

The Purposes of Students' Use of Web 2.0 Tools for Learning at the University

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ABSTRACT

Continuous learning and knowledge updating are becoming an inseparable part of every society member's life, and a fast development of web 2.0 tools, suggests new teaching and learning possibilities. Web 2.0 tools can enhance student learning, enabling him/her to take a more active role. However, sometimes the possibilities, introduced by web 2.0, are not fully utilized. Research has shown that more often, students still use more traditional internet tools, such as email for communication and learning, rather than web 2.0 tools. Students tend to relate target learning to specialized learning and knowledge management environments, and not to specific web 2.0 tools. On the one hand, it has also been found out that web 2.0 tools are used by students as means of getting knowledge and information; on the other hand, the learners are not inclined to publicize or share the knowledge that they have created themselves.

Keywords: *Personal learning environment; self-directed learning; web 2.0 tools*

1. INTRODUCTION

Web 2.0 technologies expand the possibilities of communication and learning, they foster interaction with the surroundings and enable self-directed students' learning. The use of technologies provides students with the means of acquiring, creating, and sharing knowledge [1, 2, 3, and 4]. The number of students using interactive tools and social networks has been constantly growing. Technologies expand communication, interaction, and learning possibilities, therefore, it would be reasonable for higher educational institutions to explore the potential and create conditions for using those technologies in formal educational environments [5, 6]. Contemporary students seek activeness and participation in decision making concerning both study contents and learning tools. With this in mind, web 2.0 tools could be helpful for learning and integration into formal study modules. The experience students acquire through learning with the help of social technologies stimulates and induces self-directed learning [5]. However, since not all learners have experience in using and managing the technology, the development of these skills is an urgent need in a formal educational environment [7].

The development of a better understanding of how web 2.0 tools are used to enhance a student learning environment at the university, is very important when preparing students to be self-directed learners and helping them develop their learning skills to become life-long learners. To address this issue, the study has aimed at revealing how students acquire the knowledge; which web 2.0 technologies are most often used by students and for what learning purposes students use web 2.0 tools. Developing a better understanding may allow a more effective integration of the web 2.0 tools in a formal study

environment and ultimately may result in students' becoming more independent and self-directed learners.

2. USING WEB 2.0 TECHNOLOGIES IN PROMOTING STUDENTS' LEARNING

A huge part of knowledge and skills is acquired while communicating with other individuals in the university settings, in real life, and on the internet. Scholars analyze various education methods and forms to create rich and empowering educational environments. These settings, developed by the faculty and institutions, shape individual learning environments, peculiar to individual learners and resulting from learners' ability to identify and employ those learning environments which have been either created specifically for him/her, or have already been existent in the setting [8, 9].

Since web 2.0 tools facilitate communication and cooperation as well as knowledge exchange, this forces fast communication growth and development. A learning environment, empowered by web 2.0 technologies, substitutes a one-way stream of knowledge and information between a teacher (as an expert) and a student (as a novice) by the exchange of knowledge and information in a learner network.

Internet environments not only provide learners with the possibilities of acquiring new knowledge, but also enable them to express opinions, create knowledge, and share it. The birth and development of web 2.0 tools open new facilities for a learner to become an active learning contents creator as well as knowledge creator and shearer. Consequently, this creates an environment where the learner manages the learning process, acquiring

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technology management skills and self-directed learning skills. New technologies obviously impact learners' choice as to where and what should be studied. It can be observed, therefore, that, technologies do condition the shift of learning environments, educational decisions, teaching and learning methods in higher education [10].

The use of web 2.0 technologies and tools in the process of education is distinguished by the following: active learner's participation, collective mind, cooperation, interactivity, and social interaction as well as the possibility to create learning networks [11]. Web 2.0 tools, for instance, internet blogs, Wikis, content sharing programs, or social networks, generate learner-centered education possibilities, grant an access to expert- or peer-published contents, foster informal communication with group members, and promote dialogue, communication, cooperation as well as creativity. Web 2.0 tools are able to satisfy diverse students' learning needs, expand their study experience, and create possibilities to develop personal learning environments for personal needs satisfaction, to learn not only from information sources published on the internet, but also from other network participants [11]. Students post their opinions, interpret and creatively apply the information for decision making processes via technology use. Information on the internet together with other network participants, peers and educators, become the source of learners' comprehension and new knowledge creation.

