

Teachers' Adoption of Web 2.0 Technologies in Higher Education

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Abstract

Existing literature shows that Web 2.0 technologies have tremendous benefits for teachers in higher education. The present study attempted to find out the extent of adoption of Web 2.0 technologies by teachers of higher education institutions of Odisha for teaching and personal learning. A descriptive survey research design was followed for the study. Data were collected from 60 teachers of three universities of Odisha namely, Ravenshaw university, Utkal university and Gangadhar Meher University. Stratified random sampling method was used to select the participants. Questionnaire was used for the collection of data from the participants. The results of the study revealed that majority of the teachers were highly adapted to some of the web 2.0 technologies. Overall, teachers' adoption degree of web 2.0 technologies was moderate. The results of the study could be very much useful for all the stakeholders and policy makers of higher education.

Keywords: Adoption, Web 2.0 technology, Higher Education

Introduction

In recent years, the design and delivery of courses in colleges and universities has been significantly influenced by the immersion of technology into numerous facets of society. For example, the emergence of technologies such as e-mail and learning management systems has resulted in new ways in which content is accessed, shared, and delivered throughout a traditional course (Barnett, Keating, Harwook & Saam, 2004). More recently, Web 2.0 applications have emerged with the potential to further enhance the teaching and learning environment in higher education. The advent of Web 2.0 has transformed the Internet into a global network of interconnected learning communities.

Are these Web 2.0 technologies beneficial to teaching and learning? From the current body of research related to the use of Web 2.0 in teaching and learning, we do know that these technologies have many affordances to improve teaching and learning (Sonmez & Cakir, 2021; Alexander, 2006; Franklin & Van Harmelen, 2007). These affordances include the ability to support scaffolding and active learner participation, provide opportunities for student publication, feedback, and reflection, and the potential for development of a community of learners (Majid & Verma, 2018; Ferdig, 2007). For teachers, this is an exciting time. The advent of Web 2.0 technologies gives teacher the opportunity to empower their students as never before through exciting new tools and mediums. Educators suggest that Web 2.0 tools ought to be integrated into higher education as digital natives expect to learn with new technologies and because higher education should prepare students for the workplace of the future (Alexander, 2006; Prensky, 2001; Roberts, Foehr & Rideout 2005; Strom & Strom, 2007). As far as the potentialities of

Web 2.0 tools are concerned, they provide several opportunities and possibilities to teachers as well as students, in their teaching and learning process particularly at higher education stage. It provides scope to all to learn at anytime, anywhere and anyplace.

However, to harness the power and opportunity offered by Web 2.0 applications, teachers must integrate new technologies into their classroom. Therefore, this study focused on the extent of using the tools for teaching and learning by the teachers.

Rationale of the study

One area of rapidly changing technology is the Internet. With the passage of time and ever-increasing access to affordable computers and related technologies, one can reasonably assume that these numbers will continue to increase. While the initial design of the World Wide Web did not provide much opportunity for interaction with its read-only format, more recently developed Web 2.0 technologies have significantly increased the amount of interaction and collaboration on the Internet with its more dynamic read and write format. Web 2.0 technologies have changed the way users interact with the Internet (Zhang, 2022; Hazari, North, & Moreland, 2008). These Web 2.0 applications can be used to facilitate interaction, and to even further facilitate cooperation and collaboration among users. As suggested by Black (2006), the continued development of new technologies for communication on the Internet is allowing users to engage and interact with one another in new and innovative ways. Web 2.0 technologies have changed Internet users from passive readers of provided content to active writers of co-created, collaborative content. Web 2.0 technologies have reshaped the Internet into global communities that anyone can join and in which everyone can contribute (Parker & Chao, 2007; Tapscott & Williams, 2008). This new generation of Web tools is predicated on users' modification of, contribution to, and enhancement of shared information (Broussard, 2008). With a greater understanding of how to best utilize these technologies in all areas, the ability to use the Internet and Web 2.0 technologies to work and learn collaboratively and cooperatively in co-creating information and knowledge has the potential to transform the way teachers teach and students learn, in essentially all curricular areas. Web 2.0 technologies like blogs, wikis, social networking, RSS, podcasting really contribute significantly to the learning environment.

