money to school in 5.3). If the course/training has an accreditation by MoE, schools headmasters are more willing to get teachers trained.

5.7. TRAINING THE TEACHER TRAINERS



Future teachers usually choose two specializations/subjects and one of them can be ICT (the study programme is usually Information technologies in education). Some universities offer one study programme within ICT that allows future teachers to teach both at elementary and secondary schools, other universities offer two different study programmes within ICT – one for elementary school teachers and one for secondary school teachers.

These people are specialists in ICT in education and they can later be recruited as teacher trainers. **Vast majority of teacher trainers** are recruited from ICT coordinators. To become an ICT coordinator, it is necessary to pass 1.5 – 2 year training in specialization “ICT Coordinator” (see 5.1 and 5.3).

5.8. INCENTIVES

In-service teachers can receive special allowances for further education which can be used also for ICT courses and seminars. At the same time, in addition to their salaries teachers can receive a special bonus for special activities in school each month – using of ICT in the lessons could be perceived as this special activity. The ICT coordinators at schools receive either special benefits or the obligatory number of lessons they have to teach is lowered.

Annually there are the national eTwinning prizes which could be also classified as a form of incentives for teachers.

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