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eMapps Reports

CZECH REPUBLIC

1. NATIONAL POLICIES FOR THE USE OF ICT IN EDUCATION

Responsibilities for ICT in schools

The Ministry of Education covers legislation and gives general directions for schools such as compulsory education in informatics.

Secondary schools are under the responsibility of the regions (regional authorities), primary schools fall under the responsibility of the municipalities (local authorities).

For both, primary and secondary schools the practical responsibilities are taken over by the headmaster of the school. Nowadays schools either have an ICT coordinator or a teacher of informatics and they follow the ICT school plan, which is required by the Ministry of Education. The ministry sets goals for the installation of computers or the connection speed. The ICT plan has to be updated once in a two years and goals for the next year/two years have to be set out.

In a yearly report, the improvement/change of the conditions are to be reported to local/regional authorities. At the time of initiation of ICT, the ICT plans helped Ministry of Education to monitor the situation of ICT in the schools.

Municipalities and regional authorities are responsible for ICT matters. They have great powers in settling financial and personal questions. However, the quality and quantity of infrastructure and equipment in place depends on the headmasters, which manages funds of the ministry of education, regions and municipalities.

ICT Policy

For the general overview some parts of articles describing current status of ICT policy in the Czech Republic are used:

"The emphasis of the ongoing school reform is put on IT equipment. Still, the IT literacy of the teachers is questionable. Lack of funds is preventing schools from effective use of computers. There is ongoing discussion whether children will have any computers at all. Large number of schools uses text editor, emails and internet browser at most, what is not an effective way. The most of the funds are allocated to essential hardware and software. Computer administration is often backed up by teachers themselves lacking any kind of technical support."

On state level there is the National Programme of Development in Education in the Czech Republic (White Book amended in 2001). The Research Institute of Education in Prague creates the general Framework Educational Programme for preschool, elementary school and secondary on behalf of The Ministry of Education, Youth and Sports of the Czech Republic.

ICT in National Educational Policy Framework

The national policy in the area of ICT and education was the State Information Policy in Education - SIPVZ (www.sipvz.cz, www.e-gram.cz) realized in years 2000-2006. It was built upon three pillars, sometimes also called projects:

A. Information literacy

The most comprehensive action by the Ministry is the State Information Policy in Education, which coordinated training of teachers in ICT and also provided manuals and training on how to use ICT in other subjects.

The aim of SIPVZ was to provide computer literacy to all citizens of the CR, but especially it focuses on those playing an active part in educational process - teachers. The main project is called "educating pedagogical staff". By the year 2006, 75% of teachers should be familiar with ICT on users' level (Z) and 25% on advanced user level (S). A special offer extending ICT skills of pedagogical staff is also available for those interested. These three levels are called Z, P and S levels, all issuing a certificate. At level P, teachers can focus on the integration of ICT into particular subjects. P level offers application modules each presenting one subject for either primary or secondary level.

The quality of each module is guaranteed by expert institutions (University departments, specialized secondary schools, and specialized institutions). In order to pass a module, teachers are guided in a "project" on how to use ICT in their teaching.

Pedagogical staff is the only target group of this national programme (as for professionals) and these courses are not compulsory. Literacy is to be acquired:

- Basic user skills for all teachers and other workers in schools – Z level
- Higher level for all teachers for motivation and basic knowledge about ICT – P level
- Specific knowledge, e.g. Physics with ICT, CAD, etc. – S level
- ICT coordinator – N level

Examples of modules:

S level Publishing on WWW – <http://www.jsi.cz/stranky/>
Graphics and digital photography – <http://www.jsi.cz/grafika/>
Teaching CAD technologies – <http://kraken.ruk.cuni.cz/~cad/>
P level ICT in teaching physics
<http://telmae.karlov.mff.cuni.cz/OnlineInfo/courses.nsf>

ICT in teaching mathematics – <http://www.pf.jcu.cz/p-mat/>

This initiative has stopped now and schools have started to use other trainings and also ECDL certification instead. Such trainings for pedagogical workers are covered by the Ministry of Education through Further education of pedagogical workers concept. One of the trainings provided by 'ZS Cerveny vrch' (our school partner in the project) is also realized through this scheme and presents mobile technologies usable in education and is based on eMapps.com project.

The most remarkable training is the ECDL. There are about 50 elementary and secondary schools in the Czech Republic in the role of ECDL testing centre. One of them is ZS Pelhrimov which has taken part in the eMapps project as a school partner.

B. Software and information resources

The outcome of SIPVZ project besides training created materials in digital form/educational software stored according to the school subject categories on so called Evaluation web and these were evaluated by educators. Creation of such materials has been covered through own granting scheme granted to small school projects with the aim to include ICT in any subject. This web site www.e-gram.cz has been closed down on 30.3.2007 and the agenda is under responsibility of Unit 55 - SIPVZ of Ministry of Education. Although on the official website of the Ministry unit states works, there is no visible change on related portal from January 2007.

