

WEB 2.0 AS A PEDAGOGY TOOL IN DIGITAL ERA

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Abstract

Fast emerging new technologies is taking everyone in its stride and no one is untouched with its influence. Access to technology and ability to use technology easily has become one of the important factors to outperform competitors. The biggest advantage that has been appreciated by each and everyone is digitization. Digitization has made one's life easy by providing services at one click of mouse. A digital wave is sweeping across India.

Digitization has brought tremendous opportunities for education sector. It has increase connectivity of tutor and learner as they are connected virtually anytime and everywhere through technologies. Internet today has become the backbone of technology as various applications and technological benefits have been possible only with the help of internet and World Wide Web. Web 2.0 is one such technology which has revolutionized the education sector. Web 2.0 has led to the development and evolution of Web-based communities and hosted services, such as social-networking sites (i.e. Facebook, MySpace), video sharing sites (i.e. YouTube), wikis, blogs, etc. Web 2.0 is a web based interface which allows students and teachers to share and collaborate with each other. This technology provides a two way communication between teachers and students and motivates learners to experiment with the learning process and enhance their creativity and imagination. It has led to the transformation of learning process and environment by increasing easy accessibility to various literature beyond the physical boundaries of classrooms. .

This paper attempts in answering the following questions (1) what is pedagogy in digital era? (2) What are Web 2.0 technologies? (3) How can Web 2.0 technologies be used as teaching learning tool? (4) What are barriers and challenges of using Web 2.0 in new pedagogy? The paper concludes that regardless of all the barriers and challenges, Web 2.0 can be used as teaching learning tool and it will benefit teacher education system to provide quality education in alignment with constructivism, which is an essential approach in new pedagogy.

Key Words: Web 2.0; Digital Learning; ICT; Pedagogy

Introduction

Technology being the tool for existence and survival in the past has now become a tool to outperform competitions and hold ones position, professionally and personally. People are using You Tube, Facebook, Whatsapp, Twitter, Instagram, Wikkis etc. not only for sharing social

messages and information but also for getting knowledge and also for sharing and disseminating one's own works and videos. Government of India also has launched digital India campaign to ensure that government services are made available to citizens electronically by improved online infrastructure. Education sector is one such sector which has large potential to take advantage of digitalization. It is well said by Kothari commission that destiny of India is being shaped in her classrooms so in this digital era when we are using technology everywhere whether it be money transfer, or booking tickets, or teleconferencing, videoconferencing etc., it is essential to make our children tech savvy so that they can learn things at faster rate.

Al-Hariri and Al-Hattami (2017) have said that technology usage might produce comparatively more significant increase in academic achievement than non-use. On the other hand Wentworth and Middleton (2014) in their study, reports that frequency of technology use is negatively related to academic performance. So, technology on one hand can be very useful but it can also create problems if not used judiciously and in controlled manner. Nevertheless, it is felt that use of technology is going to become mandatory things in learning process. The ease with which content can be updated, instruction can be personalized, information can be accessed, information can be distributed, and content can be standardized are important elements of technology (Rosenberg, 2001; John, et al., 2002). Increased implementation of technology will also increase students' comprehension of content and development of skills in such areas as analytical reasoning, problem solving, information evaluation, and creative thinking (Panel II. Digital transformation: a framework for ICT literacy, 2002)

In this digital era, our society and economy is also expecting that our schooling system should include digital instructional material and means to best meet the ever changing individuals and personal needs of learners. Therefore, there is a need to redefine pedagogy in digital era and use Web 2.0 as teaching learning tool.

Material and Methods

This paper would attempt to understand the concepts of We 2.0 technology and its implications in the pedagogy with changing academic environment with respect to both learner and teacher. Various research papers and online academic materials have been explored to conclude results.

Pedagogy in digital era

Traditionally pedagogy means the art and science of teaching. It addresses all types of skills methods being used to deliver the education process to students. Now a day's children are living

in technotronic society where they can access loads of information with a click. So the pedagogy in digital era can be defined as the use of new constructive methods, technical practices and ICT based learning process according to the needs of digital age learners. This digital pedagogy observes teacher as learning partner, as a guide on side not and not on stage. It focuses on learning outcomes and demands creativity, innovation and higher order thinking skills to integrate class room teaching learning process. Digital Pedagogy seeks a shift in the role of teacher and student.

Shift in Teacher's Roles

From	To
Transmitter of Knowledge	Guide & Facilitator of Knowledge
Controller of Learning	Creator of Learning Environment
Always Expert	Collaborator & Co-Learner
Learning to use ICT	Using ICT to Enhance Learning
Didactive / Expository	Interactive / Experiential / Exploratory

Shift in Learner's Roles

From	To
Passive Learner	Active Learner
Reproducer of Knowledge	Producer / Constructor of Knowledge
Dependent Learner	Autonomous Learner
Solitary Learner	Collaborative Learner
Solely Learning Content	Learning to Learn/Think/Create & Communicate

Various authors have suggested that complimenting Web 2.0 technology with face-to-face delivery of lecture will yield better academic learning (Thomas & Thomas, 2012; Levy, 2009). Thus, Web 2.0 technologies have become major learning tools for the modern learners.