Learning environments enriched by web 2.0 tools boast individualization, participation, and creation [6]. Learning individualization expresses itself through the choice of sources fit for a learner, learning place, and time. Learners are also able to choose technologies and tools which suit them best when applied both in individual learning and in communication and cooperation among network participants. Not only text sources, but also video, audio, and other multimedia information sources are used for learning, which expands the choice of learning strategies and versatile skills development. The enrichment of personal learning environments by web technologies employ the student-centered learning approach [12] which considers learner's experience, personally tailored learning strategies, tools, and resources [1]. The criteria to describe individualization are: choice, control, individuality, self-directedness.

The characteristics of social participation manifests itself through an attempt to change a traditional model of a classroom, which emphasizes the role of an institution and a teacher together with teaching a predetermined educational contents, into a more open one, which is grounded on a teacher-student partnership based self-directed learning. The use of increasingly popular web 2.0 tools and technologies in learning is attractive and motivating; possibilities to communicate with other learners, teachers, experts of the subject, and a wider internet community open extra possibilities to gain knowledge and develop skills. The criteria to describe

social participation are: communication, cooperation, links, and community.

Under the influence of web 2.0 technologies and tools, the view of teacher and student roles in the educational environment of a higher educational institution changes. A learner acquires more independence and responsibility not only in search, identification, arrangement, and assessment of information and knowledge; he/she takes part in the processes of knowledge creation and sharing. Learning is considered as a social and networked process which provides a learner with a wider freedom in formulating learning goals, in choosing learning resources and learning strategies. Still, a teacher, aiming at promoting student's self-directed learning which provides autonomy and self-control in learning, is responsible for the provision of relevant help and support [5]. Thus, a teacher is turned from an information provider into an enabler.

However, in the context of student's learning at a higher educational institution, there is no way to consider his/her absolute autonomy and independence. A learner finds him/herself in a situation where, on the one hand, he/she freely selects learning tools and takes learning-related decisions, but, on the other hand, is influenced by the environment, as learning is related to other individuals and groups. Moreover, the environment with its culture, social spaces, and communities determines the perception and activities of informal learning. Formal and informal education should be related in an attempt to optimize learning results [7]. As a matter of fact, this can be done by using web 2.0 tools [5], since they facilitate the integration of formal and informal learning elements to be used in the creation of personal student learning environments.

When integrating technologies and distance-learning elements in the formal educational environment (i.e., teaching and learning in a mixed way), it is crucial for students to be ready for independent study and learning. In other words, they have to possess self-directed learning skills and technology use skills. The integration of formal and informal learning with the help of web 2.0 tools enables learners to manage their learning process better, to have more interest in study materials, and to lead more active communication and participation in the arranged informal groups. This brings more self-reliance and self-trust to learners; it develops group cooperation and increases group management skills [13].

3. METHODOLOGY

This section provides the methodology followed by the study, conducted during the spring semester in 2013. The online questionnaire was used to collect students' responses. The aim of the current study was to examine if and how web 2.0 tools are used to enhance students learning environment at the university. The study focuses on the following questions:

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- How do students acquire knowledge?
- Which web 2.0 technologies are most often used by students?
- Are there any differences in the usage of web 2.0 tools between gender and study years?
- What are the Web 2.0 tools learning purposes for students?

3.1 Participants

Participants in this study consisted of 425 students. Female participants constituted 64,7 % and male participants constituted 35,3 %. The students who took part in the survey represent all study areas: technological sciences – 28.6 %, social sciences – 43.1 %, physical sciences – 12.7 %, humanities and arts – 15.6 %. The questionnaires were filled in by the students representing different study years: 1st year bachelors – 30.9 %, 2nd year bachelors – 23.3 %, 3rd year – 14.9 %, 4th year – 18.7 %, 1st year master's students – 9.2 %, and 2nd year master's students – 3.1 %.

