The Impact of Internet Use on Education Process

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Anita Prelas Kovačević, Marijana Špoljarić, Damir Vuk

Virovitica College, 33000 Virovitica, M. Gupca 78, Croatia

damir.vuk@vsmti.hr

Abstract **- Importance of applying ICT, particularly participatory web technologies, in the system of higher education is confirmed by many conducted studies Also a large number of scientific and professional articles on the subject of the use of web technology in the classroom have been publicized.**

However, a question has appeared by studying all the relevant literature dealing with the mentioned area, is there a relationship between the purpose of using the internet, generally by teachers, and implementation of participatory web technologies in teaching process.

This question represents the main objective of this work. The paper is based on results of an internet survey answered by teachers from diverse Croatian higher education institutions. The research also gives insight how participatory internet technology is used.

Keywords - **Higher education; Participatory web technology; Education process**

I. INTRODUCTION

Education process is not only heavily influenced by means of communication content between teacher and student, but also by types of communication media and instruments/tools used in the education process. The ways, i.e. the means used to share ideas and information as well as knowledge constantly change and develop. Also, birth of new, different media has significantly widened the reach of our communication. Internet technology and use of diverse portable computer devices, such as laptops, tablets and also smart-phones, enable so called participatory culture, where information consumers become also information creators.

Communication, cooperation and interaction are the basis of modern education. Moreover, the wide spread of Internet as well as the development of the internet-based technology (Web 2.0. technology), have significantly influenced both the learning process and the role of the teacher and the student in the learning process – they have brought new forms of communication which help individuals create information accessible to a global audience, motivated the development of new teaching methods and lesson plans and programmes and thereby transformed education at large [2], [9], [9].

The interest from academic and business circles for the use of web 2.0 technology has been on the increase which is evident in the large number of researchers in this area [12],[9],[8], [9],[8].

According to Sadaf, Newby and Ertmer, Web 2.0 technologies (such as wikis, blogs, social networks, etc) have become a part of education, primarily to meet the needs of the 21st century student, but also because of their value in the teaching and learning process. They enable new ways of cooperation, interaction and communication as well as create new possibilities for cooperating when creating content and sharing ideas and knowledge [9].

Furthermore, when using Web 2.0 technology, students are not passive recipients of information. They are actively involved in creating knowledge by exchanging information and experience [7]. Nelson, Christopher and Mims find that Web 2.0 technology supports creative and group contribution and that it makes sense only if students are co-creators who develop their own knowledge [6].

Instant messages, wiki, webcast, podcast, (web) blog, social networks, etc. are some examples of popular communication tools used in everyday life. Online social networks enable users to meet new individuals from any part of the world without making physical contact. According the reference [1], huge amount of information and content has accumulated on the pages of social networks. In the paper presented at the international World Wide Web conference in 2009, authors claim that ten hours of video material is uploaded on You Tube every minute and that Flickr contains over two billion photographs [1] .

II. RESEARCH METHODOLOGY

The main goal of this paper was set based on theoretical insights into the importance of incorporating web technology into the teaching process as well as the possibilities it creates. Consequently, the aim is to establish is there a connection between the purpose of using the internet, generally by professors at tertiary level, and implementation of participatory internet technologies in teaching process. For the purpose of mentioned goal a survey was conducted with the following two tasks.

First, to determine for which purposes do teachers frequently use internet. Second, to determine how often (how frequently) do they use for their work (for the general educational process) the web 2.0 technology

The research was carried out via an interactive online questionnaire designed according to the requirements of the new methodology for scientific and professional papers. The research was conducted focusing on 14 Croatian higher education institutions (HEI) of diverse types. The target groups of this research were professors, since they are the most important drivers for implementing web 2.0 technology in the teaching process.

