E-LEARNING - CASE OF BOSNIA AND HERZEGOVINA

E-OBRAZOVANJE – SLUČAJ BOSNE I HERCEGOVINE

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Abstract

Education can be identified as irreplaceable and continuous process of gathering new, as well as broadening previously gained, knowledge and skills. It is high priority to treat it with great attention and always introduce new ways of enhancing it and making it more interesting and intriguing. Fast development of ICT sector has infected all spheres of human work and thought and educational sector has been part of the affected elements too. There are new possibilities of improving current teaching process and creating new channels of knowledge distribution. Although Governments of developed countries around the world are aware of the importance of introducing ICT to education, Governments of transition countries, such as Bosnia and Herzegovina, are paying more attention to core economic issues and still are not supportive towards modernization of education. All the initiatives for this kind of a change were reduced to individual efforts and isolated projects. One of the rare projects that took effect on a national level was a three year project supported by Japanese Government. This paper will explain the present e-learning situation in the country, the course of the above mentioned project and the results it extracted.

Sažetak

Obrazovanje = za ljude neizostavan i trajan proces stjecanja novih i produbljivanja postojećih znanja i vještina, te mu je nužno posvetiti što veću pažnju kroz različite vidove obogaćivanja, te činjenja zanimljivijim i intrigantnijim. Brz razvoj informacijsko komunikacijskih tehnologije značajno je utjecao na sve sfere ljudskog rada i djelovanja, a sukladno tome i na obrazovanje. Otvorile su nove mogućnosti unaprjeđenja postojećih procesa te razvoja novih kanala distribucije znanja. Iako su vlade razvijenih zemalja širom svijeta svjesne važnosti uvođenja informacijsko komunikacijskih tehnologija u obrazovanje, vlade zemalja u razvoju, kakva je i Bosna i Hercegovina, više pažnje posvećuju temeljnim (ključnim) ekonomskim pitanjima i još uvijek ne podupiru modernizaciju obrazovanja. Sve inicijative za to se svode na pojedinačne napore i samostalne (izolirane) projekte. Jedan od rijetkih projekata na nacionalnoj razini (na razini države) je trogodišnji projekt potpomognut od strane Japanske vlade. U radu će biti prikazano trenutno stanje e-obrazovanja u BIH, sadržaj (lekcije) spomenutog projekta te rezultati koje je isti polučio.

1. INTRODUCTION

The importance of a quality education as well as educational reform has already been recognized in the developed countries around the world. One of the ways that the governments of these countries are being helpful is by supporting the introduction of modern technologies in the educational process, such as Information and Communication Technology (ICT). ICT facilitated education has also been known as E-learning and it is a general term used to refer to computer-enhances learning /**1**/. On the other hand, not so developed countries like Bosnia and Herzegovina, are still struggling with the acceptance of a need for an educational reform. There is no effort on a nation level to modernize learning and teaching process. It is all still limited to small projects and individual initiatives.

2. EDUCATIONAL BACKGROUND IN BOSNIA AND HERZEGOVINA

Bosnia and Herzegovina is a transition country situated in the South East part of Europe. It has suffered a civil war from 1991 to 1995, resulting in the complete economical and cultural setback. Before the war, the country had been a part of a big country Yugoslavia which was well known for its great educational system which produced many world known experts and people with high level of general knowledge. Now, after suffering many losses in infrastructure, the country is still considered to be in a transitional process towards market economy and with its economy still on the loose ground, the educational process is suffering also. One important fact that is characterizing this country's education system is an existence of three

different curriculums on all levels of education. This is the result of political structure of the country which is a big obstacle for the education system. The curriculums are not harmonized, and all three parts of the country are introducing changes by themselves, without any thinking of the effect and the status of the other parts. There are no joint intentions to improve the education on a national level which is automatically eliminating the synergy effect and practically preventing the healthy growth of the nation. Looking at the elementary and secondary level of education in Bosnia and Herzegovina, it is evident that the teachers are still resorting to the traditional methods and techniques of teaching. Chalk and talk is the common way of transferring knowledge. The war has made the continuous professional development of the teachers impossible and caused the lack of the qualified teaching workforce. The positive aspect is the presence of the necessary equipment. Almost all of the secondary schools are fully equipped and the elementary level schools also posses the basic equipage. Although, the hardware requirements had been fulfilled, the lack of trained teachers is still present and the equipment is not well utilized in the standardized teaching process. All three parts of the country introduced some improvements into the curriculum, but they mostly concerned the modernization of the curriculum itself and none of them made any relation to the ICT supported learning on a national level. The teachers need to learn how to properly utilize ICT, how to create interactive environment, use the existing resources that are already available and create interactive learning materials by themselves All the initiatives for a change in this direction were reduced to individual efforts, isolated cases or projects concentrated on specific schools. First project which took effect on a national level was supported by Japanese International Cooperation Agency (JICA) in the year 2004.

