International Journal of Educational Research and Studies
www.journalofeducation.net
Online ISSN: 2664-6811, Print ISSN: 2664-6803
Received: 03-9-2022, Accepted: 19-09-2022, Published: 06-10-2022
Volume 4, Issue 2, 2022, Page No. 40-43

Impact of web2.0 technology on ubiquitous learning among university students

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Abstract
With the gradual expansion of technology, computer and network are used more widely and deeply in education, especially with the interconnection of the Internet, and the campus network, and hereby web-based learning has come to reality. Web2.0 technology provides a large number of resources and gives wide foreground for education. It has become one of the extensively used modes for creating, editing, and sharing information. Web2.0 tools and services allow easy creation, sharing, and re-use of study content and support much flexibility in the processes.
This research aims to investigate the impact of web2.0 technology on ubiquitous learning among university students. The research was contextualized on a sample of 245 university students. A self-constructed Web2.0 Technology Inventory and Ubiquitous Learning scale has been used to collect data for this paper. The analysis is carried out by using t-test.

Keywords: web2.0 technology, ubiquitous learning (U-Learning)

Introduction
Technology has changed the way of teaching and learning. The evolution and adoption rate of web2.0 technologies are increasing promptly on a global scale. Users in the 21st century are no longer only passive consumers; conversely, they are active contributors now. With the web2.0 technology learners have become active participants and content creators too, they create and share content rather than finding suitable content, web2.0 such as wikis, blogs, social bookmarking, social networking sites, and podcasting allow users to be active participants.
Web 2.0 allows users to participate through five main characteristics, creativity, conversation, community and control (Hicks and Graber, 2010) [7]. Mazer *et al*., (2007) [12] discovered the fact that Web 2.0 can be used as a platform for interactions between students and mentors; the students can upload their homework, find the announcements and connect with their mentors outside classrooms using this platform (Chawinga, 2017; Palaigeorgiou & Grammatikopoulou, 2016) [3, 18]. The changing nature of these emerging technologies has promoted advancements in learning styles and ubiquitous learning is on trend. Ubiquitous learning also referred as u-learning is a learning paradigm in which learners have access to information at anytime and anywhere regardless of their geographical location or knowledge through technology. Ubiquitous learning is said to be an expansion of previous learning paradigms as conventional learning has been upgraded to electronic learning and from electronic learning to mobile learning and now, we have shifted to ubiquitous learning. Ubiquitous learning takes place in a ubiquitous computing environment, which relies on mobile devices and wireless gadgets, and wireless networks at any time in any location. It allows learners to learn at anytime, anywhere; in any location, and web 2.0 technology tools empower the users to access, create, disseminate and share information easily in a user-friendly environment. Keeping in view this paper will study the impact of web2.0 technology on ubiquitous learning among university students.

Literature Review
Web2.0 technology associates learners with web applications in which they can create, edit, disseminate and share information easily in a user-friendly environment. Web2.0 technology invites users to develop confidence in new modes of inquiry and new forms of learning. In present higher education systems, wikis can be useful as writing tools that aid composition practice, and that blogs are particularly useful for allowing students to follow stories over a period and review their changing nature. Portable, handheld devices have increasingly powerful multimedia, social networking, and communication capabilities therefore, web2.0 technologies offer numerous opportunities as well as challenges in education. With the growth and popularity of social networking external to formal educational settings, advocates have argued that these tools not only provide powerful affordances for community building in e-learning, but potentially are transformational technologies for higher education more generally (Hart, 2008) [6]. Educationalists in higher education that are looking for advanced methods to interact with students and to inspire them to be more active found Web 2.0 technologies are attractive and promote more active learning (Palaigeorgiou & Grammatikopoulou, 2016; Hughes, 2009) [18, 9]. With the support of Web 2.0 technologies, the learners can generate, share, and create knowledge (Selwyn, 2007) [20]. Moreover, Web 2.0

tools enhanced collaborative aspects and active involvement to learning content in which the tools improve the learning experience by providing learners with an actively engaged environment (Deebom & Amaso, 2017) [4]. The Web 2.0 technologies (Podcasts, Blogs, and Wikis) have an impact and they are playing a key role specifically in higher education where the pedagogy is based on conversations and learning the content by performing some kind of creative operation rather than 'just' reading it (Alexander, 2006) [1].

