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# Designation of Web 2.0 tools expected by the students on technology-based learning environment

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## Abstract

Recently, dimension of education has changed as a result of technology's rapid development. Virtual learning environment has been growing rich while diversity of education technology has been increasing. The purpose of this study is to examine which Web 2.0 tools are expected by the students on technology-based learning environment. A questionnaire is prepared, consisting of 23 questions and data was collected. The sample of the study consists of 60 students from department of Computer Education and Instructional Technologies. SPSS 16.0 was employed to analyze and interpret the collected data. Frequency, independent samples t-test and percentage methods were used during the analysis process. The results of the study show that the most appropriate software having web 2.0 tools which satisfy students' expectations from Technology Based Learning Environment is learning management systems.

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*Keywords:* Technology-based education; Web 2.0 tools; learning management systems; virtual learning environment; technology-based learning environment; educational technologies.

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## 1. Introduction

Change is difficult but it is probable that the rapid development and implementation of new technologies and social changes make change in the educational provision inevitable. Most of the universities, nowadays, are struggling to enhance the professional experience and skills of their personnel in order to efficiently utilize the new technologies in their teaching activities. The pressure for this comes from many sources, including employers who are demanding graduates with generic as well as domain-specific skills, from students themselves who expect using technologies in their learning, and from institutions that want to take advantage of the opportunities afforded by the new delivery methods (Andone & Sireteanu, 2009). Overall there exists a lack of empirical studies showing that the use of instructional technology actually improves learning (McClelland, 2001; Arbaugh, 2002; Buckley, 2002; McGorry, 2003). The advancement in technology has been revolutionizing the way educators teach and students learn (Wells, de Lange & Fieger, 2008).

Technology-based learning (TBL) constitutes learning via electronic technology, including the Internet, intranets, satellite broadcasts, audio and video conferencing, bulletin boards, chat rooms, webcasts. TBL fosters greater

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accessibility to learning by offering anytime and anywhere delivery. Furthermore, learning can be synchronous, when delivery occurs when instructors and learners meet at a specific time in a physical or virtual classroom, or it can be asynchronous, when the learning does not occur at a pre-specified time and thus can be self-paced. Web conferences, online forums, electronic mailing lists, wikis and virtual collaborative workspaces, blogs (weblog), simulations, learning management systems (LMSs) are the most common delivery methods and tools used in a TBL environment. There are numerous advantages to TBL in comparison to face-to-face learning. Five of the primary benefits are (Koller, Harvey & Magnotta, 2008):

- Accessibility, offering anytime and anywhere delivery,
- Training that is self-paced and matched to the learners' needs,
- Full scalability,
- Timely dissemination of up-to-date information,
- Streamlined and effective learning delivery.

Recently, due the rapid increase in the popularity of the internet the delivery of learning programs have gradually shifted from local desktop to online-based applications (Cavus & Momani, 2009). The development of learning management systems (LMS), course management systems (CMS), and virtual learning environments (VLE) that facilitate teaching and learning outside the physical classroom are examples of the revolution in educational technologies. A LMS provides the platform for the web-based learning environment by enabling the management, delivery, tracking of learning, testing, communication, registration process, scheduling (Cavus, 2010), share materials, submit and return assignments (Lonn & Teasley, 2009).

### *1.1. Purpose of the Study*

The purpose of this study is to examine which Web 2.0 tools are expected by the students on technology-based learning environment (TBLE). The study focused on answering these questions:

- 1- What are the opinions of students on technology-based learning environment?
- 2- Are there significant differences between different genders' opinions on technology-based learning environment?
- 3- Are there significant differences between different grade level (class) opinions on technology-based learning environment?
- 4- Are there any differences in opinions about the mobile learning between the nationalities?

## **2. Method**

### *2.1. Participants*

This study has been carried out at the Near East University, Department of Computer Education and Instructional Technologies (CEIT), during the Fall 2009 semester. Participants in this study consisted of 60 students. The female participants were 48.3% (n=29), and male participants were 51.7% (n=31). Joined the study from students of the department are 55% (n=33) third year, 45% (n=27) fourth year and also, 53.3% (n=32) Turkish Cypriot and 46.7% (n=28) Turkish.