The results were analyzed using the statistical package SPSS 19.0. Before explaining the answers to the research questions, a descriptive statistics of each variable for the whole sample was calculated.
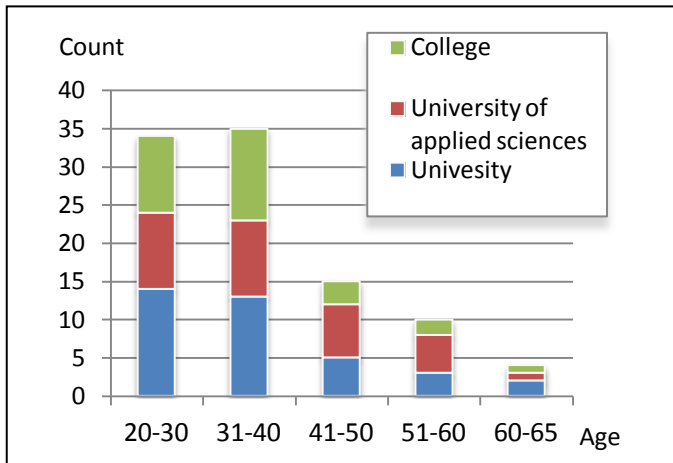

Figure 1.   Respondents by age (years) and institutions type

The questionnaire was completed by 101 respondents and 98 were used in the further analysis. Three questionnaires were excluded from the analysis because they were incomplete.
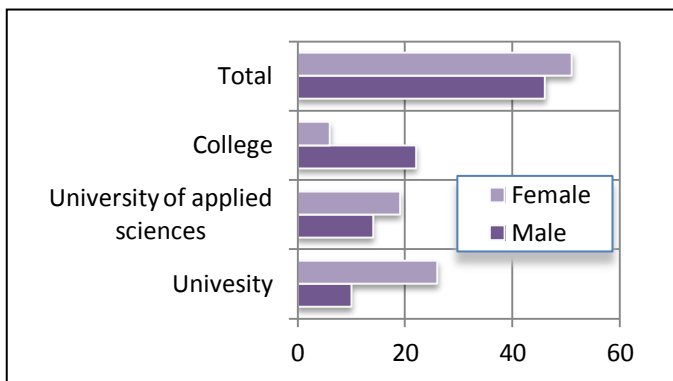

Figure 2.   Number of respondents by sex and institutions type

Research was not focused on specific age range, i.e., respondents are of diverse age ranges. Male and female respondents were near equally represented in the sample (47% of the respondents were male and 53% were female). Figure 1. and Figure 2. exibit graphic representation of this distribution.

III.   RESEARCH RESULTS

In the function of the mentioned objectives a question was posed (with the possibility of multiple responses) in order to obtain information for which purposes do teachers in Croatian higher education institutions, most commonly use the Internet. Below is a presentation of descriptive statistics of distinction between responses to the question: how often do you use the Internet for mentioned purposes? Figure 3. shows a graphic representation of frequency of overall internet use by specific types of use. Graphics includes arithmetic mean (M) and standard deviation (SD).

According to the results the respondents state that they use the Internet most frequently for the purpose of sending email

messages (M= 4,8421; SD= 0,44521), scientific work and research (M= 4,1684; SD=0,95263) and gathering of materials for preparation of lectures (M=4,0625; SD= 0,92694). This was expected, considering that this is a population which works in the education and is engaged in scientific research, and email is still one of the most widely used ways of communication.