C. Infrastructure realized through Internet for Schools project.

The most conceptual and also controversial State Information Policy in Education ended in December 2006. The criticism of the policy included unclear processing of public procurement and low cost-effectiveness. At the moment there is no follow up program or policy, the Ministry of Informatics ceased its existence and Ministry of Education has not consolidated its top management since last elections in June 2006 and due to weak/none leadership it has not initiated any fundamental change.

Concerning finances, Ministry of Education have changed its policy in last years and instead of centralized rental of ICT services allocates financial funds directly to schools. Each school interested in receiving funds for ICT from the state has to cofinance to some extent the amount using financing from founders or own resources. Methodical instruction from year 2006 issued by the Ministry left division of finances to three (above mentioned) categories, but leaves completely up to the headmaster to divide the money effectively.

National programmes:

- Internet for Schools

The Government also started several action plans in the field of e-learning, Internet access etc. The Internet for Schools Programme was launched in 1999 by the Ministry of Education, Youth and Sport. This programme introduced computers and

infrastructure in schools. Internet for Schools (www.indos.cz) was part of a larger concept of the State Information Policy on Education. Until 2001 more than 3600 schools joined the programme and educational institutions were equipped gradually with computers. Each school was provided with a certain number of computers according to the number of students per class. The Ministry has chosen as the exclusive supplier AutoCont Online and Český Telecom, which has installed computers and set up connections. The project officially ended on 31. August 2005. After the end of the project, schools kept computers and were asked to decide by Ministry of Education to choose if they wanted to have Autocont company as the administrator or they prefer to find someone local. Due to very bad experiences of many schools with remote administration (Autocont installed computer and severely restricted user rights on schools), they chose local administrators.

Source: www.indos.cz

- Class Server for Schools

This project is an initiative of the Ministry of Education, Youth and Sports with Microsoft (s. r. o. ČR), based on a Memorandum of Understanding signed in January 2005. The project supports e-learning and allows teachers and pupils to try Microsoft Class Server software for free. The project is for primary and Grammar Schools. The software contains manuals for preparations of e-learning courses for teachers as well as study materials from several subjects for pupils and students. From 1.10.2005 the provider (AutoCont CZ a.s.) has been replaced by S-COMP Centre CZ s.r.o. and the service is of providing hosting or software modules became a paid service. Since January 2007 Microsoft company replaced ClassServer by Microsoft and company Scomp Centre CZ is providing mostly access to server where previous school materials are archived to particular schools. Schools had to decide whether they will use further paid service of Microsoft SharePoint or other competitive learning management systems such as Moodle, Educeo etc. Number of schools (17) using ClassServer nowadays is provided by Mr. Celikovský (Business Manager of Scomp Centre CZ).

Internet Safety Policy

"Internet Safety in schools" is rather marginally tackled and it is included in project based solutions. Besides, technical issues of internet safety are dealt with provisions for buying hardware, where each school is obliged to have an antivirus program.

As it was mentioned already, it is compulsory for schools to have a "Plan of ICT/ICT Plan", which should cover the status, plans, activities, people engaged and other relevant issues. This document is the basics for the development of ICT in schools and may also include issues concerning Internet Safety. The ICT plan is the condition sine qua non schools apply for funds under SIPVZ scheme.

SIPVZ scheme ceased to exist as from December 2006 (see above mentioned paragraph).

Projects:

CzeSI (Czech Safer Internet Awareness Node) is the first project of the Safer Internet programme in the Czech Republic approved by the European Commission.

The first Safer Internet Awareness Node in the Czech Republic (Project CzeSI) has been officially launched in the 1st September, 2005. In 2006, based on the recommendation of the EC, we decided to stop the CzeSI project and to implement the foreseen activities into the new combined CZEch Safer Internet COMbined Node (CZESICON). The project starts in the 1st January 2007 under coordination of the CZI Company. CZESICON includes the Awareness/Helpline and the Internet Hotline modules:

The Safer Internet Awareness/Helpline is going to provide children with the first aid in the form of psychological and social assistance helping them to work, learn, chat, browse, and feel them comfortable on the Internet.

The Safer Internet Hotline will fight against illegal content, to allow all internet users in the Czech Republic to report illegal content above all the children pornography and other forms of the commercial sexual exploitation of children, and to pass reports on to the appropriate body for action.

The important part of planned efforts is to establish an efficient and trustful communication channel in cooperation with relevant partners to help children in discomfort or in danger to come over troubles caused by the Internet illegal content or improper behaviour of the Internet users, develop a realistic methodology to analyse such dangers and to complete a set of nationwide awareness campaigns of events focused on issues causing discomfort or menace on the Internet.

The CZESICON project will share the information and experiences with other national Safer Internet projects throughout Europe by exchanging the best practices, and contributing to European approach. The project adapted as necessary for the Czech national linguistic and cultural preferences will actively co-operate with INSAFE network at the European level. It is also going to complete the system of the European hotlines, members of the INHOPE.

