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## IMPLANTATION OF E-LEARNING INTO COMPREHENSIVE SCHOOL: EUROPEAN EXPERIENCE OF IMPLEMENTATION, SUPPORTING AND REALIZATION

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*Abstract:* In the given article the European experience of implantation of information and communication technologies in secondary education is considered. Basic directions of such implantation are presented and the general projects of support of E-Learning are described. The types of co-operation of schools and Internet resources are exposed. Basic web-oriented resources are presented for school of Great Britain, Germany and Spain.

*Keywords:* E-Learning, virtual schools, European project for supporting E-Learning, web-oriented resources

*ACM Classification Keywords:* K 3.1.

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### Introduction

Influence of information and communication technologies on education has been increasing to a considerable extent. Experts assert, that in the nearest future the person will allow up to 40 % of his school hours on distance learning, combining them with traditional forms of internal lessons (40 %) and self-education (20 %) [Khutorskoi, A. V., 2001].

A long time ago the European community has realized the necessity of active usage of information and communication technologies in educational process and as result of it was the creation of the European Commission document "E-Learning Action Plan – Designing Tomorrow Education" in 2001. In some years of implementation of this schedule the European Commission has marked, that "E-Learning became the main in our educational and training systems".

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### Implantation and support of E-Learning at schools of Europe

In the European educational space the following directions of implantation of information and communication technologies are distributed. They are: 1) the computer training using electronic tutorials (encyclopedias etc.) and/or Internet materials, placed in Intranet; 2) web-oriented training and/or usage of Internet resources for training in on-line mode (including, the way of telecommunication projects) and 3) virtual schools.

If the first direction of implantation completely depends on individual preferences of the teacher and possibilities of concrete school, the second is actively maintained by various on-line projects of the European community. So, portal European Schoolnet (<http://www.eun.org/portal/index.htm>), is the unique initiative and the result of international cooperation of 26 Ministries of Education of the European countries with the purpose of unification their efforts on research of ICT influence on the education system, the help to politicians in education and assistance to vocational training. And the portal "E-Learning Europa" (<http://www.elearningeuropa.info>) represents the attempt of creation of the database of educational school resources on all European countries of Community.

Development of E-Learning in Europe is maintained by the following projects:

1. Netd@ys Europe, created with the purpose of unification of efforts of cultural institutes and an education

system in creation of the European Internet space, and promoting usage of new media (multimedia, Internet, videoconferences and new audiovisual possibilities) in education. This project is decentralized and each European country has an own site of this project.

2. myEurope (<http://myeurope.eun.org/ww/en/pub/myeurope/home.htm>), is invoked to promote the rise of consciousness by children of their belonging to the European community through usage of innovational activity in the class and school projects.

3. Project Celebrate ([http://celebrate.eun.org/eun.org2/eun/en/index\\_celebrate.cfm](http://celebrate.eun.org/eun.org2/eun/en/index_celebrate.cfm)) consolidates the efforts of all interested in development of E-Learning for solution the problem how the electronic educational content should look in the future. In the project the data on objects of training are stored and there are appropriate databases for further usage in education.

4. Xplora (<http://www.xplora.org/ww/en/pub/xplora/>) represents the special resource created for improvement of professional skills for teachers, researchers, and students and there are various resource possibilities for them, interactive tools and friendly links.

5. Spring Day in Europe (<http://www.springday2007.net/ww/en/pub/spring2007/index.htm>): the project is approached on cooperation, the communications between pupils, teachers and schools in Europe on problems of development of the European community.

6. Insight (<http://insight.eun.org/ww/en/pub/insight/index.htm>) is a resource elucidating innovations in informational - communication technologies and new pedagogical technologies; represents individual experience of ICT implantation in different countries.

7. Comenius (<http://comenius.eun.org/ww/en/pub/comenius/index.htm>). The project "Comenius" is the second phase of the project "Socrates", invoked to promote international cooperation, professional growth, learning of languages and creation of an intercultural tolerance, the European mobility and the innovational pedagogical activity connected with ICT, by means of school and language telecommunication projects (and not only for pupils, but also for teachers).