3.2 Instruments

An online questionnaire was used to collect the data. The questionnaire was based on the literature review by the authors and aimed to find out students' web 2.0 tools use experience and the inclusion of web 2.0 tools in the educational environment, created by university teachers. The questionnaire consisted of three sections. The first section (7 items) asked respondents about student learning resources. The responses for each item were rated using a five-point Likert scale from „very often“ (5) to „very seldom“ (1) with the possibility to mark „never“ (0). The second section of the questionnaire consisted of 13 items and was prepared to learn about student experience using web 2.0 tools. The responses for each item were rated using a five-point Likert scale from „very often“ (5) to „very seldom“ (1) with the possibility to mark „never“ (0). The third section of the questionnaire, consisting of 10 items, was prepared to

learn for what learning purposes students used web 2.0 tools. The responses for each item were rated using a ten-point Likert scale from „very often“ (10) to „very seldom“ (1) with the possibility to mark „never“ (0). The last section included demographic variables (gender, age, the year of study, and the area of study).

3.3 Data Analysis

The data was collected in an online form and imported into SPSS Statistical Package version 16.0 to analyze and interpret the collection data. Descriptive analysis (frequency, mean, SD) of the data were used during the analysis process. Mann-Whitney test and one-way Kruskal-Wallis test for independent samples were utilized in order to find out whether there were statistical significances according to the variables of using web 2.0 tools by genders and study years. Statistical significance level was set at $p < 0.05$.

4. RESULTS

4.1 Students' Learning Resources

Table 1 presents the mean and standard deviation for each item of the first section. According to the results, it can be seen that the most popular learning resources for students are the internet, university teachers, and study colleagues. The internet as a learning resource is often used by more than 80.9 % students. Faculty teachers is the main source for learning for 77.2 % students. Other students is also a very important source to get new knowledge, often chosen by 50.8 % students. The Library as a knowledge resource is recognized by 38.3 % students and it is on the forth place. The family and other people outside the university are recognized as a learning resource quite seldom: less than 9 % students get new knowledge this way. Those findings confirm that the internet is most important resource for learning.

Table 1: Knowledge for students learning (n=452)

Learning resources	Very seldom (%)	Seldom (%)	Sometimes (%)	Often (%)	Very often (%)	Mean	Std. D.	Mean Rank	Sum of Ranks	p
Internet	1.2	4.4	13.6	32.5	48.4	4.23	0.92	142.39118.55	24634 11144	0.008
University teachers	2.1	5.3	15.5	27.2	50.0	4.18	1.01	125.82133.36	20760 12136	0.418
Study colleagues	8.0	13.4	27.6	33.0	17.9	3.39	1.16	122.32 111.46	18715 9251	0.154
Library	19.0	16.4	26.2	22.1	16.2	3.00	1.34	121.26 111.92	18552.5 9177.5	0.268
Other persons	51.9	25.8	13.9	6.8	1.5	1.80	1.02	142.16 101.51	24166.5 8729.5	0.000
Family	67.0	21.6	8.4	2.3	0.8	1.48	0.80	135.82 126.29	23361 11619	0.292

In order to find out whether or not there were statistically significant differences between learning resources by gender, the Mann-Whitney test was carried

out. As a result of Mann Whitney test, rank means of female in getting learning resources from university teachers and the Library were higher than male. There

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was no significant difference between the rank means of acquiring knowledge from study colleagues, family, other people, and the internet.

Kruskal-Wallis test was carried out to analyze the differences in selecting student learning resources according to the year of study. Statistically important differences were observed in the choice of one learning resource, the internet. Students of senior courses, especially master's students, select the internet as a learning resource more often than freshmen. Mean rank has been distributed, respectively, 1st year students – 110,61, 2nd year students – 113,73, 3rd students – 147,79, 4th year students – 148,53, 1st year master's students – 158,94, and 2nd year master's students – 146,92.

4.2 Findings of Using Web 2.0 Tools

Responses on the Likert-type scale were summarized using descriptive statistics, and mean scores that were higher than 2,5 were interpreted as edging toward frequent use, whereas mean scores that were lower than 2.5 were interpreted as edging toward seldom use.