Many studies have been conducted on Web 2.0 and its adoption at various levels of education. It has been further suggested that web2.0 tools should be integrated into higher education as digital natives expect to learn with new technologies and because higher education should prepare students for the workplace of the future (Alexander 2006, Strom & Strom 2007). Researchers have identified several benefits of Web 2.0 technologies in higher education to teachers (Alexander 2006, Smith, & Toland 2008, Lamb 2004). Many studies have focused on one particular tool, for example, blogs, social networking, twitter, etc within a certain discipline. Schroter 2007, & Sawant, 2012 found in their study that there was high familiarity and adoption. Tyagi, (2012), Kumar (2011) found faculties are well aware of Web 2.0 technologies. Junco (2012), Zakarian (2013), Kilis et.al, 2016 and Chawinga 2017 explored the use of social media in educational settings. Malhiwsky, 2010 & Prensky, 2010 claimed Web 2.0 technology to be tools that students use for learning essentials skills and getting things done. Kumar, 2009, Yun- Jo An et. al., explored the benefits of Web 2.0 technologies in learning environment. Moll & Hengstler (2012), Sharma & Monteiro (2012), Sun & Chang (2012) demonstrate teachers perceptions

of weblogs activity and encourages them to actively and reflectively engage in knowledge sharing, generation, and the development of numerous strategies to cope with difficulties encountered in the teaching-learning process. Most of the studies have been conducted abroad on familiarity, adoption, interest, use and awareness of teachers and students about Web 2.0 at various levels of education. So far, not many studies have been conducted in India on awareness, familiarity and adoption of web2.0. Very few studies have been conducted in Odisha regarding that. Studies conducted in India suggests that more and more research need to be done regarding awareness, perception, use, adoption of teachers on Web 2.0. Therefore the researcher is determined to conduct a study on adoption of Web 2.0 in higher education in Odisha. The focus of investigation will be on exploring to what extent teachers are adopting it for their teaching and learning. In addition, the results of this study could be useful for all stakeholders who are using the Internet in university teaching in local and regional educational institutions.

Statement of the Problem

In order to find out answers to the objectives, the research problem was entitled as “**Teachers’ Adoption of Web 2.0 Technologies in Higher Education**”.

Objectives of the Study

The major objective of the study was to study the degree of adoption of Web 2.0 technologies by teachers in higher education institutions of Odisha for teaching and their personal learning

Research Questions

The research question of the study was formulated as:

To what extent do the teachers adopt Web 2.0 technologies in higher education institutions of Odisha for teaching and their personal learning?

Operational Definition:

Adoption: It refers to an act of accepting and using Web 2.0 technologies for teaching and learning.

Web 2.0: It refers to the advance version of web technology which provide a platform for participation and allow user to not only read but to write in the form of adding comments, liking, following, tagging, sharing to an existing post, uploading, downloading document or other media file and simply chatting in a online social space for teaching and learning.

Methodology

Design of the study: The study aimed at investigating the adoption of web 2.0 technologies in higher education by teachers. So, Descriptive Survey method design was used for the study.

Population and Sample: The population of the present study consisted of all the teachers of higher education institutions of Odisha. The investigator followed stratified random sampling method for the study where sixty teachers were selected randomly from the three universities namely, Ravenshaw University, Utkal University, Sambhalpur University. Initially it was proposed that 30 teachers to be included from each of the three universities. But due to some unavoidable circumstances, that much data could not be collected.

Tools and Techniques Used: The investigator used questionnaire for teachers to gather data regarding their adoption of Web 2.0 technologies for teaching and learning

Statistical Techniques used for Data Analysis: Descriptive statistics was used to analyze and interpret the collected data. The investigator analyzed the questionnaire by finding out the percentage of responses of the respondents.

Delimitation of the Study

The study was confined to teachers of three Universities of Odisha state and their adoption of web 2.0 technologies only. Furthermore, the study was limited to Survey research design only.

Analysis and Interpretation

Use of Web 2.0 tools for teaching and personal learning by teachers(N=60)

Question	N	Response	
		Yes	No
Do you use Web2.0 tools such as blogs, podcasting, wikis, RSS, social software for teaching and personal learning?	60	70.88	29.12

From the above table, it is found that majority of the teachers use Web 2.0 tools for teaching and personal learning (70.88%). It shows that they are moderately adapted to Web 2.0 technologies. 29.12% of the teachers responded ‘no’ which means they don’t use it for teaching and personal learning.

