Bridging Insula Europae

Bulgarian National Research

Conducting Survey Research - Report of Results and Conclusions

Bridging INSULA EUROPAE - *Enhancing Pupils' Motivation by Developing European Dimension of Learning and the Use of ICT, 134214-LLP-1-2007-1-IT-Comenius_CMP*

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Key Concepts

Taking into consideration the aims of the Bridging Insula Europae project and the Euclides project, the definition of its key concepts should become a central part of its theoretical research.

Those concepts play the role of a nucleus of meanings, organizing all the Bridging Insula Europae activities. Within the framework of the project these are active learning, learning by doing, cooperative learning and open distance learning. Our approach towards glossing the meaning of these concepts draws upon three types of sources:

- Bridging Insula Europae project documentation
- Publications by European experts in the field of education
- Bulgarian expertise (both in theory and practice) in this filed.

1. Bridging Insula Europae (BIE) documentation defines active learning as a new didactic approach which leads to the increase in the professional development of teachers and the quality of teaching and learning; in particular through the introduction of a broader European dimension. Active learning as a method develops teaching strategies which support the European culture of tolerance in the national curriculum and raises the awareness of the European citizenship. According to the BIE documentation, learning by doing and cooperative learning lay the foundation of active learning and are part of its methodology. Using ICT ensures the development of an educational environment for open distance learning. In this way teachers are encouraged to develop their skills using modern communication technologies. On the other hand, students take an active part in the creation of a syllabus, which is one of the project outcomes.

A conclusion can be drawn that active learning, learning by doing and cooperative learning are interrelated and in its whole form a didactic model which at the same time acts as a teaching methodology. In turn, open distance learning provides the environment where this model functions.

The experts define active learning, learning by doing, cooperative learning and open distance learning as interactive learning practices. Their key feature is

students' acquisition of new knowledge and skills in the process of completing various tasks, joining efforts for solving problems and case studies assigned by the teacher.

This new didactic approach results in the increase in learners' independence and autonomy together with the improvement of their personal achievement at school.

The application of modern ICT is viewed as the basis for open distance learning. It leads to the creation of a learning environment which provides access to information previously unavailable in the classic educational model. The creation of a new educational platform affects the teacher-students relationships. Teachers consult and facilitate students' cognitive processes but they are no longer the single source of information. In turn, students become more independent and have more opportunities for self-assertion.

2. Similarly, EUCLIDES as a project operates with a number of key concepts, namely: learning team centred model, problem based learning model, collaborative method and constructivist method. These educational instruments are viewed as essential for the creation of new learning strategies in the field of Natural Sciences teaching. They are based on the collaborative method and the problem based learning model through the application of ICT. In combination with them, the learning team centred model has the potential for an effective open distance learning platform.

The constructivist method in education is defined as "thinking of learning" and "thinking of knowing". This method refers to the organization of teaching and learning, more specifically to their active character. This categorizes the method as an educational innovation. The nature of this method is disclosed through a number of principles: learning is a quest for knowledge; learners should understand the whole as well as its parts, i.e. the learning process focuses on interrelations, not just isolated facts; learning is not a mere memorization, it is an acquisition of meaningful chunks relevant to the object of study; the evaluation of what is being learned should be part of the learning process. The constructivist method sees the learner as playing an active role in his/her cognitive processes. One should find

meanings individually and independently and they should become important for the learner, that is why constructivism involves learning through participation. The nature of the activities can be both cognitive or practical, i.e. by actually doing something with one's own hands.

From the constructivist point of view, the leading and organizing principle of the learning process is the application of the learning team centred model. By means of this model, learners develop their own responsibility towards the group and the activity it performs, they develop their tolerance towards otherness, increase the level of socialization of the individual. Teachers are consultants who only intervene in situations when learners are not able to solve the assigned problem or task. There is a constant dialogue between the teacher and students in which participants' interests, opinions, initiatives and dignity are taken into consideration and respected.

When working in groups the class is divided into smaller teams, each of which receives a particular task. When the time set for the task is up, each group presents the results. Completing learning tasks through well organized team work shows the connection of this method to the problem based learning model. A conclusion can be drawn that within the EUCLIDES project framework, the methods discussed above, form a system based on ICT. This leads to the creation of a new pedagogical approach to Natural Sciences studies.

3. Generally speaking, the Bulgarian pedagogical theory and practice show an awareness of the basic concepts the two projects operate with. The concepts defined above are recognized and over the last few years have been actively used in relation to the processes of modernizing the educational system in Bulgaria.

Usually teachers acquire the abovementioned methods and models through various qualification courses and seminars. Quite often they are organized by universities, NGOs as part of various projects. Other ways of popularizing good pedagogical practices in different subjects (especially in Citizenship Education) are the regional and national competitions. The availability of computer equipment and building

computer labs in every Bulgarian school would no doubt have a positive effect on the implementation of these learning methods and models.

Teachers' interest in and choice of innovative pedagogical practices have a positive effect on students' performance and results in the filed of Humanities and Natural Sciences.