Source: www.saferinternet.cz

Project Safe Internet is organised by "Nase dite" foundation (Our Child Foundation) with the aim to provide more information on safe content and the prevention of misuse of the Internet and its content. The foundation issued "Ten Commandments for Pupils" concerning Internet safety and "Ten Commandments of Safe Internet for Parents". The project is accompanied by a large campaign targeted at primary schools.

In May 2005, as a member of the European Federation for Missing and Sexually Exploited Children, the Our Child Foundation started a nationwide project titled "A Safe Internet" within the framework of its "Stop Violence Against Children!" campaign.

Experience confirms that, in this day and age, the Internet provides an anonymous

environment for the commercial exploitation of children, child pornography and violence. It's necessary to face this threat and thus activities are being initiated in the countries of the European Union for the purpose of protecting children against the dangers of the Internet.

Through this project, the Our Child Foundation brings the attention of children at all primary schools in the Czech Republic to the possible risks and dangers associated with the Internet. These "Ten Commandments" are intended primarily for ten-year-olds and all pupils who are lacking the necessary information, advice, and principles associated with safe use of the Internet

Miscellaneous:

There is also JuniorInternet Conference for young people creating web pages and content for Internet, which also tackles Internet safety issues to some extent.

The Family Online Internet Safety Contract (http://www.safer-internet.cz/r_smlouva.htm) aims to inform about what children may find on the Internet how to use it safely and how they can actively take part in building a Safe Internet. On the other hand, there is no contract bringing together schools, pupils and parents.

The Ministry of Informatics is the main actor for several EU schemes such as eTen, eContentPlus, SaferInternet etc.

Source:

www.safer-internet.cz
www.juniorinternet.cz/
www.micr.cz
www.safer-internet.cz/r_smlouva.htm
www.nasedite.cz

Broadband projects

Nearly all Czech schools are equipped with computers and internet connection. 63% use the internet via a broadband connection. With this figure the Czech Republic ranks at number 22 of the 27 countries participating in the survey¹. There is a large variation between school types: while only 55% of primary schools have a broadband internet connection, at 77% the penetration is highest among upper secondary schools. Rural areas also lag behind urban ones in terms of broadband access, with 56% of the former connected to the internet via broadband as opposed to 74% of the latter. The vast majority of schools use ICT in computer labs (91%). This seems to be the typical location where most pupils are confronted with ICT in schools. 36% of the teachers using computers use them in less than 10% of all

¹ Key findings of Information and Communications Technologies (ICTs) in School
http://ec.europa.eu/information_society/newsroom/cf/document.cfm?action=display&doc_id=175

lessons. Teachers in vocational schools use computers in class much more frequently than their colleagues in general education. 22% of teachers in the Czech Republic still do not use computers in class. 44% state a lack of computers in their schools as an important barrier but only 16% express the opinion that teachers lack the necessary skills to utilise computers in their teaching. The as yet sub-optimal quality of the internet connection in many schools requires some improvement. Czech schools could probably also benefit from higher levels of integration of ICT in teaching subjects in class as opposed to mostly using ICT only in dedicated computer labs, although the intensity of ICT use in Czech schools is at a level above the European average with hardly any differences according to the age of teachers.

The Ministry of Education, Youth and Sports in cooperation with the biggest telecom provider Czech telecom is in charge of the vast broadband project "internetisation" of schools. Primary and secondary schools were divided into two groups – green and red. The pilot "green schools" obtain broadband connection this year and the red schools will receive money for broadband connections in the next round.

The development of broadband connection has been slowed down by late liberalisation of national incumbent; therefore the first wave of the project is only in process now. 1% of the sales price of the Czech Telecom into private hands has been dedicated to the development of broadband connection. The Ministry of Informatics is responsible for the call (www.micr.cz).

The ministry of Informatics was dissolved with the start of new government and ceased its existence in December of 2006. Part of it became an integral part of Ministry of Interior and part of it is administrated by Ministry of Industry of the Czech Republic. The activities of the successor are aimed at creation and promotion of e-government at the moment.

Initiatives and good practice linking school and homes and school/ external organizations

There is no known policy for creation of linkages between schools and home. There are portals funded by private companies acting in the field of education, such as those listed below. The linkage between schools and external organization is not so explicit, they either use web pages of particular schools or libraries or use mentioned portals.

Cooperation of schools and museums/galleries has no solid ground until now and it is based on ad hoc cooperation between particular museums a schools. Cooperation between schools with community organizations is not monitored, but normally are schools very active in community life. Libraries and schools are usually connected through school libraries, however there was no closer interaction seen.

There is also a very initiatives bringing together schools and external organizations, such as:

- Museum and School Conference organized every second year (2003,5,7) where museum workers and teachers are exchanging best practices

examples of mutual cooperation. From this cooperation is stemming a new specialization of museum pedagogues – people who methodically prepare programs for school children in museums.