8. European Quality Observatory (<http://www.ego.info/>) is the project, invoked to provide necessary quality of E-Learning at all educational levels. This project is maintained by the European Fund of quality of electronic education (<http://www.qualityfoundation.org/ww/en/pub/efquel/index.htm>) and allows getting access to databases by criteria of estimation of efficiency of the educational process, and also enables to exchange their experiences.

10. EUN Community (<http://community.eun.org/enter.cfm>) allows involving new Internets technologies (virtual communities, blogs) for creation of the information-learning environment of European educational space.

In the European sector of Internet for the educational purposes the following resources also can be used: «EU TrainingSite» (<http://eutrainingsite.com/index.php>), «E-learning for Customs and Taxations» ([http://ec.europa.eu/taxation\\_customs/customs/cooperation\\_programmes/key\\_policies/elearning/index\\_en.htm](http://ec.europa.eu/taxation_customs/customs/cooperation_programmes/key_policies/elearning/index_en.htm)), «Officials Wikiversity» ([http://en.wikiversity.org/wiki/Wikiversity:Main\\_Page](http://en.wikiversity.org/wiki/Wikiversity:Main_Page)), «Energy is our Future» (<http://www.futurenergia.org/ww/en/pub/futurenergia/homepage.htm>), «Click-a-teacher» (<http://click-a-teacher.com/>), «Wikijunior» (<http://en.wikibooks.org/wiki/Wikijunior>), «Vyew» (<http://www.vyew.com/content/>), «ChatFiti» (<http://chatfiti.com/>), «Learning Vocabulary Can Be Fun» (<http://www.vocabulary.co.il/>), «Learn Hebrew» (<http://www.learn-hebrew.co.il/>), «ELGG» (<http://elgg.org/>), «Decide4europe» ([http://decide4europe.eun.org/ww/en/pub/role\\_play\\_2006/homepage.htm](http://decide4europe.eun.org/ww/en/pub/role_play_2006/homepage.htm)), «Languages and Europe» (<http://europa.eu/languages/en/home>), «e-Learning for kids» (<http://www.e-learningforkids.org/>), «Geoquiz» (<http://www.lizardpoint.com/fun/geoquiz/index.html>), «moodle» (<http://moodle.org/>), «iLoveLanguages» (<http://www.ilovelanguages.com/>), «eduspace – The European Earth Observation WEB SITE for Secondary Schools» (<http://www.eduspace.esa.int/eduspace/main.asp?ulang=en>), «GlobalEnglish»

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(<http://www.globalenglish.com/>), «Scholarly Journals» (<http://info.lib.uh.edu/wj/webjour.html>), «Europe – Chemistry for life» (<http://www.cefic.org/>), «Science Across the World» (<http://www.scienceacross.org/>), «Teachers Resources language» (<http://home.amaonline.com/teacherstuff/>), «eLSEE – eLearning in Science and Environmental Education» (<http://www.globe-europe.org/>), «Kindersite Project» (<http://www.kindersite.org/>), «International Initiative – Map World» (<http://www2.etown.edu/vl/maps.html>), «Learning Folders Net» (<http://lefo.net/>), «Europe – ZAP» ([http://www.e-linq.nl/frmDetail\\_en.asp?medid=65](http://www.e-linq.nl/frmDetail_en.asp?medid=65)), «Europe – Bionet» (<http://www.bionet.schule.de/>) and others.

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### E-Learning and the traditional educational process: types of interaction

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Above-mentioned classification can be supplemented by such variants of implementation of interaction of schools and the resources placed in Internet [Khutorskoi, A., V., 2001]:

*The first type of interaction:* "School – Internet". The most preferable variant of work when pupils, being trained in traditional school, together with teachers interact with the information being on distance from them, various educational objects, sometimes with pupils of other schools and experts in studied areas.