Students have reported that the most often used internet tools are e-mail and Skype. E-mail for learning is often used by 57.5 %, Skype – by 41.2 %. Moodle, a virtual learning environment, is used when delivering a study course for 26.7 % students. A personal management environment is also very popular among the students – it is used often by 22.1 %. Social networking tools are often used by 19.2 % students. Less frequently used are a video recording and Wikis tools (see Table 2).

Table 2: Students' using web 2.0 tools priorities (n=452)

	N	Don't use (%)	Very seldom (%)	Seldom (%)	Sometimes (%)	Often (%)	Very often (%)	Mean	Std. D.
Using e-mail	314	30.5	0.7	4.0	7.3	14.8	42.7	4.37	0.95
Using personal management environment	312	31.0	7.3	7.5	11.5	10.6	32.1	3.76	1.40
Using Skype	306	32.3	7.5	8.6	10.4	13.5	27.7	3.67	1.40
Social networking	311	31.2	11.9	7.1	7.5	11.7	30.5	3.61	1.54
Virtual learning environment Moodle	303	33.0	9.5	9.5	11.9	14.8	21.2	3.43	1.42
Video recording	302	33.2	16.2	10.8	15.7	10.6	13.5	2.92	1.45
Reading Wikis	283	37.4						2.54	1.44
Reading blogs	281	37.8	33.2	16.4	7.3	2.9	2.4	1.79	1.07
Publishing video records	271	40.0	48.5	6.4	3.1	1.5	0.4	1.32	0.75
Listening podcasts	261	42.3	47.8	5.8	2.4	1.3	0.4	1.28	0.72
Subscribing RSS	260	42.5	48.2	5.1	2.9	0.4	0.9	1.27	0.73
Writing Wikis	250	44.7	50.2	3.3	1.5	0.0	0.2	1.13	0.47
Writing blogs	262	42.0	52.9	3.8	0.7	0.7	0.0	1.12	0.45

4.3 Web 2.0 Tools Usage Purposes

In an attempt to determine the use of web 2.0 tools for different purposes, the scale of 10 points was used. Mean scores that were higher than 5.0 were interpreted as edging toward frequent use, whereas mean scores that were lower than 5.0 were interpreted as edging toward seldom use. Assessing student use of web 2.0 tools for specific learning purposes, the answers of students who use these technologies were considered. The results of this analysis are presented in Table 3.

The most popular tools for targeted learning among students are personal management environments and virtual learning environments (Moodle). E-mail and

Skype are also recognized as useful tools for learning. A less popular technology for learning is Wikis.

Information dissemination is most popular among web 2.0 enhanced learning activities. For information dissemination, students more frequently use e-mail, Skype, personal learning environments, a virtual learning environment, social networks, Wikis, and video content sharing tools.

Students have reported that the most often used tools for communication are Skype, social networks, and e-mail. Other tools for communication are used very seldom. For collaborative work, students most often use

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Skype, e-mail, and social networks. As tools for presentation learning materials, e-mail, social networks, and Skype are used most often. For the creation of

information, web 2.0 tools are used not so often. Only the use of e-mail for the creation of information reached higher mean scores than 5.0.

Table 3: Student purposes for Web 2.0 tools usage

	Communication		Group work		Targeted learning		Presentation learning material		Dissemination of Information		Creation of Information	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Social Networks	8.34	2.61	5.22	3.23	2.78	2.38	6.77	3.02	6.77	2.97	4.51	3.29
E-mail	6.19	3.37	6.1	3.36	5.32	3.21	7.22	3.05	8.41	2.26	5.61	3.44
Messaging/Skype	8.57	2.29	7.66	2.80	5.14	2.96	6.79	3.02	7.27	2.67	4.89	3.31
Video content	2.26	2.36	1.88	1.72	3.69	2.67	3.01	2.64	5.19	2.95	1.95	1.98
Podcasts	1.52	1.65	1.60	1.72	2.02	2.17	1.63	1.55	2.53	2.52	1.40	1.25
Wikis	1.47	1.50	2.24	2.13	4.64	2.92	2.08	2.14	5.62	3.21	1.64	1.64
Blogs	1.35	1.13	1.49	1.60	2.63	2.53	1.86	2.02	3.36	2.85	1.54	1.62
RSS news	1.39	1.31	1.28	0.94	1.83	1.53	1.53	1.51	2.58	2.71	1.21	0.67
VLE	2.37	2.54	2.96	2.73	6.95	2.97	4.34	3.50	7.37	2.97	2.75	2.72
PME	2.23	2.50	2.78	2.80	6.97	3.29	4.60	3.63	7.98	2.80	2.52	2.78