However, there is also a weakness that should be pointed out. It derives from the misunderstanding of concepts meaning, resulting in their improper implementation in practice. Thus teacher qualification becomes essential for overcoming this weakness.

RESEARCH

The main subject of the present research, conducted within the framework of the BIE and EUCLIDES projects, is the use of ICT and ICT based educational approaches in Bulgaria's pedagogical practice. The tools we used and upon which we based our conclusions (as stated below), are the following:

- Analysis of normative documents – the National Strategy for ICT Integration into Bulgarian Schools, State Standards of Education;
- Acquaintance with "good practices" and materials, accessible on educational websites or other publications;
- Questionnaire, filled in by 37 teachers from different schools throughout the country;
- Interviews with 4 experts, representatives of different institutions – Ministry of Education, Local authority, University, Pedagogical center for teacher's training.

Conclusions drawn from the review of normative regulations

The strategic document in Bulgaria, upon which ICT rests, is the National Strategy for ICT Integration into Bulgarian Schools. It is developed on the grounds of the 2001 E-learning Action plan of the European Commission, where e-learning is defined as the use of new multimedia technologies and Internet in order to improve the quality of learning by facilitating the access to resources and services. The priority of teacher's training is focused on the creation of an educational context for ICT use.

Main goal:

- To improve the quality of education
- To enrich the educational contents
- To introduce innovational educational technologies

Specific goal:

- To include ICT into educational programs and into teacher's training programs

The review of educational programs and standards up to 2008 shows that ICT are included, but only in high school, when it is already too late. This weakness has been recognized and in the future (starting next school year) ICT education will begin in middle school, which is a good indicator for the perspectives of ICT and web based education.

Up to 2006 ICT and web based education practically was not integrated into general education, but only taught by experts and only in high school, as mentioned above. This weakness was also admitted and its' elimination became a focus point for the implementation of the National strategy. In 2006, within the framework of the National plan for qualification of pedagogical personnel, the National pedagogical center realized on a national level training for teachers, teaching general subjects. Objectively, this is a good start, based on the perceived need for such efforts and backed by political will, but hardly sufficient. We must admit that practically ICT education

- Is not yet adequately incorporated into the general subjects' educational plans and thus it stays limited, accidental and dependent on the teacher's personal initiative.

The rising average age of the teachers' guild represents an objective hindrance for effective ICT use, which is a disturbing tendency, along with the feminization of the teachers' profession. Also, the system for evaluation of teachers' labour and its' quality must be reviewed and salaries adjusted accordingly. Some of the discussed parameters clearly show the willingness to encourage ICT use and modern methods educational methods: better allowances for ICT use, web based education, project work and out-of-class activities.

It is normal to expect that the most substantial and fast progress would be made in computerization of schools and their connection to the World Wide Web. There, we have almost achieved average European parameters. Still, there is much left to do in the field of human resources development and the creation of pedagogical ICT resources.

Conclusions drawn from the review of "good practices" and materials

One conclusion, that can be drawn from the review of innovative didactic approaches, based on the use of contemporary ICT, is that during the last 2-3 years this has been the focus of educational modernization efforts, concerning different social segments – business structures, research and educational structures, third sector. Following tendencies can be noted:

- Consolidation of efforts of different actors in the field of education;
- Creation of precisely didactized, step-by-step organized ICT resource;
- Attraction of teachers towards creative approaches and project work.

A didactical toolset is elaborated within the framework of different projects that is supposed to facilitate the application of different methodologies for web-based learning – design and assignment forms, evaluation forms, handouts and work papers for classroom tasks and maybe what is most important – an Internet database containing various assignments. First professional educational sites began to emerge from the web space. Here are some of them:

1. Power point presentation sites for teachers, structured by subjects and age - http://www.ikt.hit.bg/ , http://www.presentations-bg.hit.bg/
2. Innovative teachers' network - http://teacher.bg/

The innovative teachers' network seeks to provide an interactive online communication platform for teachers and everyone, who is involved in the state educational system, as a medium for presentation and sharing of good practices and integration of new ICT into the classroom setting.

3. Competitions for ICT products - www.diuu.bg

For the 6th consecutive year those competitions pose a possibility for teachers to contribute their creative and professional ideas and visions. Their products are mostly elaborated in the form of lessons on separate subjects, focused on ICT use. The competition supports and stimulates teachers' educational innovations seeking to integrate ICT into middle and high school education.

- As a rule, resource materials and sites are created within the framework of projects. Some of them are international, such as the Innovative Didactics for Web-based Learning Project - http://wad.fmi.uni-sofia.bg/wad/bg/. This is a project run by a consortium consisting of teacher trainers and researchers from Bulgaria, Lithuania, Netherlands, Poland and the Slovak republic. The database of the project allows teachers to develop and retrieve

web-based assignments for teaching and learning in several subject areas. Teachers and learners who are registered as users have access to a whole range of functionalities, such as: adapting assignments, allocating assignments to students, create learner products, feedback on assignments developed by colleagues and rating of learner's products. In Bulgaria all materials are also published in book-form: ISBN: 978-954-92146-4-2