3. CASE STUDY – E-LEARNING PROJECT
3.1. About the Training

In year 2004, a project titled *Promotion of Information and Communication Technology (ICT) Education and Developing E-learning Environment in Informatics and Mathematics at Elementary and Secondary Levels for Bosnia and Herzegovina* was organized. It was supported by JICA and the Government of Bosnia and Herzegovina and organized by Center for Research on International Cooperation in Educational Development (CRICED) from University of Tsukuba, Japan. The main idea was to train nine teachers on how to use ICT in education. The project comprised three generations of teachers

who were involved in training process in Japan in period of 10 months each. Their main goal, for those 10 months, was to deepen their understanding and developing skills about implementation of ICT in education. They also were involved in creating and updating web-site with online interactive teaching content. Every generation of trainees was consisted of three teachers: two Mathematics teachers (one developing content for elementary level and the other one for secondary level) and one Informatics teacher (in charge of content for secondary level). The project started in 2004 and successfully finished in August of 2007.

The main concept was to train small group of teachers who would form a starting force and introduce ICT to the homeland, help create e-learning environment, making a base for improvements in education. The key of this approach was to select three teachers each year, from all three parts of the country thus making the gathered knowledge simultaneously effective all around the country.
The main goals of the training involved:
- knowing Japanese education and its theory in Japan
- mastering Macromedia Dreamweaver and Macromedia Flash (and Actionscript) in order to be able to develop their own teaching materials in three languages in Bosnia and Herzegovina as well as in English language
- learning useful mathematical software (GRAPES, CABRI 2D and 3D, Geometry Inventor), learning other software: Viewlet Builder (for creating dynamic lessons) and mastering MOODLE (Modular Object-Oriented Dynamic Learning Environment)
- developing teaching skills utilizing ICT and Japanese methods of lesson study (they attended numerous lesson study sessions where they had the opportunity to observe it up close and later to discuss with Japanese teachers)
The training was organized in three stages.
First stage included (duration of two months):
- learning basic techniques and developing a plan of contents – introduction and experience of Japanese culture (knowing Japanese education, curriculum reform movement in the world, research on teaching and teacher education for developing school curriculum and school subject). During this period each participant was supported by academic advisor.
- overview of e-learning environment and various applications – each participants makes his/her plan for contents on website with advisor and development of skill of Internet applications – Macromedia Flash and ActionScript, Learning Management System

Second stage included (duration of six months):
- environment and contents development with applying acquired techniques – developing skills depending on the selected content and creating e-learning environment with appropriate content
- conducting experiment of distance education between Bosnia and Herzegovina and Japan – each participants collaborates with people in Bosnia and Herzegovina and implements his/her site to confirm how it works and to get feedback from teachers and students Third stage included (duration of two months):
- integrating the results and evaluation – presentation of final report and presentation at academic meeting and college seminar

3.2. Results

The training of the teachers lasted for three consecutive years and it extracted many intangible and tangible results. Some of them are listed below.

3.2.1. Reinforcement in Qualified Teaching Resources

The country gained nine highly qualified people who are placed in strategic places (centers of three parts of the country). Not only they gained practical skills for developing interactive teaching materials, but they also acquired and deepened their understanding of the new methods and approaches of learning. They can transfer their knowledge to the other colleagues and implement their know-how in their work places.

3.2.2. International Cooperation

The teachers and their affiliating institutions stayed connected to the academic staff from Japan making a window for the possible future collaboration and more professional help from such a developed country. In this case, it is very important to use the concept of benchmarking and to observe this good practice from education with long tradition like Japan's.

3.2.3. Developed Website

In the 2nd stage of the training course, the participants started creating e-learning environment. E-learning is a concept that carries a lot of potential, but only if it's implemented in an efficient way. It should be more than just another way of delivering information to students with inserting a couple of simple animations. It should be environment developed in highly interactive way allowing students to receive knowledge, develop creative thinking and reasoning skills. For better fulfillment of these conditions and

for developing more robust online content, software Macromedia Flash MX was used. This is currently the best choice because this software is considered to be a leader in creating various online elements and it's becoming a tool for developing complete websites which are modern, interactive, interesting and attract more attention.

