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WEB 2.0 TOOLS IN EDUCATION, THE GAP BETWEEN THE CURRICULUM AND SCHOOL PRACTICE

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Abstract – Modern pedagogical efforts, the information society and changed mental structure of new generations require the implementation of web 2.0 tools in education. Web 2.0 services and sites allow users to interact and collaborate with each other. Web 2.0 tools, such as online documents, social networks, wikis, blogs, social bookmarking and online presentations are interesting possibilities with interactive and multimedia support, which motivate students and fit their mentality and everyday lives (Namestovski & Arsovic, 2013). This research project investigates the level of web 2.0 tools application in Serbia, and also explores the barriers and offer possible solution. On the other hand the curriculum and the textbooks were also analyzed.

I. INTRODUCTION

Web 1.0 was characteristic to the Internet until the middle of the first decade of the new millennium, mostly meaning passive content servicing and one-way communication. The following Web 2.0 environment – beside “content consumption” – also means creating and sharing of contents, emergence of online applications, as well as of interactive and collaborative activities. On the other hands the communities in this environment are formed around the field of users’ interests. The document editing and storing tools, e-mail sending/receiving softwares were also moved to the online space. These processes facilitated the mobility of users and the rapid and easily access to the documents.

The most popular Web 2.0 tools are social networking sites (Facebook), where all Web 2.0 features are appearing, first of all immediate and interactive communication.

Besides the social networking sites, there is the image and video hosting, sharing websites (YouTube, Flickr, Picasa), collaboratively edited free online encyclopaedia (Wikipedia), online auction websites (eBay), blogs and microblogging services (Twitter) and online document editing applications (Google Docs and SkyDrive)

II. EDUCATIONAL STRUCTURE OF REPUBLIC SERBIA

The educational structure of Republic Serbia is divided into elementary schools, high schools and higher education. Elementary schools consist of 4+4 classes. In first 4 classes (lower classes) class teaching is realized, in other 4 classes (higher classes) subject teaching is realized.

The high schools, ended with Matura (Graduation) are 4 years long, and besides these high schools, there are high schools with three years duration, in most of the cases with vocational type of education. All public educational institutions in Republic of Serbia are under direction of Ministry of Education, Science and Technological Development and the curriculums were created by this organisation.

The faculties of universities are independent, the curriculums of these institutes can be customizable and adaptable for programs and needs.

III. WEB 2.0 TOOLS IN LOWER CLASSES OF ELEMENTARY SCHOOL

In republic of Serbia the teaching of IT contents began in lower classes of elementary school within the framework of subject: From toys to computers. The subject is optional (1 lesson per week) from 1 to 4 classes. The curriculum was created in 2008. In the framework of this course, the students are meeting with concepts of materials and different toys, and after that with basics concepts, security risk and rules of conducts related to IT. The units of course are repeated and expanded in the form of concentric circles and usually lectured by teacher.

The aims of the course at first grade are the development of motor skills, logical thinking and creativity. Besides of these contents, the course

includes the basic components of computer, the safe using of computer, basic text inputs and editing, drawing and printing in the first class.

Following the principle of concentric circles, in the second year the contents from the first class are extended. In the introduced software (Paint) the numerous possibilities and tools are extended. The text and picture editing is expanded with scanner and digital camera application.

At the third grade the teaching contents are also expanded. For creating picture and textual contents used Paint software. In the curriculum and in workbook appeared the calculator and the concepts of hardware and software was presented using practical examples. At the end of school year the operation of sending and receiving e-mail is appearing.

At the fourth grade for the topic of text and picture editing (Microsoft Word, Microsoft Publisher) and for the topic of presentation (Microsoft PowerPoint) new softwares appeared. Activities on the Internet were expanded with applying web camera and multimedia message.

In conclusion can be highlighted that Internet and activities related to Internet are underrepresented in curriculum and is workbooks. The services of Internet appeared only in topic of E-mail. Web 2.0 tools, are not represented in the curriculum of lower classes of elementary schools in Republic of Serbia, in the framework of the curses From toys to computers.