- Association of Museums and Galleries of CR should be the executive body making pressure on Ministry of Culture and Ministry of Education to create an official framework for cooperation.
- The most popular portal is the information and education portal Škola Online (School Online), which provides information for several target groups (headmasters, teachers, parents, pupils/students). It also contains applications such as a Pupil's Report Book. This application gives an overview of student results but also provides new means of communication such as sms, e-mails for teachers and parents. The other part of the A virtual teacher's desk serves as the communication between teachers and between teachers and parents.
- Škola za školou (School behind school) – this portal works as paid e-learning service for pupils between 11–19 years. In case students need more time to spend on a particular topic learnt in school, this application - an interactive tool - provides more information, tests, quizzes etc.

Source:

www.skolonline.cz
www.skolazaskolou.cz

2. ICT IN THE CURRICULUM

General National Curriculum

The national curriculum (see 1.0) defines what is common and indispensable for education of pupils in every school providing basic education including lyceums (High school for more than 4 years). It specifies the level of key competencies, which pupils on elementary schools should gain. It also defines binding educational content (expected outcomes and curriculum) on the level of elementary school. Further it supports an overall approach to teaching. Teachers should teach in a way that it relates to other subjects too and avoid getting to specialized. This includes the possibility of appropriate linking of learning content and assumes that various learning methods will be used according to individual pupils needs. It allows modifications for pupils with special educational needs and it is binding for all upper secondary schools when setting up entry tests. With transition from primary schools to upper secondary school at the age of 15, pupils are obliged to pass entry tests. Nowadays these tests should respect national curricula.

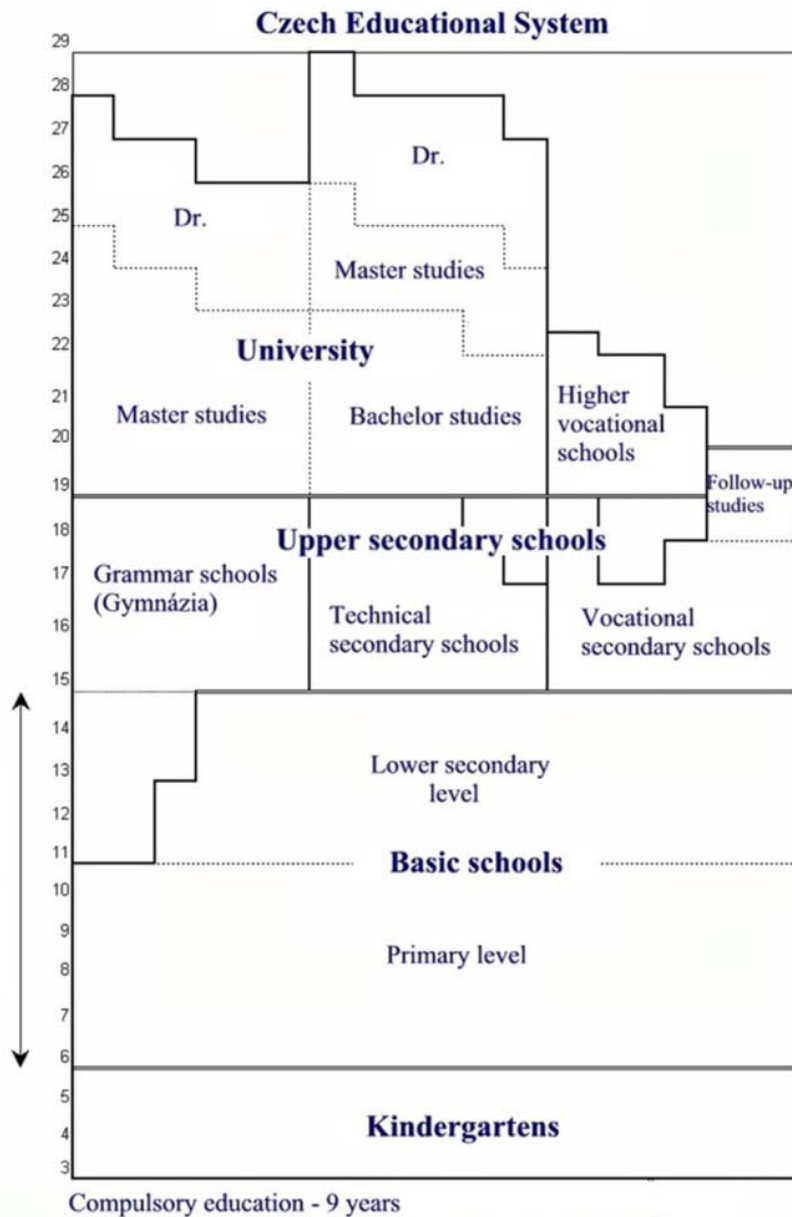


Table 2. Czech Educational System²

The overall objective is to achieve e-literacy of teachers and pupils/students at the best level possible according to the level of the educational institution. (primary and secondary). The main approach to ICT in education is to use it as a subject.