Use of kind of Web 2.0 tools for teaching by teachers (N=60)

Question	Response	
	Yes	%age
What kind of web2.0 tools do you use for teaching?		
a) Email	52	86.66
b) Blog	24	40
c) Social networking	58	96.66
d) Social bookmarking	9	15
e) Podcast/Vodcast	9	15
f) Wikis	30	50
g) RSS Feed	4	6.66
h) Microblog	3	5
i) Concept mapping	12	20
j) Instant messenger	34	56.66
k) Online presentation tool	23	38.33
l) Course management	10	16.66

The above table depicts that Social networking is used the most by the teachers for teaching (96.66%). The second mostly used Web 2.0 tool by the teachers for teaching is Email (86.66%), followed by

Instant Messenger (56.66%) and Wikis (50%). Other Web 2.0 tools such as Blog, Online presentation tool have been found to be less used by the teachers for teaching. Social Bookmarking, Course Management and Podcast, RSS Feed and Micro-blog have been found to be the least used tools by the teachers.

Frequency of using Web 2.0 technologies for personal learning by the teachers (N=60)

Question	Response (in %)				
	Daily	Weekly	Monthly	Yearly	Never
How often do you use Web 2.0 tools for your personal learning?					
Email	65.88	20.96	10.22	2.94	0
Blog	30.44	40.82	8.82	2.94	16.98
Podcast	20.46	11.32	15.10	32.54	20.58
Social Bookmarking	20.46	11.32	15.10	32.54	20.58
Social Networking	74.88	16.86	8.26	0	0
Wikis	46.76	23.50	14.7	2.94	12.10
Instant Messenger	42	21.86	13.56	2.94	19.64

From the above table, the data indicates that teachers use social networking, email, wikis, and instant messenger by 74.88%, 65.88%, 46.76% and 42% respectively on daily basis where as Web 2.0 tools like blog, podcast and social bookmarking are used less frequently by teachers.

Major Findings of the Study

The following findings have been found from the present study.

1. Majority of the teachers (70.88%) do use Web 2.0 tools for teaching and personal learning. It indicates that they are highly adapted to these tools and experienced benefits of these tools in their teaching activities.
2. Social networking has been mostly used tool by the teachers (96.66%) followed by email(86.66%), Instant messenger (56.66%), c (50%) for teaching. Blog (40%) and online presentation tool (38.33%) have been found to be moderately used by the students. Web 2.0 tools like Concept mapping (20%), Course management (16.66%), Social bookmarking (15%), Podcast/Vodcast (15%), RSS Feed (6.66), Microblog (5%) have been least used teachers for teaching. It indicates that some of the web 2.0 tools (Social networking, email, Instant messenger, Instant messenger) are used by majority of the teachers.
3. Majority of teachers have accounts in Email, followed by Social Networking, Wikis and Instant Messenger,
4. Majority of teachers use social networking (74.88%) and email (65.88%) daily for personal learning. Little less than half of the teachers use Wikis (46.76%) and Instant Messenger (42%) daily for personal learning. Blog (30.44%), Podcast (20.46%) and Social Bookmarking (20.46%) are used less frequently by the teachers on a daily basis. The result indicates majority of the teachers highly adopt some web 2.0 tools for their personal learning.

5. 40.82% of teachers use Blog weekly for personal learning.
6. 32.54% of teachers use Podcast and Social Bookmarking monthly for personal learning.
7. Nearly 20% of teachers never use Podcast, Instant Messenger and Social Bookmarking.

Further Implications and Suggestions of the Study

The present study is based on the adoption of web2.0 technologies by the teachers in the field of higher education. In today's world, Web 2.0 technology provides several affordances and possibilities to both teachers and students. The results of this study show that teachers use many Web 2.0 tools for teaching and personal learning. More researches should be done with regard to awareness, familiarity, interest, use of teachers about web 2.0 in higher education. This study has only dealt with the adoption level of teachers of web 2.0 in three universities of Odisha. For a better understanding of the use of web 2.0 tools by teachers of higher education, more researches need to be undertaken in different colleges and universities in Odisha. Studies should be done on why some teachers are failing to integrate these technologies in classroom.

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