IV. WEB 2.0 TOOLS IN HIGHER CLASSES OF ELEMENTARY SCHOOL

At higher grades of elementary school, there is IT and computer technology (facultative subject - one lesson per week) and Technical education and IT (compulsory subject – two lessons per week) at seventh and eight grades. The curriculum of Technical education and IT contain 14 lessons (from total 72 lessons) related to IT contents in seventh grade and 18. At the seventh grade, the acquiring of using IT tools appeared as the goal of the year. Besides of programming, video and audio editing, the curriculum contains the Internet unit as separate part of curriculum with six lessons. This unit contains learning contents such as rules of communication using Internet or mobile devices. Although the curriculum places the emphasis on the process of sending and receiving e-mail and this unit is presented in workbooks in the form of dial up Internet and Outlook Express, and there is the requirement of registration online and free e-

mail address, where again there are the possibilities of implementation of web 2.0 tools, such as Google Drive in Gmail environment. On the other hands the curriculum mentioned the blogs, comments and forums on Internet, where there are also possibilities for effective implementation of web 2.0 tools.

In the eighth grade one of the main aims of the school year is development of digital literacy and implementation IT tools. Besides of spreadsheet calculation and programming, there is also creating web sites. In the framework of web design, there are possibilities for implementation web 2.0 tools, even though the workbooks based on HTML encodes websites and Microsoft FrontPage as web editor, the curriculum refer for JOOMLA and Dreaweaver as optional solution. In addition, there is also a favourable fact that 14 lessons (from total 34) are freely chosen project. Here the modern web 2.0 tools can appear in framework of communication between students, during the realisation of project or even in presenting the project.

The greatest disadvantage of education and learning IT contest in elementary schools of Republic of Serbia is the facultative subject and the fact that contents cannot effectively build on each other's during the process. On the other hand the teachers of Technical education and IT in most of the cases don't have IT qualification, even though the pairing of technical education and IT specialisation on the universities of Serbia is becoming increasingly popular.

The curriculum of IT contents in elementary school is not inter-correlated or related to other subjects. Workbooks don't have annexed CD and online support is also limited.

V. WEB 2.0 TOOLS IN SECONDARY SCHOOLS

The teaching of IT contents in secondary schools in Republic of Serbia depends on major of education institute. Secondary school with arts profile have IT subject in first year, with two lessons weekly. On the other hand, in the general grammar school there are two lessons per week, during four year or in few grammar schools, mainly with natural science or IT profile, where number can reach even 12 lessons per week related to IT. The one of significant disadvantage of curriculums in secondary schools is that contents and requirement are not unified and not compatible with ECDL curriculums. Just in a few secondary schools ECDL (European Computer Driving Licence) exam is realized, which

guarantees unified level, using standardized theoretical and practical questions. ECDL certificate prove IT skills and it is acknowledged in whole world. We analyzed the general grammar school curriculum in this paper from diverse secondary schools, and we recognized the possibilities of implementation web 2.0 tools in entire educational process and especially in framework of IT subjects. The curriculum for grammar schools was written in 2011, so it is the latest document among the analyzed curriculums.

The subject of IT teaches two lessons per weeks in general grammar schools. The curriculum prescribes web 2.0 teaching materials in first and in second years. In the third year the curriculum prescribes programming and in fourth year activities related to date bases. Among the main aim of education, besides the development of linguistic, mathematical, scientific, artistic and cultural competencies, there is the formatting and development of technical and digital literacy. Although in framework of IT competencies the competent and critical usage of devices of information society is especially highlighted, in different situations there is focusing on the interest of person and community. Among the goals are still the understanding of principle of the Internet and local networks, exploitation of resources of network and using of services of internet for e-learning purposes. In this part the sharing of computing resources is emphatic, instead of interactive and collaborative communication and content sharing. Web design and preparing other online (web based) applications are also prescribed by curriculum. On the other hand the curriculum emphasize the appropriate activities on the social networks, first of all the sharing of useful information and the importance of assistance.