² More information available at:
<http://extranet.edfac.unimelb.edu.au/DSME/icmi-algebra/FromParticipants/PlenaryAroundTheWorld/algebraocr.doc>

- ICT is not a part of the compulsory minimum curriculum in primary schools. In lower secondary education ICT is an optional subject that can be included in the curriculum at the discretion of the school head. Since the 1st September 2001 classes with extended teaching of ICT could be established, meaning that ICT is introduced as a separate compulsory subject.
- In general upper secondary education ICT is a compulsory subject in the first year (15 years), it can be included in the curriculum in the subsequent years at the discretion of the school head.

ICT is taught as a major subject in seven universities and in eight faculties. According to an ICT sector analyses carried out by state agency CzechInvest, university education is at very high level, working closely together with Czech and foreign companies to form IT students.

Source:

<http://www.eurydice.org/Documents/KDICT/en/FrameSet.htm>

Curricula documents are created on state and local level (school level). The state level issues Framework Educational Programmes (RVP) -the national curricula- for all levels, which set out the binding framework of education and limits the standard educational content for a given phase of education.

In the RVP ICT is described as an eclectic subject for primary education with very little general outlines for teaching. On secondary school level ICT is a compulsory subject in the first year (for 15years old), taught separately.

Schools themselves prepare School Educational Program (ŠVP), which proceeds from RVP and specifies education in a particular school. Within this framework schools develop an ICT plan and describe how ICT is handled in detail.

The System of Curricula Documents

Please also see Research Institute of Education in Prague:
www.vuppraha.cz

White Book on Education (Czech language is the only available)
<http://www.skolam.cz/INKomensky/BKniha/BKniha.htm>

ICT integrated into the curriculum (primary and secondary education)

In primary education: as non-compulsory subject

In secondary education: compulsory subject, taught separately, not incorporated into other subjects.

Primary school curricula is open, yet schools work on the basis of the general framework programme developed by the Research Institute of Education in Prague, which sets Informatics as an elective subject (optional) and provides general guidelines for teaching. The practical content of the framework programme is set out by teachers themselves. Since 1 September 2001 classes with extended teaching of

ICT could be established, meaning that ICT is introduced as a separate compulsory subject.

In general upper secondary education ICT is a compulsory subject in the first year (15 years old students), it can be included in the curriculum in the subsequent years at the discretion of the school head. The main objectives are to learn to search for information on a CD-ROM, on the Internet, to communicate via a network, to use ICT to enhance subject knowledge, to develop programming skills.

Curriculum reforms

School curricula move from strict and centralised curricula prescribed at state level towards an open decentralised curriculum defined at school level. This new curricula is compulsory for all primary schools from 2007 onwards. The above mentioned general framework sets out the competencies to be achieved by any pupil leaving primary school.

As from the new school year (9/2006-6/2007) all primary schools adopted their School Framework Programs and as those are used only for the first years of the two levels of elementary education (grade 1. -6yrs, grade 6.-12yrs). Other classes will gradually take up the new curricula from year to year so that those children starting with old curricula can finish both levels with the old ones.

Basic outcomes:

- to raise educational autonomy
- main emphasis is put on gaining key competences

Key competencies:

- competency to learn
- to solve problems
- to communicate
- social and personal
- civic
- working

Two levels of school system:

- state level
- local level

DeSeCo www.portal-stat.admin.ch/desecco/index.htm
www.eurydice.org/Documents/survey5/cs/CCC.pdf

3. ICT IN PRACTICE

Barriers affecting the use of ICT in schools:

ICT in the curriculum: no, there is vast governmental support

Games in the curriculum in school education: no

Mobile phones in schools: no, although there is an ongoing discussion whether this device belongs to school classes

ICT integration in schools (for primary and secondary) education:

ICT integration solely depends on the ICT plan of school, which is a compulsory part of the wider planned teaching framework of the school. ICT plan of school describes actual status, aims, which the school wants to achieve within the given Standard of ICT services in school – plan of ICT equipment and the way and how it will be achieved.

External projects:

IT 2005 <http://www.it2005.ceskaskola.cz>

The information server for schools provides a platform for teachers and schools. It is created within the framework of the State Information Policy in Education.

Teacher's assistant portal <http://www.spomocnik.cz> is an Internet portal for future and in service teachers, with information on how to use ICT in teaching. It was created by the Pedagogical Faculty of Charles University.

Microsoft ClassServer platform for educational process is a e-learning platform. Microsoft Class Server makes it easy for school districts to create, deliver, and grade standards-aligned tests and lessons over the Web-helping teachers track and improve student achievement against local curriculum standards.