Web 2.0 Technology: What is it?

Web 2.0 is a term that describes the changing trends in the use of World Wide Web technology and Web design that aim to enhance creativity, secure information sharing, increase collaboration, and improve the functionality of the Web as we know it (Web 1.0). These have led to the development and evolution of Web-based communities and hosted services, such as social-networking sites (i.e. Facebook, MySpace), video sharing sites (i.e. YouTube), wikis, blogs, etc. Web 2.0 Websites allow users to do more than just retrieve information. Now users can build on the interactive facilities of Web 1.0 to provide "network as platform" computing, allowing users to run software-applications entirely through a browser. Users are able to co-author the data on a Web 2.0 site and exercise control over it. These sites have an "architecture of participation" that encourages users to add value to the application as they use it. This stands in contrast to traditional Websites, which limit visitors to passive viewing and whose content only the site owners can modify. The key features of Web 2.0 include as explained in Wikipedia and other resources:

- Folksonomy: Folksonomy is a user-generated system of classifying and organizing online content into different categories by the use of metadata such as electronic "tagging" of websites, images, videos or links.
- Rich user experience: A dynamic content that is responsive to user input (e.g., a user can "click" on an image to enlarge it or find out more information)
- User participation: Information flows two ways between site owner and site users by means of evaluation, review, and online commenting. Site users also typically create user-generated content for others to see (e.g., Wikipedia, an online encyclopedia that anyone can write articles for or edit)
- Software as a service (SaaS): Web 2.0 sites developed APIs to allow automated usage, such as by an Web "app" (software application) or a mashup

- Mass participation: Near-universal web access leads to differentiation of concerns, from the traditional Internet user base (who tended to be hackers and computer hobbyists) to a wider variety of users

Technology support – Major boost to Web 2.0

There has been tremendous growth in internet capacity, internet usage and familiarity with internet in India over the past 5 years. There is a great growth in the production of mobile handsets and use of mobiles by the people. Following table shows the trend of growth on different factors. Table 1 presents the data regarding number of mobile phones in India during the year 2007 to 2014; and Table 2 depicts the number of internet subscriber in India for the period 1999 to 2014

Table 1: Number of Mobile Phones in India (In Million)

Years	Wireless Phones (GSM and CDMA)
2007	165.09
2008	261.08
2009	391.76
2010	584.32
2011	811.59
2012	919.17
2013	867.81
2014	904.52

Source: Indiastat.com

Table 2: Number of Internet Subscribers in India (In Million)

Years	Internet Subscribers	%age Increase
13.03.1999	0.23	-
31.03.2000	0.94	-
31-03-2001	2.91	-
31.03.2002	3.24	-
31.03.2003	3.50	-
31.03.2004	4.05	-
31.03.2005	5.30	-
30.06.2005	5.56	-
30.06.2005	5.56	-
31.03.2007	92.71 (Lakh)	-
31.03.2012	22.86	-
31.03.2013	164.81	-
31.03.2013	164.81	-
31.03.2014	251.59	52.65

Source: Indiastat.com

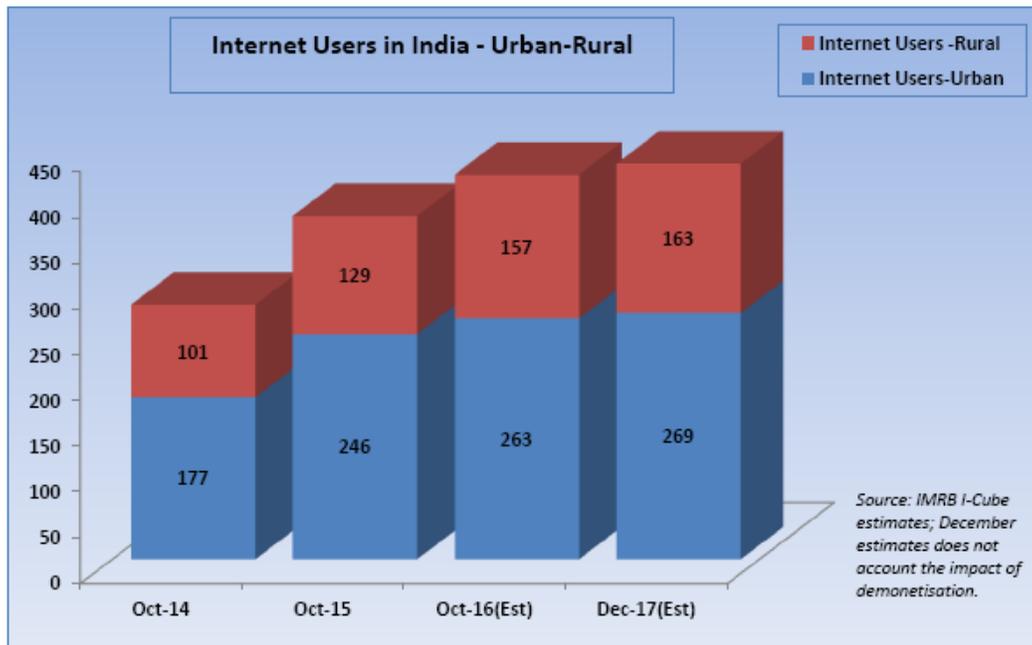


Figure 1: Internet Users in India – Urban – Rural

Source: IMRB I Cube Estimate

Figure 1 clearly describes that internet user base has grown from October 2015 to October 2016. Internet in India (2016) report expects internet user base to grow to reach in the range of 275 – 285 million by June 2017.