In answering the question, if students were satisfied with this use of technologies in the learning process, they noted the following: 15.1 % think that the use of web 2.0 tools by university teachers is sufficient, 41.3 % think they could be used more, and 43.1 % have no clear opinion if those technologies could be used in the study process.

5. DISCUSSION

The answers obtained have revealed that the internet and the related web 2.0 tools are among the top learning resources for students. Obviously, the internet has been acquiring an increasingly significant role among learning resources, and it has been used along with the knowledge, delivered by university teachers, and other learning environments. Internet web 2.0 technologies are being used not only for retrieving the necessary information, but also for sharing it with peers and teachers. Similar internet use tendencies have been revealed by R. Shumeister's (2010) research. The investigation identified the most popular web 2.0 technology tools, used in the student learning process, namely, e-mail, internet telephony, and social networks. However, the review of the above-mentioned processes noted a lack of technology use in teacher-student interaction during the learning process.

The results have shown that virtual learning environments have been playing an increasingly bigger role, but they are most often used for tests, assignments, or data accumulation. The formation and contents of this learning environment is directly related to university teachers themselves, who need the competence of

technology use and information literacy. The survey has shown that there is no productive teacher-student communication on the level of web 2.0 technologies. The investigation by Safranir et.al (2007) supports this conclusion, stating that students and teachers do not explore all web 2.0 technology possibilities in the study process. Shumeister (2010) notes that many of the surveyed students have never used or come across possible virtual learning environments at the university. However, Alexander and Levine (2008) feel convinced that a web 2.0 platform has a growing potential to change teaching and learning.

The use of web 2.0 tools for learning purposes depends upon relevant usage skills and abilities, which can bring a hope of having better results of integrating web 2.0 technologies into a formal education process. Students are exposed to broad possibilities of creating individual or specific group learning environments applying web 2.0 technologies and tools. The above-mentioned technologies also facilitate two-way communication between a student and a teacher. The studies, carried out with the help of web 2.0 technologies, are characterized by the following: a strengthened role of teachers, moderators, and learning facilitators; a possibility of active learning for students when creating their own knowledge; stimulated creativity; creation of learning communities; encouraged transformations within organizational and social processes. Similarly, the question of teachers' digital literacy arises, since this is the major factor in a coherent technology use during the study process. Scholars note that, undoubtedly, the use of web 2.0 tools has numerous advantages; however, at the same time, it raises new requirements for university

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teachers who have to systemically sophisticate their information literacy as well as web 2.0 skills and competencies, change their attitudes, grow as innovators, or raise new pedagogical aims, such as to use audio and video materials, Wiki texts, and communicate with students via social networks.

6. CONCLUSION

Lately, students have been increasingly gaining knowledge not only from teachers or peers during classes or face-to-face interaction. The internet has greatly enhanced students' learning possibilities, being a convenient and easily accessed media, and it has been occupying a growing place as a source of information. The knowledge acquired by students from the internet ranks equal with the knowledge gained in class from teacher lecturing.

Still, students use traditional web tools, such as email, more often than web 2.0 tools for all learning activities. Often this is due to the fact that the technology is relatively new, and not all students are familiar with the possibilities of its application.

In the evaluation of students, targeted learning is more related to specialized learning or knowledge management environments, but not to specific web 2.0 tools. The web 2.0 tools are used by students as a supplementary means for acquiring the necessary information or study materials; however, these tools are seldom integrated into a formal educational environment.

It has also been noted that web 2.0 tools are used by students as a mean of getting knowledge and information, but the learners are not inclined to publish or share the knowledge they have created themselves.

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