Creative Informatics with Baltie <http://www.ict-edu.cz> - this portal contains programming teaching tools for children and youth and also contains basic methodical materials explaining principles of education IT in CIB and also principles of creating methodical materials.

Česká škola (Czech school) www.ceskaskola.cz - web for primary and secondary schools. Also contains methodological materials for teaching and computer-based educational programs.

Internal projects:

Most of the projects carried out by schools themselves were financed under the scheme of State Information Policy in Education. Many of them relate to the integration of ICT into particular subjects and others. See the list under the SIPVZ scheme <http://is.e-gram.cz/projekty/>, unfortunately available only in the Czech language (the total number of projects is 1148). Now finished and no alternative has been presented so far.

Known uses of games

Playing games in school is commonly used as part of a didactical approach. Playing computer games during teaching is slowly becoming popular amongst teachers, though the older generation does not fully agree with the positive impact. Computer games are therefore often organised in afternoon time.

Use of online learning resources, tools and provision of virtual learning environments

Most frequently used general online learning sources are SIPVZ modules for P level (already mentioned) and the School behind School portal. Other environments focus on subjects (part of modules):

Biology <http://www.osu.cz/katedry/kbe/kbeict/>
History <http://ict.uhs.ujep.cz/>
English language <http://www.fi.muni.cz/ICT4ELT/>
Chemistry http://pdf.uhk.cz/kch/sipvzp_ch.htm

See also evaluation web site <http://web26.e-gram.cz/Pages/Index.aspx>, where most used educational software is listed and evaluated.

www.e-gram.cz

www.skolazaskolou.cz

<http://web26.e-gram.cz/Pages/Index.aspx>

Computer distribution (in primary and secondary education)

Mostly computers are placed in computer labs.

Recommendations for the computer distribution were deducted from the number of Informatics lessons taught:

- for elementary schools 2 lessons/week – 5 work stations/100 pupils
- secondary schools 3 lessons/week – 7,5 work stations/100 pupils

Applicable for computer labs.

For other classes it is counted to have 2 work stations per 100 pupils. As for teachers, it is recommended to have 1, 5 work station/teacher (or 5 work stations per 10 pupils).

Overall numbers (recommendation):

- Elementary schools 12 computers/100 pupils
- Secondary schools 15,5 computers/100 pupils

According to the statistics given by the Ministry of Education, there are at least 10 PC/per 100 pupils in primary schools, out of which 5 PCs were not older than 5 years in 2004. The minimum connection speed is 64kbs/s for elementary schools; for secondary schools it is 128 kbs/s. By the year 2007 every class should be connected by year 2009 every work place.

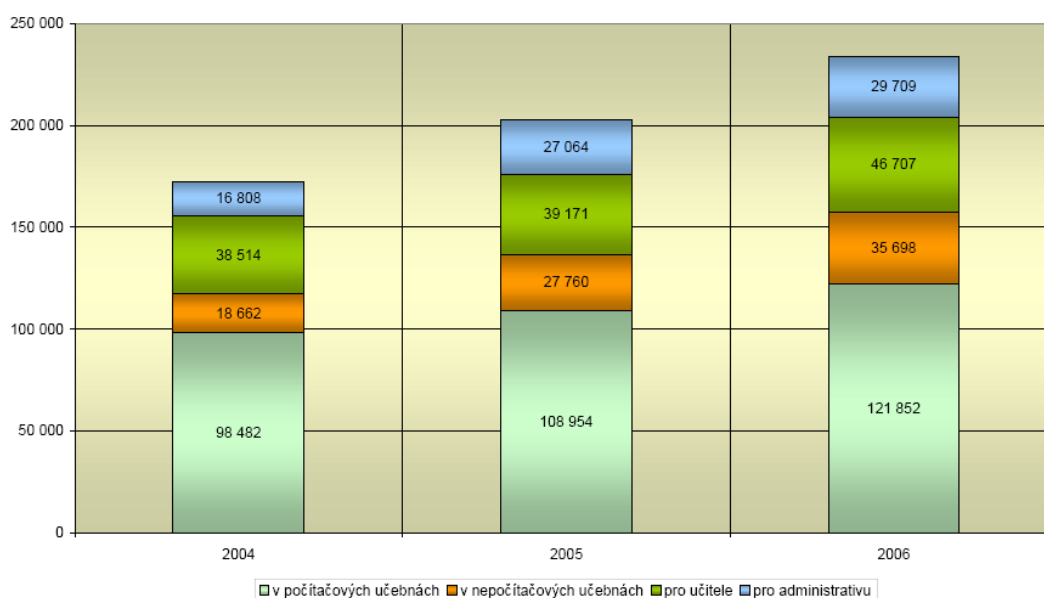
According to the SITES - Second Information Technology in Education Study, which links to COMPED research - Computers in Education, there are 43,7 pupils/primary

school/computer; 17,4 students/secondary school/computer.

No other data on laptops or other handheld device is available.