### *2.2. Instruments*

The questionnaire “*Students' expectations on technology-based learning environment*” was prepared by the authors in the form of a questionnaire related to web 2.0 tools which aimed to find out students' expectations on technology-based learning environment. Content and validity of questions were investigated by 5 experts (experts of educational technology and information technology) in this field and were found to be satisfactory. The internal consistency of the questionnaire was found to be .97 using Cronbach alpha. The questionnaire consisted of two sections. The first section (6 items) asked participants for demographic information. The Second section of the questionnaire, consisting of 23 items, was prepared to learn students' expected web 2.0 tools on technology-based learning environment. All items represented a positive reaction to technology-based learning environment. Respondents rate each item on a 1-5 Likert scale from “strongly agree” (5) to “strongly disagree” (1).

### 2.3. Data Analysis

During the survey a questionnaire was used to collect data. After that, SPSS 16.0 was used to analyze and interpret the collected data. Frequency, independent samples t-test, and percentage methods were used during the analysis process.

## 3. Results and Discussion

### 3.1. Instructors' Opinions

Table 1 presents the mean and standard deviation for each item of the questionnaire. According to the results, it can be seen that students have great expectations from TBLE. It is an inevitable truth that education technologies are very important for education institutions. Drennan, Kennedy and Pisarski (2005) found that the key attribute to student satisfaction was positive perceptions of technology in terms of access and use of online flexible learning material.

Table 1. Means and standard deviations for each item of the questionnaire

	Items	Mean	SD
1.	Contents of the lesson should be multimedia-aided in TBLE (audio, video, animation).	4.55	1.13
2.	There should be communication tools in TBLE.	4.45	0.93
3.	TBLE should provide opportunity to send our homework to our teachers via internet.	4.40	0.98
4.	Lessons' contents should be printable.	4.45	1.19
5.	TBLE should have self-test questions at the end of each part.	4.50	0.70
6.	TBLE should have the quality of remaindering the learning activities automatically (homework and announcement, exam, self-test, chat, etc).	4.48	1.16
7.	TBLE should provide opportunity to show my performance.	4.70	0.46
8.	TBLE should provide opportunity to study in groups.	4.58	0.56
9.	TBLE should provide opportunity to give detailed information about the teachers of our lessons.	4.08	1.12
10.	TBLE should provide opportunity to get into online communication with my teachers in definite times.	4.70	0.59
11.	TBLE should provide opportunity to get in to asynchronous connection with teachers when it is required.	4.68	0.54
12.	TBLE should provide self-test opportunity to evaluate myself before final exams.	4.60	0.67
13.	TBLE should provide opportunity to reach the content of a lesson online	4.50	1.13
14.	TBLE should provide opportunity to see online friends.	4.52	0.70
15.	Username and password should be required to access TBLE.	4.88	0.32
16.	TBLE should be interactive.	4.62	0.52
17.	TBLE should provide opportunity to discuss the questions with our friends and teachers.	4.52	0.57
18.	TBLE should provide collaborative learning opportunity.	4.63	0.52
19.	I should be able to reach to lesson notes in TBLE without limited time and place.	4.93	0.25
20.	Use of materials and activities should be easy and understandable.	4.40	1.12
21.	TBLE should provide us opportunity to exchange the files with our friends.	4.40	0.91
22.	Communication and profile information of my friends should be reachable in TBLE.	4.28	0.58
23.	TBLE should give prompt feedback to me through online assessment immediately.	4.70	0.53

The highest mean of the expectations was recorded in the questionnaire for item 19 “*I should be able to reach to lesson notes in TBLE without limited time and place (M = 4.93)*”. The importance of knowledge is increasing day by

day. So supplying learning needs of the students has become a necessity. This necessity has made the use of new technology necessary in education sector. Zhang, Perris and Young (2005) found that flexibility of time and place is a major advantage in online courses.