*The second type of interaction:* "School – Internet – School". More complicated variant of work which assumes, that traditional full-time learning will be supplemented and complicated with electronic training and will be connected to school and pupils actively participating in distance projects with two or more teachers and pupils from other cities or countries.

*The third type of interaction:* "Pupil – Internet – Teacher". Such type of interaction assumes, that a part of full-time learning will be replaced by electronic. Though also pupils are trained at traditional full-time school, but incidentally or continuously the teacher being at the distance works with them on subjects, which are studied only as distance learning. Lessons can be held as distance / electronic courses, seminars, consultations etc. with the help of Web-resources, e-mail, chat etc. The main purpose of such lessons: the profound learning of any subject or a theme, preparation for entering to high school and so on.

*The fourth type of interaction:* "Pupil – Internet – Center". In this case the initiative of training belongs already to the pupil and ICT are as resource of personalizing of training. The pupil searches for a resource: center of distance learning, virtual school, a portal with electronic courses etc. to pass training in the form desirable for him, in individual rate and with a different degree of complexity of training.

*The fifth type of interaction:* "Pupil – Internet – ...". Such type of interaction assumes, that each pupil can study on his own complex education program and not only at one full-time or virtual school, but in several at once. The role of the coordinator can fulfill either an educational institution, or pupil's parents. Such form of interaction allows flexibly to take into account personal features and the purposes of the pupil, to draw up his individual educational trajectory in each educational area or a subject. The school as the form of giving of educational services, in this case comes nearer as much as possible to individual needs of each pupil and is transformed into the personal educational center including individual deckhouses, the own updated database on main and additional subjects, the interactive education programs connected to Internet educational resources.

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### Virtual schools

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Also it is necessary to notice, that the European educational space actively uses also the third direction of ICT implementation, namely - virtual schools - and influence of such schools on the general educational process of modern school has been growing.

All virtual schools, outgoing from their specificity, it is possible to divide into three main types. The first type –

cyberspace – exists irrespective of geographical layout. At these schools all students are free from physical visiting school and it is not presented neither educational building, nor any other buildings, as in traditional school. Educational programs of such school can be based on any concrete school system, but except for it there are no other encumbrances because of which students from other countries could not receive education with the help of the computer [Russel, O., Holkner B., 2000].

The second type of virtual schools – hybrid – allows students to receive a large part of education at home, at office or other places, but requires regular visiting of traditional school for such activity, as involvement in sports or other student's actions which facilitate socialization of pupils [Russel, O., Holkner B., 2000].

And, at last, the third – the tutorial type – the type of virtual schools is based on usual training of students at traditional school, thus the virtual method of training can be applied in a case of absence of the qualified teachers in any subject, or as additional for lagging behind or, on the contrary, especially gifted students [Russel, O., Holkner B., 2000].

Though also such type as the virtual school oriented to the program of a comprehensive school, has appeared rather recently, but some of them have already strongly won the place and have received popularity in the Internet. It is, for example, Virtual School for the Gifted, Rocky View Virtual School, Academy Virtual School. In the Great Britain, for example, one of the first has arisen Old Library Virtual School at West Norwood, Lambeth. The school is oriented on children of the age from 9 till 11, which study at main school, but they do not visit any concrete one. For pupils who "were not entered" in any traditional educational system, it is created Notschool.net. With the purpose of support the equal access to ICT of all levels of population and overcoming of digital (cyber-) segregation it was opened Liverpool Virtual School. In the Great Britain the other type of virtual schools is existed, they are oriented on receiving by pupils of additional education and/or realization of themselves by ICT resources. Such schools are: National College for School Leadership, The Center for Educational Leadership in Manchester and the BBC. In spite of the fact that the given virtual schools are being successfully developed, the large part of teachers and scientists of the Great Britain skeptically evaluate the productivity of usage of electronic and/or distance learning in Internet in initial and high school [Hobbs, R., 2005].