As web 2.0 technologies extend students' learning spaces (both physical and virtual) beyond the walls of the classrooms, while they can bridge learning and instruction spaces across school, home and the wider community (Jimoyiannis, 2010 b) And the ubiquitous environment helps the students to learn more in-depth with the user-created content. Even nowadays ubiquitous learning seems to have become the main social venue for the students. Looney, Jessup, and Valacich (2004) [11] claimed that the ubiquitous nature of smart technologies provides learners with exceptional efficiency, flexibility, and convenience, thereby influencing their satisfaction. In addition, omnipresence is one of the most well-known advantages of smart technologies and a main reason for the adoption of smartphones by many learners (Dholakia, Dholakia, Lehrer & Kshetri. 2004) [5]. The usefulness of applying new technological applications such as podcasting to engineering education has received increasing interest in the literature (Palmer *et al*., 2008) [17]. Learning with mobile devices is a highly fragmented process, which should be taken into account in designing as well as in developing. Users of social network sites engage in purposeful and thoughtful interactions in these online spaces, negotiating different friend groups, different site designs, and different layers of settings as they manage professional and social identities across online and offline spaces (Buck, 2012) [2]. Web 2.0 platforms feature perfect interactive and participative environments that learners and teachers can leverage to accomplish projects and assignments on a regular basis, which can boost a learner's self-esteem and confidence and produce positive results (Riofrío-Calderón and Ramírez-Montoya 2022) [19].

Research Objectives

1. To examine the impact of web2.0 technology on ubiquitous learning among university students
2. To reveal the gender difference in ubiquitous learning among university students
3. To know the internet usage among university students

Hypotheses

1. There will be a significant impact of web2.0 technology on ubiquitous learning among university students.
2. There will be significant gender difference among university students.

Sampling Technique

Simple random sampling is used to select sample of 245 students from two universities of North Region of India i.e. Punjabi University Patiala and Punjab University Chandigarh.

Table 1: Sampling Technique

Sample Size	**Punjabi University Patiala**		**Punjab University Chandigarh**	
245	119		126	
Division of students on gender basis	Male	Female	Male	Female
	29	90	33	93

Methodology

In order to achieve the specific objectives, researchers-self designed questionnaires i.e. Web2.0 technology Inventory and Ubiquitous Learning Scale were administered randomly to 300 students of two universities i.e. Punjabi University Patiala and Punjab University Chandigarh, out of 300 questionnaires, 245 were responded. Web 2.0 Technology Inventory has 21 items under the six dimensions. The ubiquitous learning scale consists of 44 items under three dimensions.

Data Analysis and Interpretation

1. Analysis of Objective 1

To examine the impact of web2.0 technology on ubiquitous learning among university students.

In order to study the impact of web2.0 technology on ubiquitous learning among university students Self-prepared questionnaires on Web2.0 technology and the Ubiquitous Learning Scale as a tool was used. t-test was applied to test the hypotheses.

Table 2: Impact of Web2.0 technology on ubiquitous learning among university students

	Web2.0 Technology	**Ubiquitous Learning**
Mean	45.14	45.19
Sd	187.21	25.15
N	245	245
Df	414	
t-value	24.78*	

*p≤ 0.05

The findings in the above table reveal that the mean score for web2.0 technology and ubiquitous learning came out to be 45.14 and 85.52. The t-value has been found to be 24.78* which is significant at 0.05 level. It is concluded that there is a significant impact of Web2.0 technology on Ubiquitous Learning among university students. Thus, the hypotheses is accepted.

2. Findings and Result of Objective 2

To meet the objectives of the paper and test the hypotheses, t-test was employed to reveal the gender difference. The results have been given as under:

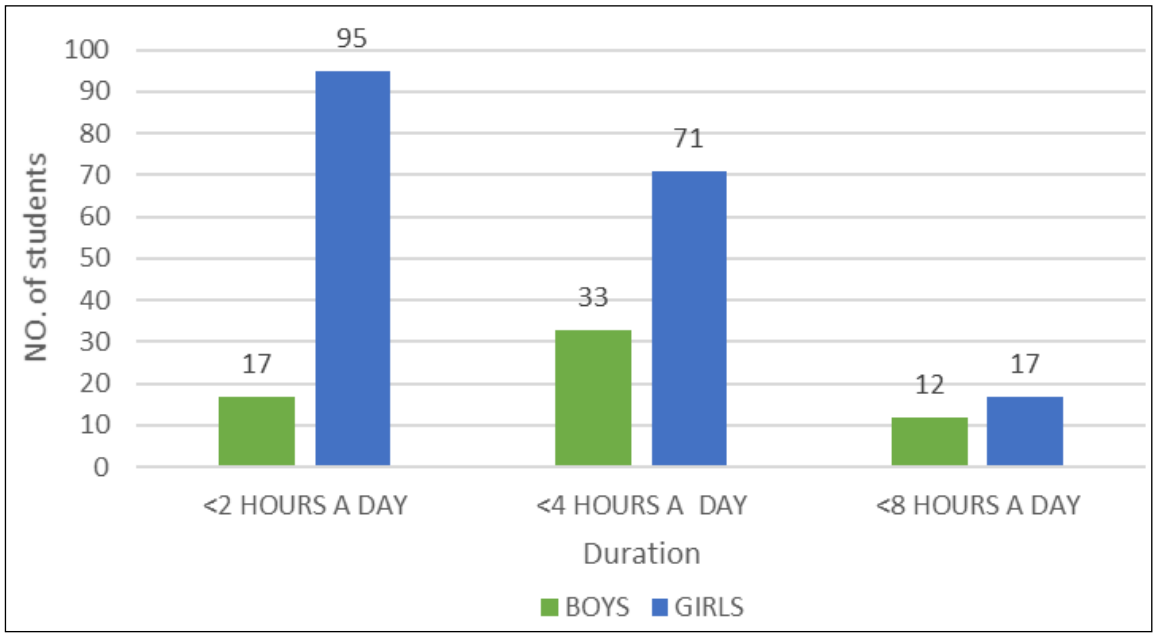
Table 3: Gender Differences in Ubiquitous Learning among University Students

Variable	Gender	N	M	SD	t-Value
Ubiquitous learning	Female	183	83.76	20.53	2.22*
	Male	62	90.69	23.65	

*p≤ 0.05

Table 3 depicts that the mean ubiquitous learning score of female university students came out to be 83.76 as compared to mean score of 90.69 of male university students. The t-value has been found to be 2.22. This value is significant at 0.05 level. Thus, hypothesis is accepted. Liburd and Christensen (2013) claimed that Web 2.0 technologies can help the learners to increase the depth of learning by increasing interaction.

3. Findings and Result of Objective 3



Graph 1: Internet Usage Among University Students

Table 4: Internet Usage among university students

Sr. No.	Duration	Boys	Girls	Total (%)
1	< 2 hours a day	17	95	45.71
2	< 4 hours a day	33	71	42.45
3	<8 hours a day	12	17	11.84

It is evident from the table 4, that out of total percentage of internet usage, 45.71% students out of total sample use internet facility for < 2 hours a day and on the other hand 42.45% students use it for <4 hours a day and only 11.84% of students used it for <8 hours a day. To compare boys and girls ratio regarding usage of the internet, there is a difference between their percentage scores.

Conclusions

The study specifies that, the participants are familiar to web2.0 technology and have good experience of using mobile devices, laptops, PC or tablets in learning. However, it has been found that using these devices for ubiquitous learning is much dependent on individuals, as there exists a difference between girls and boys in using technology. The use of Web2.0 technology has a progressive impact on learning. It stimulates active learning, helping students to obtain better performances and to enhance their self-efficiency an important component of academic motivation. Because many new technologies are interactive, it is now easier to create

environments in which students can learn by doing, receive feedback, continually refine their understanding and build new knowledge. Overall, students are by and large familiar with the backbone of online collaboration (National School Boards Association, 2007) [16].

Thus we can say that web 2.0 technologies have a significant impact on university students from the academic perspective. Nevertheless, self-interest, determination, and motivation toward web2.0 technologies are the key factors that make ubiquitous learning successful. Learners' passionate and determined attitude helps them to overcome all the difficulties encountered during learning with web2.0 technology. It is easier for the user of web2.0 technology to perform ubiquitous learning however less users need more positive learning experiences to encourage themselves in performing ubiquitous learning. Using web2.0 technology not only endorse 21st-century skills but also boosts the authentic environment for the teaching and learning process. Moreover, the pandemic Covid-19, has deteriorated the educational system remarkably across the globe (Mishra, Gupta, & Shree, 2020; Hoq, 2020) [15, 8]. The dependence on Web-based learning, especially in higher learning institutions has increased. (Mahyoob, 2020; Martinez, 2020; Hoq, 2020) [13, 14, 8]. Thus, it is necessary to focus on how Web-based tools can solve this disruption in the educational system and their possible challenges (Hoq, 2020) [8].

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