According to Eurydice (The Information Network of Education in Europe), Czech Republic is one of the four countries (France, Italy, the Czech Republic, and Slovenia), where computerization is relatively well developed. In these countries more than 60% of pupils have access to at least one computer away from the classroom is in all cases higher than 60%.

Information from Ministry of Education declares the following number of computers at school:



Number of computers at school including the placement

Support (technical and pedagogical) in primary/ secondary education

The level and the number of support personnel in primary schools vary according to the size of school. All schools (primary and secondary) have an ICT administrator. This function can be executed by one or more persons fulfilling different roles. (from 2006 onwards).

- A pedagogical ICT adviser – supervises the use of ICT in pedagogy, helps teachers to integrate ICT into education, helps teachers with training in ICT, promotes the broader use of ICT in education, creates an ICT plan for the future. This function can be shared by more teachers.
- A manager of ICT – coordinates the implementation of ICT in school.
- An ICT administrator – provides for the operation of ICT from the technical

side.

Source:

In Czech language only:

<http://www.e-gram.cz/Documents/Neumaje-Zlenice-051107.pdf>

<http://www.skolaonline.cz/scripts/detail.php?id=3748>

4. RESEARCH AND ICT

Impact of ICT on learning outcomes

According to the case study "School Library as MultiMedia Center in Grammar school in Humpolec" published as a part of the international survey SITES M2 several learning outcomes can be concluded.

The SLAM (School Libraries as MultiMedia centres) project is designed to develop the use of school libraries as multimedia resource centres encouraging and developing open learning within the partner organizations. In the initial stage, the project aims to integrate new technology and new media into the educational process. This requires the training of teaching staff and educational managers to raise awareness and to promote a change towards an active approach of students within the instruction process. The project has the following stages:

- Equipment of the school library that enable its use as a multimedia centre – video-conferencing system, data-projector, Lanius library organization system, Internet connection etc.
- Training of staff in using ICT in education and the possibilities of implementing distance forms of learning
- Transfer of this information into the activities of the whole school, with the aim to offer the students a certain base needed for life long learning
- Dissemination of the project SLAM to the educational institutions and schools in the area.

At the time of the research, the project reached the end of the second year (out of three years' term for which it was approved).

Impact:

- Student get familiar with interactive tools and applications – make PowerPoint presentation of themselves, create a video program
- They learn to work on project basis. The students prepare their work really thoroughly and they like it. Everybody at the school knows about it. The teachers have established a cross curricular cooperation. It is not a surprise that even in the lesson of creative arts there are also links to the project.
- The students cooperate within the teams. It is up to them how they divide the work. The most computer skilled one is in charge of the processing of the data the others have collected. Other students take care of the presentation etc. Basically, everybody finds the job that suits him/her the best. Of course, there are also students that are trying to avoid any work. It is up to the teacher to know about it. The best opportunity to award the work of the students is to offer them trips abroad.

- New dimensions of relationship. The students believe that the project does not affect their relationships. But the teachers observed certain changes: „Their positions have changed. They become more cautious of the abilities of the class. “
- Other groups were involved. All our findings show that the cooperation with parents is perfect. „There is an advisory board of parents at the school (one from each class) with which the management regularly consults the important matters. At the beginning of the term, a meeting of all the parents takes place. “

Source:

International Society for Technology in Education: "Technology". 6/2003
<http://it.pdf.cuni.cz/sitesm2/gymhu/cz003en.htm#popis>

Impact of ICT on lesson planning and teaching methodologies

A working study on Information and Communication technologies in Education of Mr. Borivoj Brdicka from Pedagogical Faculty of Charles University in Prague concludes that lesson planning and teaching has changed in the following points:

- Approach: constructive not instructive
- Teaching: project-based not pre-programmed teaching
- Teaching plan: based on theme not firm outline and standards
- Task: must be fulfilled not having the particular knowledge is required
- Teaching: by understanding the context not by memorising
- Subjects: linked to the topics, not separated
- Pupils: divided by skills and interest not by age
- Tasks: individual or collective not that everybody does the same
- Mistakes: source of guidance not for correction only
- Evaluation: oral not only testing and marking
- Teacher: guide and helper not the highest authority
- School environment: open not closed
- Source of information: anyone and anything not only teacher

NOTE 4.2

http://it.pdf.cuni.cz/~bobr/akcni_plan/ (only in the Czech language)