Respondents also often use the internet for the purpose of informing about daily news (M= 3,9583 and SD= 1,07524), eBanking (M=3,8211 and SD= 1,30448), and downloading of software and applications (M= 3,1354 and SD= 1,07233). Whereas the internet is least used for downloading and playing video games (M=1,4947; SD= 0,88575) and reading/writing blogs (M= 1,8542; SD= 1,05610). Note that answers on figure 3 and 4, are proportionally valued by scale from 0 (not use) to 5 (always use).
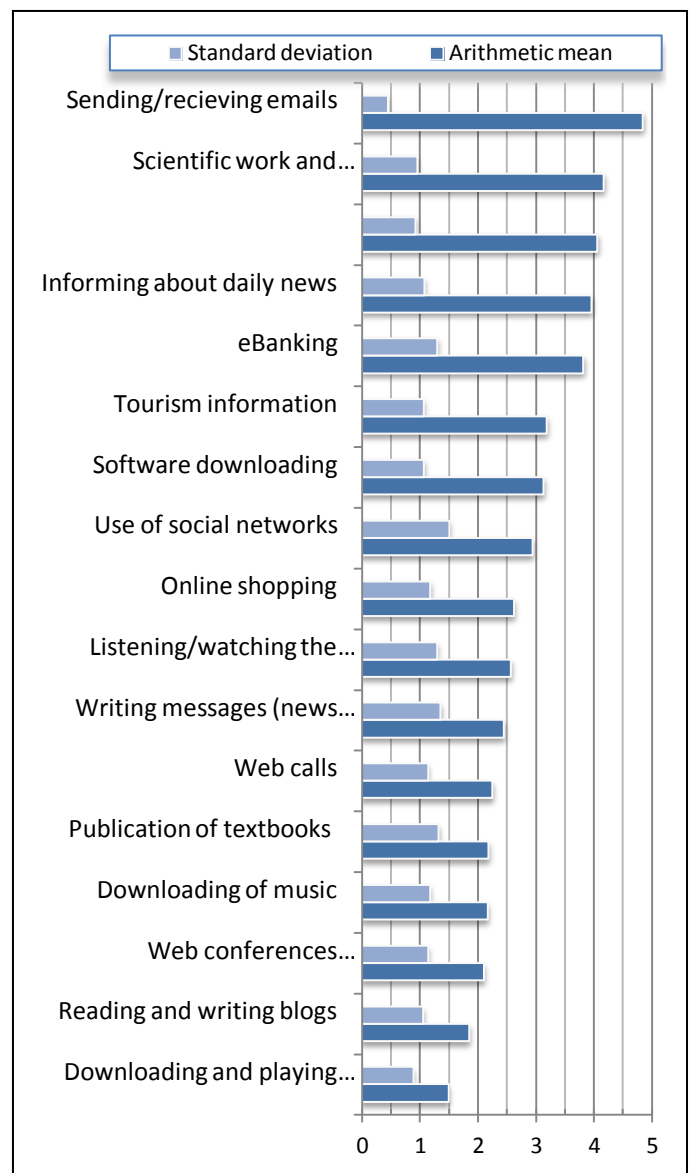

Figure 3.   Types and frequeuency of overal internet use

Also, for mentioned objective another question was raised (with the possibility of multiple responses) in order to obtain

information how often do teachers for the teaching process (generally) use Web 2.0 such as blogs, wikis, podcasts, webcasts, online lectures, social networks, text messages, notifications, etc. Figure 4. shows a graphic representation of gathered answers.

Respondents state that they, most frequently, use text messages and notifications in the teaching process (M=3,3125; SD=1,27579), document management systems (MD=2,8842; SD=1,31976), software meant for cooperation/collaboration in the teaching process (MD=2,3118; SD=1,29362) and online lectures (M=2,3895; SD=1,16960). Most teachers of higher education institutions rarely or almost never use the following in the teaching process: blogs (M=1,4787; SD=0,88874), wiki (M=1,9892; SD=0,88874), podcast (M=1,5745; SD= 0,93313), webcast (M=1,5532; SD= 0,87519) and social networks (M=1,7766; SD=1,04885).
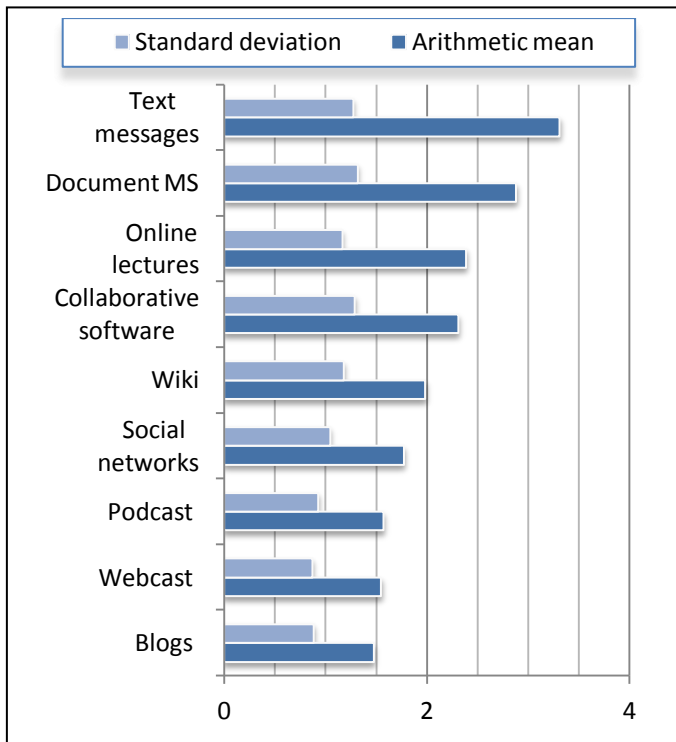