The second highest mean of the students' expectation was found for item 15 "*Username and password should be required to reach TBLE (M=4.88)*". Student can learn and share new knowledge in different place and time thanks to virtual environment. However, the use of virtual environment requires importance. If you use technology for your good aims, you get possiive results, but it can be harmful in accordance with bad aims. The positive answers of the students show that they give importance to technologies' safety. Moreover, it is seen that students give importance to collaborative learning. The cause of collaboration can be overcome by building environments where people talk to one another, build relationships, and teach one another. Thus, students gave strongly agree answer for item 18 "*TBLE should provide collaborative learning opportunity (M=4.63)*". Thus communication tools providing collaborative learning gain importance. Item 10 "*TBLE should provide opportunity to get into online communication with my teachers in definite times (M=4.70)*" and item 11 "*TBLE should provide opportunity to get in to asynchronous connection with teachers when it is required (M=4.68)*". By improved communication between students and instructors through discussion forums and email have been exist (Beard & Harper, 2002).

It is a necessity that performance knowledge of students must be kept in E-learning and students can evaluate themselves to realize their situations. Item 7 "*TBLE should provide opportunity to show my performance (M=4.70)*". Texley and Adelstein (2006) found that using an online gradebook helped students to see immediate and significant results in classroom management and achievement. Furthermore, to give prompt feedback about students performance is also important. Item 23 "*TBLE should give prompt feedback to me through online assessment immediately (M=4.70)*". The LMS can enhance learning through efficient access to learning materials, by the provision of immediate feedback to students through online assessment (Breen, Cohen & Chang, 2003).

### 3.1.1. Gender

The results given in this section are based on the gender's opinion obtained from the questionnaire. In order to find out whether or not there was any statistically significant difference between gender's opinions, independent samples *t*-test was carried out and the results are shown in Table 2.

Table 2. Differences between genders

Gei der	N	Mean	SD	F	p
Female	29	108.52	3.49	11.945	.001
Male	31	100.87	11.36		

According to Table 2, there is statistically significant difference between genders' opinions on technology-based learning environment. The mean of female students' opinions on technology-based learning environment was 108.52 compared to 100.87 for male, a statistically difference that was found to be significant ( $p = .001$ ). Cavus, Bicen and Akçıl (2008) underlined that females are as successful as males at least. In the study showed that this results is changing in favor of women.

### 3.1.2. Grade level (class)

As indicated in Table 3, there is a statistically significant differences between the grade level on technology-based learning environment ( $p < .05$ ). Fourth class students ( $M=107.67$ ,  $SD=3.82$ ) have more expectations from TBLE in terms of web 2.0 than third class students ( $M=102.03$ ,  $SD=11.50$ ).

Table 3. Differences between grade level (class)

Grade Leve (Class)	N	Mean	SD	F	P
3	33	102.03	11.50	9.753	.003
4	27	107.67	3.82		

It is very normal that students from CEIT department being technology-based are interested in technology. Being used and followed of educational technologies by students is explained as a nice result of our study. Forth class students are the last students of the department. So, they may have used educational technologies more than third class students.

### 3.1.3. Nationalities

In order to find out whether or not there was any statistically significant difference between nationalities independent samples *t*-test was carried out and the results are shown in Table 4.

Table 4. Differences between nationalities

Natio ality	N	Mean	SD	F	p
Turkish Cypriot	32	104.12	9.88	.181	.672
Turkish	28	105.07	8.70		

As can be seen from the Table 4, there is not statistically significant difference between nationalities in the study ( $p > .05$ ). Since cultures of Turkish Cypriot and Turkish students are close to each other and there are strong relations between two countries.

## 4. Conclusion

We contend that the current technical design philosophy of today's learning management systems is substantially retarding progress towards the kind of flexible virtual classrooms that teachers need to provide quality education. Students' request and expectations can be included in an LMS. LMSs provide a password protected environment and has administration tools that make teaching online easier. Also, LMS enables some useful activities for instructors and students such as send/return an assignment, discussing with peers, immediate feedback on the online quizzes, accessing the materials at all times, file management skills (download, save and open files), communicating with peers and instructor, collaborative group work, calendar as a remainder activities, announcing news easily, students can learn their own performance. The results of the study show that the most appropriate software having web 2.0 tools which supply students' expectations from TBLE is learning management systems. Consequently, it can say easily that LMS is the learning platform for the future learning environment.

The paper is oriented to any one interested in creating technology-based learning environment. The individuals who may be interested in using new technologies are teachers, students, and any educational organizations such as universities, schools, and colleges.

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