- An example for good cooperation of business and education the "Partners in Knowledge" initiative, started by Microsoft in 2003. Its' main goal is to make new ICT accessible and popularize their application in secondary education. This will give all teachers and students the possibility to realize their potential to the greatest possible extent. In Bulgaria the initiative is implemented in close cooperation with all key actors from the sphere of secondary education: government, business organizations, NGOs, professional associations, educational institutions etc. Up to this moment, five educational programs have already emerged from this initiative. They are elaborated by leading Bulgarian experts in the sphere of ICT application in the educational process in accordance to the Bulgarian educational systems and State educational regulations. For each of these programs a national trainer has been trained and engaged. National trainers are representatives of those organizations, which are responsible for program implementation. Over 3000 computer lab instructors have been trained throughout the country. In cooperation with the National pedagogical center, its' 28 regional offices hosted the "*Microsoft Teacher's Training ICT Academy*".

Conclusions drawn from the evaluation of questionnaires and interviews

37 teachers, engaged in secondary education, filled in the questionnaire. According to their subjects' profile we can distinguish three groups:

- Social sciences – 17 teachers
- Foreign language education - 15 teachers
- Natural sciences and ICT – 5 teachers

Question 1. It is impressive that 100% of the questionees were positive about using interactive methods and forms of education in their work. Despite being dubious, this result shows a clear tendency in the direction of development of pedagogical practice. It is interesting that among those, who state to rarely use ICT (19%, 7 teachers), 5 teachers come from the sphere of foreign language education and 2 are young colleagues with a teaching practice less than 5 years. If this result is expected for young teachers, it is curious for those, who teach foreign languages, since this is precisely the field, where interactive methods have their widest applicability and tradition, as well as secured resources.

Question 2. Group work (F) is the most commonly used work method among the questionees, closely followed by Problem-based Learning (A). It is worth noting that Active Learning (B) is most popular among those, who teach social sciences, but it is rated last by the other two groups. As a whole, Learning-by-doing (C) takes the last position among all listed methods. It is highly underestimated by the largest group of questionees (social studies teachers), who gave it least consideration. This shows that classroom education in those subjects is still held very theoretical. Open-distance learning (E) shows a good potential among ICT and natural sciences teachers. As a whole, all professional and age groups have an outlined affinity towards POL (A).

Question 3 – Answers, concerning the use of multimedia presentations, show an interesting result. Only 4 of the questionees use them frequently (always), 23 answered "sometimes". Those answers shed a new light upon the results of question 1, showing a picture that is more moderate and realistic. Again, foreign languages teachers give 8 of 10 negative answers.

Question 4. Open source platforms have a good potential. 21 out of 37 questionees use them.

Question 5. The seminar (A) seems to be the most common source of information. A sufficiently large number also answered "self-education through Internet resources" (C) and "sharing of experience among colleagues" (D). Obviously, answer A dominates among social science teachers, while answers A, C and E take almost equal placement among foreign language teachers. The results of ICT and natural science teachers differ largely from those of the first two groups. As expected, those teachers most commonly self-educate themselves through the Internet and specialized literature. To me, it seems important to notice that elder teachers answered more often "seminar" (A), while those who are younger and have less teaching experience chose "self-education through Internet" (C) as their preferred answer.

Question 9. Overall results show that most questioned teachers are in need of practical seminars (A), followed by a specialized educational website (D). Social science teachers seem to be the biggest fans of seminars, followed by foreign language teachers, while those, who teach ICT and nature sciences apparently have other needs. A specialized educational website (D) and teacher's manuals (C) seem to be of greater importance to them.

Answers are also shaded among different age groups. Teachers, who have pedagogical experience of more than 15 years, chose evenly between answers A and D (seminar and website), while answer A – seminars – clearly dominates among those with less experience.

Following conclusion can be drawn from interviews and questionnaire: Teachers with a pedagogical experience between 5 and 15 years are a suitable target group for the integration of innovative didactical teaching practices. On one hand, the virus of tradition has not yet contaminated them, and on the other hand, they already have the necessary experience and self-confidence to test new elements and integrate them into their everyday practice.

References:

1. Sarah Cornelius. On-line Tutoring e-Book. 3. Models of Learning. http://otis.scotcit.ac.uk/onlinebook/otisT103.htm

2. Dick McCann. Team Learning. http://www.tms.com.au/tms12-2c.html.

3. L. Dee Fink. Active Learning. http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/active.htm

4. Cooperative Learning. http://en.wikipedia.org/wiki/Cooperative_learning

5. Learning by Doing. http://www.engines4ed.org/hiperbook/nodes/NODE-120_pg.html

6. Open and Distance Learning. Trends, Policy and Strategy Considerations. UNESCO, 2002.

7. Дамянова, А. Конструктивизмът – новата образователна парадигма? (Damyanova, A. Constructivism – the new educational paradigm?)

http://liternet.bg/publish3/adamianova/index.html

8. Евгения Сендова, Илиана Николова. Новаторска дидактика за уеб базирано учене. СУ „Св. Климент Охридски”, София, 2008 г. (Eugenia Sendova, Iliana Nikolova. The Innovatory Didactics for web-based learning. University of Sofia, 2008)