Figure 4. Types and frequevency of internet use for teaching proces

In comparison, according to the research made by Economist Intelligence Unit [4], based on a sample of 189 respondents from the area of higher education, most respondents use online lectures (71%), text messages and notifications (66%) and document management (66%) in the teaching process. Software meant for cooperation/collaboration is used by (59%) of respondents, while lesser percentage of respondents (56%) are using social networks. Podcast is used in the teaching process by (53%) of respondents and least used are blogs (44%) and wiki (41%). If data gathered is compared to data from Economist Intelligence Unit it can be concluded that use of web tools in teaching process is still not enough recognized and thus used by teachers.

The correlation between the use of social networks and the use of participatory web technologies in general in the process

of teaching in total, is positive and statistically significant (r=0,396; p=0,00). Figure 5. shows a graphic representation of this correlation and his statistical significance (p<0.05).

The greater the use of social networks is the greater is the use of participatory web technologies in general in the process of teaching in total.
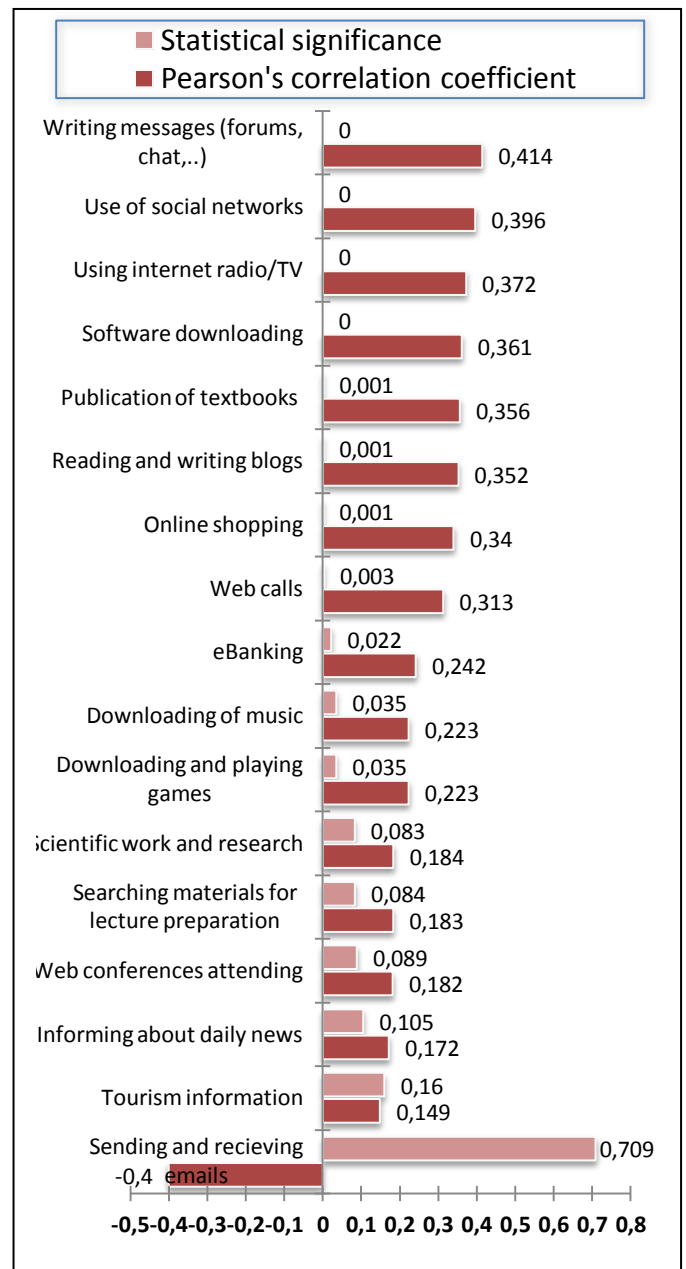