### Web-oriented resources for comprehensive schools in Europe

Though the European community sets the defined parameters promoting the universalisation of methods of implantation of information and communication technologies, however each of the European countries has well defined national specificity of implantation of electronic (distance) learning into their education systems that is reflected as in educational policy, placing the stresses on the first priority of tasks, and on variations of organizational forms of implantation, a method of construction of the educational process, techniques of training etc. Also from country to country the style of creation of those or other web-oriented resources, and their type depending on a subject of learning is changed.

So, the Great Britain represents the following resource types in the educational Internet space:

- 1) *virtual schools, educational centers and electronic courses*: «BBC School» (<http://www.bbc.co.uk/schools/>), «National Whiteboard Network» (<http://www.nwnet.org.uk/>), «Learning Alive» (<http://www.learningalive.co.uk/>), «East London E-learning» (<http://www.easy2learn.co.uk/>), «TONIC» (<http://www.netskills.ac.uk/content/products/online/>), «Scotland – Early Years Online» (<http://www.ltscotland.org.uk/earlyyears/>), «The Gridclub» (<http://www.gridclub.com/>), «British National Space Center (BNSC)» (<http://www.bnsc.gov.uk/home.aspx?nid=3191>);
- 2) *virtual laboratories*: «Weblabs WebReports» (<http://www.weblabs.org.uk/wlplone/>);

- 3) *resources for language/languages learning*: «LearnEnglish» (<http://www.britishcouncil.org/learnenglish.htm>), «United Kingdom – multikultura» (<http://www.multikultura.org.uk/>), «World English» (<http://www.world-english.org/>);
- 4) *resources for teachers*: «The National Archives Learning Curve» (<http://www.learningcurve.gov.uk/>), «TES Resource Bank» (<http://www.tes.co.uk/resources/Home.aspx>), «Educationalists Contact Database» (<http://www.educationalists.co.uk/>), «UK – Virtual Teacher Center» (<http://www.ngfl-cymru.org.uk/vtc-home.htm>), «Create-A-Scape» (<http://www.createascape.org.uk/home.html>), «TeacherNet» (<http://www.teachernet.gov.uk/>), «The Global Dimension Website» (<http://www.globaldimension.org.uk/>);
- 5) *virtual museums*: «The British Museum Online Learning» (<http://www.thebritishmuseum.ac.uk/education/onlinelearning/home.html>), «Show.me.uk» (<http://www.show.me.uk/>);
- 6) *resources for children and parents on social protection, health, education and training*: «Information Gateway» (<http://www.childwelfare.gov/>), «Parentscentre» (<http://www.parentscentre.gov.uk/>), «Kidshealth» (<http://www.kidshealth.org/>);
- 7) *interactive developing games*: «Demgames» (<http://www.demgames.org/index.html>), «Show.me.uk» (<http://www.show.me.uk/>);
- 8) *resources for religious education*: «UK – The REsite» (<http://www.reonline.org.uk/>)

In scientific circles of Germany acute discussions about distance learning and necessity of its implantation are held. On the one hand, the pedagogical community would like to receive "effective knowledge" as a result of training", "opinions with correct values" (by H.Markla's remark, the president of Society of Maks Plank), on the other hand, E.Shtaudt, the chief of Institute of applied innovational researches, and B. Krigesmann, the employee of the same institute, came to a conclusion, that distance learning with the help of the computer and the Internet network is only one of methods of "partly atomized" transmissions of explicit knowledge. As researchers specify, together with indisputable dignities of such type of training – personalizing (access to knowledge, instead of to their contents), interactivity, independence from a place and time, self-management by learning process, saving of time - this form of training has also a number of lacks, including significant financial costs. But, the most important, distance learning, as well as traditional, does not decide a main problem of today's education: does not influence on transformation of available knowledge into the internal significant, does not create and does not develop individual ability to activity, and, accordingly, does not form and does not increase competences. In opinion of scientists, as well as classical education, distance education better or worse "sharpens routine operations and improve qualification", but does not promote for appearing of innovations [Akhtamyazyan, N., A., 2003].