5. IMPLEMENTATION DATA OF ICT IN SCHOOLS

Number of	Data	Year and Reference
GENERAL SCHOOLS' DATA Please distinguish between Overall, Primary and Secondary education (O, P, S)		
Schools	O-6087 P-4347 S-1482	P- www.zakladniskoly.cz/index.php?typ=kra&rq=search S- http://www.stredniskoly.cz/ 2005
Students	O-1 442 700 P-919,400 S-523,300	Ministry of Education 2005 http://www.msmt.cz/_DOMEK/Default.asp?ARI=103525&CAI=38&EXPS="POČET%20ŽÁKŮ"
Teachers	O-114664 P-65615 S-49049	School Statistical Yearbook 30.9.2005 http://www.czso.cz/csu/redakce.nsf/i/skolstvi/\$File/08_skolstvi.pdf
INFRASTRUCTURE - If possible, please distinguish between overall, primary, secondary and vocational (O, P, S)		
Number of Schools connected	O 98,1 % P 97,0% S 99,0%	Czech Statistical Office, ICT overview in education 2006 http://czso.cz/csu/redakce.nsf/i/ict_infrastruktura_ve_skolstvi . Numbers for P and S are estimated from the graph given.
Number of Schools with broadband	O-77,16 % P 47,8% S 82%	Ministry of Education:State of ICT in year 2006 http://www.msmt.cz/vzdelavani/stav-ict-vybaveni-ceskych-skol-v-roce-2006 Numbers for P and S are estimated from the graph given
Number of schools with wireless networks	34,06 %	Ministry of Education:State of ICT in year 2006 http://www.msmt.cz/vzdelavani/stav-ict-vybaveni-ceskych-skol-v-roce-2006
Number of schools with satellite	NA	
Number of schools offering GPRS connections	NA	
Teachers with laptops	NA	
Students with laptops	NA	
Students per internet connected computer		The number matches “students per computer” number in case of secondary schools. In case

		of primary schools, there is a small difference between the two items – there is more students per internet connected computers. No exact number is available.
Students per computer	O 9,3/per 100 students P 7,6/100 S 10,06/100	Benchmarking Access and Use of ICT in European Schools 2006 Final Report from Head Teacher and Classroom Teacher Surveys in 27 European Countries http://ec.europa.eu/information_society/europe/i2010/docs/studies/final_report_3.pdf
School- home connections	O 100 schools P 25 S 75	Project <i>Škola online</i> (www.skolaonline.cz) – “virtual school” environment
Age of computers	63,60 % younger the 5 yrs	Ministry of Education:State of ICT in year 2006 http://www.msmt.cz/vzdelavani/stav-ict-vybaveni-ceskych-skol-v-roce-2006
USAGE- If possible, please distinguish between overall, primary, secondary and vocational (O, P, S, V)		
Schools having a website	O-2004 P-777 S-1235	Institution for Information on Education, 2004. http://www.ceskaskola.cz/ICTveskole/AR.asp?ARI=102165&CHID=4&EXPS=&EXPA=
Schools using a Virtual Learning Environment (includes intranets)	O 80,6% P 77,9% S 84,06	Numbers relate to LAN Benchmarking Access and Use of ICT in European Schools 2006 Final Report from Head Teacher and Classroom Teacher Surveys in 27 European Countries http://ec.europa.eu/information_society/europe/i2010/docs/studies/final_report_3.pdf
Schools using videoconferencing	NA	
Teachers with email	O 83,6% P 84,2 % S 82,53%	Benchmarking Access and Use of ICT in European Schools 2006 Final Report from Head Teacher and Classroom Teacher Surveys in 27 European Countries http://ec.europa.eu/information_society/europe/i2010/docs/studies/final_report_3.pdf

		e/i2010/docs/studies/final_report_3.pdf
Students with email	O 45,4% P 45,7% S 43,4%	Benchmarking Access and Use of ICT in European Schools 2006 Final Report from Head Teacher and Classroom Teacher Surveys in 27 European Countries http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/final_report_3.pdf
GENERAL SCHOOLS' DATA Please distinguish between Overall, Primary and Secondary education (O, P, S)		
Schools	15593(P-2003);6927(S)	2004, Central Statistical Office
Students	2723661(P);1648677(S)	2004, Central Statistical Office
Teachers	641400(P+S)	2002/2003, internet
INFRASTRUCTURE - If possible, please distinguish between overall, primary, secondary and vocational (O, P, S)		
Number of Schools connected	14127(P-2003/2004) 6372(S) 90,6%(P); 92%(S)	2004, Central Statistical Office
Number of Schools with broadband	About 25%, 36266 computers(P); 30237computers(S)	2004, Central Statistical Office
Number of schools with wireless networks	No information	2004,
Number of schools with satellite	No information	2004
Number of schools offering GPRS connections	No information	2004
Teachers with laptops	No information	2004
Students with laptops	No information	2004
Students per internet connected computer	31(P); 25(S)	2004, Central Statistical Office
Students per computer	22(P), 23(S)	2004, Central Statistical Office
School- home connections	No information	2004
Age of computers	1-5(P); 1-4(S)	2005, internet

USAGE- If possible, please distinguish between overall, primary, secondary and vocational (O, P, S, V)		
Schools having a website	About 40%	2005, internet
Schools using a Virtual Learning Environment (includes intranets)	No information	2004
Schools using videoconferencing	No information	2004
Teachers with email	No information	2004
Students with email	No information	2004