Figure 5. Impact of overal internet use on internet usage in the teaching process

The correlation between the publication of textbooks and the use of participatory web technologies in general in the process of teaching- in total is positive and statistically significant (r=0,356; p=0,001). The higher the publication of textbooks is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between eBanking and the use of participatory web

technologies in general in the process of teaching- in total is positive and statistically significant (r=0,242; p=0,022). The higher the use of eBanking is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between reading and writing of blogs and the use of participatory web technologies in general in the process of teaching- in total is positive and statistically significant (r=0,352; p=0,001). The higher the reading and writing of blogs is the greater is the use of participatory web technologies in general in the process of teaching-in total.

The correlation between reading and writing of blogs and the use of participatory web technologies in general in the process of teaching in total, is positive and statistically significant (r=0,372; p=0,00). The higher the listening/ watching the internet radio/television is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between downloading of music and the use of participatory web technologies in general in the process of teaching in total, is positive and statistically significant (r=0,223; p=0,035). The greater the downloading of music is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between online shopping and the use of participatory web technologies in general in the process of teaching- in total is positive and statistically significant (r=0,340; p=0,001). The greater the use of online shopping is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between writing messages (news groups, forums, chat) and the use of participatory web technologies in general in the process of teaching- in total is positive and statistically significant (r=0,414; p=0,00). The greater the writing messages (news groups, forums, chat) is the greater is the use of participatory web technologies in general in the process of teaching-in total.

The correlation between software and application download and the use of participatory web technologies in general in the process of teaching in total, is positive and statistically significant (r=0,361; p=0,00). The greater the software and application download is the greater is the use of participatory web technologies in general in the process of teaching-in total. The correlation between web calls and the use of participatory web technologies in general in the process of teaching- in total is positive and statistically significant (r=0,313; p=0,003). The greater the use of web calls is the greater is the use of participatory web technologies in general in the process of teaching-in total.

IV. CONCLUSION

The primary objective of the study was to determine whether there is a correlation between the purposes of internet use by teachers in Croatian higher education institutions, and the degree of use participatory technologies in the teaching process. This hypothesis was based on the theoretical insights of many authors dealing with the importance of the implementation of Web 2.0 technologies in the teaching process as well as the opportunities that it brings.

Analysis of gathered sample data shows that there is a correlation between the purposes of Internet use by teachers and the degree of use of Web 2.0 technologies in the teaching process, in general. We can conclude that high education teachers that are more frequently using newer internet technologies are more often using participatory internet technologies in the teaching process. This is in particular evident for respondents using frequently social networks, eBanking, publishing textbooks, reading and writing blogs, listening to downloaded music, buying over the Internet, working and downloading applications and using web calls.

However, because of a relatively small sample of questioned respondents, especially those who use participatory technology in the teaching process as well as the type of participatory web technology that they use, the results of this study can be seen as a starting point for future research. Another important question, not answered trough gathered data is what causes of this correlation are.

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