In Germany resources for school training can be presented in the following groups:

- 1) *subject-oriented web-resources*: «Chemie Akademie» (<http://www.chemie-akademie.de/>), «Models2 – eine virtuelle Brücke zwischen Mathematik and Anwendun» (<http://www.math.uni-hamburg.de/models2/>), «Germany – ego4u – Englische Grammatik Online» (<http://www.ego4u.de/>), «gotobildung.de» ([http://www.gotobildung.de/eqd\\_2.html](http://www.gotobildung.de/eqd_2.html)), Tempolimit Lightgeschwindigkeit» (<http://www.tempolimit-lichtgeschwindigkeit.de/>);
- 2) *virtual museums: e-museum* (<http://e-museum.emu.dk/museum/index.jsp>);
- 3) *interactive developing games*: «Serious Games Interactive» (<http://www.seriousgames.dk/company.php>);
- 4) *resources for teachers and researchers*: «Deutscher Bildungsserver» (<http://www.eduserver.de/>).

In Spain existing resources can be presented on the following directions:

- 1) *virtual / open schools, organizations and centers of distance learning*: «Rayuela» (<http://www.rayuela.org/>), «Ambiental-hitos» (<http://www.ambiental-hitos.com/>), «TASTA'M!» (<http://www.xtec.es/escola/tastam/>), «Navegador Educativo» (<http://nea.educastur.princast.es/>);
- 2) *resources for teachers*: «4teachers» (<http://www.4teachers.org/>), «Scholars on Bilbao» (<http://www.scholars-on-bilbao.info/>), «CEFIRELDA» (<http://cefirelda.infoville.net/>);
- 3) *resources for learning English language*: «Angles365» (<http://www.angles365.com/>), «Isabel's ESL site» (<http://www.isabelperez.com/>);
- 4) *resources on subjects of science cycle and virtual laboratories*: «FisLab.net» (<http://www.fislab.net/>), «Física Hoy – Universidad Autónoma de Madrid» (<http://www.fisicahoy.com/>), «Recorrido por las Ciencias de la Vida y las Ciencias de la Tierra» ([http://www2.uah.es/difusion\\_cientifica/](http://www2.uah.es/difusion_cientifica/)), «Cencialab, aula virtual» (<http://www.cencialab.com/>), «Linex en vivo y en directo» (<http://kalerolinux.homelinux.com/wp-content/lvd/inicio.htm>);
- 5) *resources for vocational orientation and social competence*: «Aula Virtual del Banco de España» (<http://aulavirtual.bde.es/wav/html/home/index.html>), «Ambientech» (<http://www.ambientech.org/>).

## Conclusion

1. Implantation of information and communication technologies into the educational process of a comprehensive school entails set of changes: from rise of new, electronic (distance) pedagogic before changing of the purposes of school. To these changes both organizational structure of the school, and methods of teaching are exposed. Possibilities, features and human aspects of technology are subject to re-comprehension.
2. Usage of E-Learning at school at the given stage goes with acute overtaking of theoretical comprehension of a phenomenon. Accordingly, prediction of all complex of the changes connected to E-Learning usage at school represents the actual task.
3. One of problems of E-Learning implantation into the general educational process of secondary school is the absence of specialized theories of distance (electronic) learning, similar subjects which have developed at present for a higher school (the theory of organizational support, the theory of independent study, the theory of industrialization etc.) During the implantation of E-Learning in school it is necessary to overcome of significant break between theoretical developments and their methodical implementations.
4. The problem of saving of efficiency of the educational process at E-Learning implantation into a comprehensive school requires the learning of world experience for choosing of appropriate type of implantation outgoing from the pupil's age, a subject material, methods of the preferred communications, a degree of activity in subject activity etc.
5. For further constructive E-Learning implantation into a comprehensive school the detailed estimated researches of efficiency of the educational process at different types of usage of information and communication technologies at school, and longitude researches of change of psychological and personal parameters of development are necessary.

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