Each year three participants developed content from three areas: Mathematics content for elementary and secondary school level, and Informatics content for secondary school level.
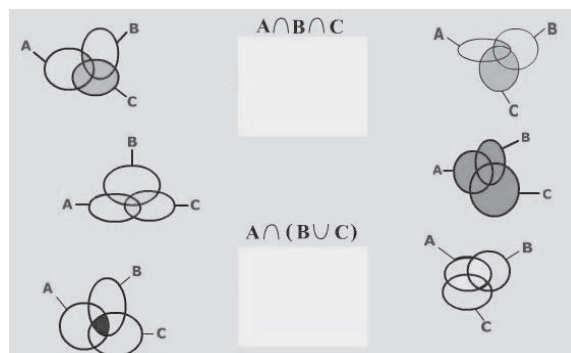
Here are some examples of their work:

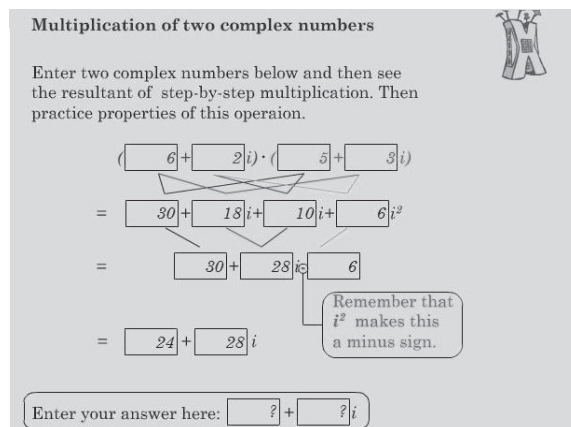Figure 1: Interactive example from Mathematics (elementary level), Sets

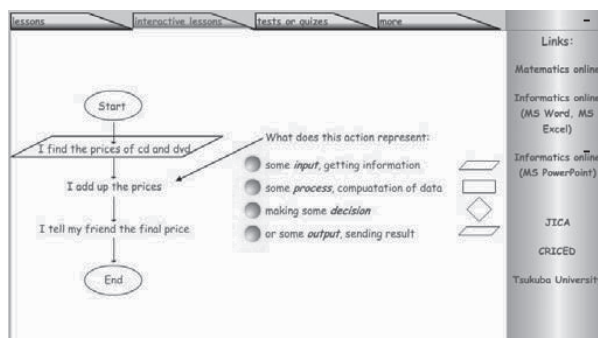Figure 2: Interactive example from Mathematics (secondary level), Multiplication of two complex numbers

Figure 3: Interactive example from Informatics, Basics of flowcharts

3.3. Future Plans

All of the trainees have created, by joint work, various interactive online contents from areas of Mathematics and Informatics. The termination of the project doesn't mean that their work is also over. They are still planning and conducting many activities:

- continuing the development of their content and developing additional content related to current lessons
- promotion of their content
- using created content teaching in their personal classes thus spreading the awareness of available content among the students
- promoting created content and developing awareness about it among the colleagues of affiliating institutions and colleagues in other schools and universities
- trying to get support from the Pedagogical Institutes to approve their content as official content being used in the schools
- spreading the acquired knowledge; tutoring their colleagues who are interesting in modernizing their teaching process in different ways, i.e. by teaching them how to use interactive software, how to use available online resources, how to develop their own content etc.
- seeking the help from the governmental institutions for organizing workshops (how to use ICT in education, how to develop personal content, how to use existing content etc.) or seminars (the importance of ICT in education, the benefits of modernizing the teaching process etc.)
- exchanging the gathered expertise by forming the network of all participant that were in Japan for training for exchanging news, ideas, projects etc.
- seeking and contacting people who have similar experience in teaching and training and develop collaboration with them.

4. CONCLUSION

For a country like Bosnia and Herzegovina, even a small project like this makes a big difference. Not only it extracted many tangible results and positive effects, but also it contributed to the fact that raising the level of ICT education gets the whole educational system improved. Looking at the big picture, any improvement in education results in progress of whole nation, and Bosnia and Herzegovina, being a developing country, is in great need of economical and human resource progress.

Further more, with this project, an issue of mutual cooperation and better understanding in the country was addressed. This issue is related to the fact that Bosnia and Herzegovina currently has three different curriculums (in three languages: Bosnian, Croatian and Serbian). By introducing newly created online teaching materials and getting it deployed in different schools around whole Bosnia and Herzegovina, the first step towards the curriculum harmonization is achieved. Also, because the teachers from all three areas will be included into training, the new intellectual capital will be evenly dispersed among three ethnic groups. The project, with its thematic, is directly contributing to the process of stabilization and peace development and correspondingly has a big not only academic, but also conciliatory role.

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