Although this educational aims are not up to date and is not adapted to the changed structure of educational system in informational society, with few addition and innovation it can effectively support the implementation of web 2.0 tools.

At the teaching of several softwares (such as operating systems, text editors, presentation editors and image editors) the curriculum and workbooks based on curriculum present the offline application (for example Microsoft Office: Word, PowerPoint) and there are no connection toward online contents or solutions. The existing educational structure doesn't have motivational effects for collaborative work forms and for sharing finished projects and artifacts. On the

other hand, the applications are not named, so the application based on web 2.0 services is not excluded. In first year of grammar schools web 2.0 tools are appearing in the framework of the Internet unit. In this unit, learning contents such as searching on Internet, processing and using the information from Internet, online maps, the using of social networking sites, e-commerce and e-government, e-learning, rules on Internet (netiquette) and ethics are included. In second year of grammar schools appearing web 2.0 tools framework Multimedia unit, where curriculum prescribe the sharing (uploading) created video materials on the Internet. Besides this unit there is advanced using of Internet, where the web 2.0 tools are clearly prescribed, such as Online document editors (operations in "cloud") – sharing documents on Internet, Blog, Wiki tools and Electronic portfolio. In accordance with those objectives the application of web 2.0 tools in grammar schools in Republic of Serbia is possible.

VI. EMPIRICAL RESEARCH ABOUT USING WEB 2.0 TOOLS IN EDUCATION IN REPUBLIC OF SERBIA

To investigate the real situation in schools of Republic of Serbia about using web 2.0 tools, we created a theoretical model and the schedule of scientific research.

The schedule of research:

Phase 1: Analysis of related literature

Phase 2: Organising research teams

Phase 3: Preparing online and offline questionnaires

Phase 4: Publishing and filling the questionnaires

Phase 5: Processing the received results

Phase 6: Comparison of results of Republic of Hungary and Republic of Serbia

Phase 7: Comparison of results with international results

Phase 8: Formulation of conclusions and recommendations

The theoretical model is based on the following scientific literature

International:

ITL Research (2011): Innovative Teaching and Learning Research, 2011 Findings and Implications, SRI International, Microsoft Partner in Learning.

EU:

European Resource Centre for Web 2.0 Education (2011): Analysis of Training Courses (Deliverable 23)

Hungary:

Fehér P. (2008): Internet és számítógéppel segített tanulás a kistelepülések iskoláiban (A pedagógusok módszertani kultúrája fejlesztésének és megújításának lehetőségei IKT-eszközök alkalmazásával) - Internet and computer supported learning in rural schools (Improving teachers' classroom techniques with ICT technology integration)

Serbia:

Namestovski, Ž. (2013): Analiza efekata primene obrazovnih softvera na motivisanost nastavnika i učenika u nižim razredima osnovne škole - Analysis of the Effects of Applying Educational Software Tools on Pupils' and Teachers' Motivation Level in Primary Schools

The references and the scientific literature promote the comparison of results from different countries and with results of similar investigation from world and EU.

The research team formulated followed researchers: Dr. Buda András (Hungary), Fehér Péter PhD (Hungary), Dr. Námesztovszki Zsolt (Serbia), Bagány Ágnes (Serbia), Major Lenke (Serbia), Szálás Tímea (Serbia), Vinkó Attila (Serbia).

The questions are categorised in four groups, as follows: 1. Basic information (14 questions) 2. Attitudes (12 questions) 3. The implementation level of web 2.0 tools in education and in leisure (5 questions) 4. Barriers and possibilities of motivational factors for using web 2.0 tools (7 questions) 5. Other remarks and perception.

The research is currently in phase 4: Publishing and filling the questionnaires. The online questionnaire is available on following address: <http://bit.ly/1dOKBww>.

VII. CONCLUSIONS

Although the research is in progress, the preparatory section is finished, the base for successful research is established and the preliminary results of survey outlines the significant gap between curriculum and school practice.

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