It is visible from Figure 2 that 77% of urban users and 92% of rural users consider mobile as the primary device for accessing the Internet. Mobile phones are the primary devices for accessing the Internet across demographics. In Urban India, the usage of Desktops/Laptops are expected to go down further with the most accessed purposes viz. Online Communication, Social Networking and Online Entertainment will be fulfilled using Mobile Phones. The Desktops / Laptops will be used mostly for Office and School work. In Rural India, penetration of desktop/laptops has been historically low; and the sector has leapfrogged these devices to move into mobile, which is the medium of introduction to the internet today (Internet in India, 2016)

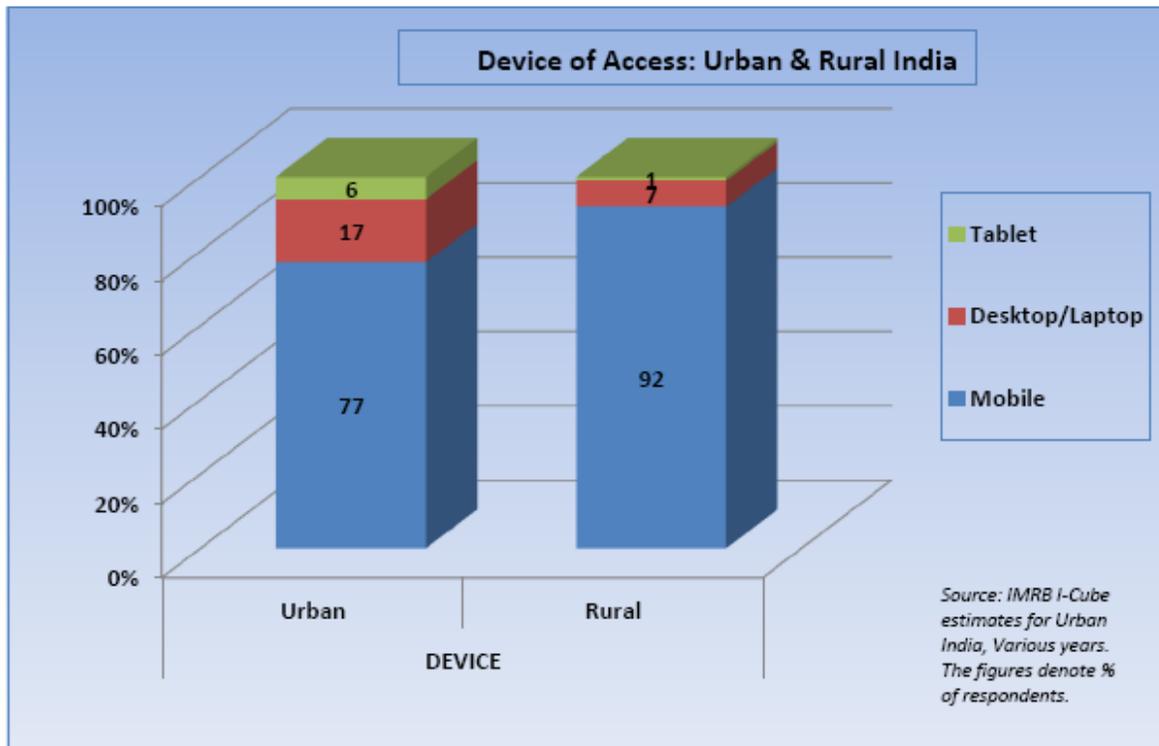


Figure 2: Device of Access: Urban & Rural India

Source: IMRB I Cube Estimate

Popular Web 2.0 tools:

Some of the important Web 2.0 tools are (Thomson, n.d):

- Blogs – It is a kind of personal website where blogger can enter its different forms of content.
- Podcasts – A digital audio file made available on the Internet for downloading to a computer or mobile device.
- Social Networks – With such network, users can exchange ideas and share their views.
- Wikis - a website or database developed collaboratively by a community of users, allowing any user to add and edit content.
- ePortfolios – It is a collection of electronic evidence assembled and managed by a user, usually on the Web.
- Micro-Blogs - a social media site to which a user makes short, frequent posts.
- Social Bookmarking - Social bookmarking is a centralized online service which allows users to add, annotate, edit, and share bookmarks of web documents

Benefits of using web 2.0 technologies in teaching

An et. al. (2010) has highlighted many benefits of using web 2.0 technologies in teaching. Some of the major benefits are:

Interaction, communication and collaboration: Web 2.0 technologies in teaching helps in developing like-minded communities, increase interaction and communication among academic fraternity i.e. teachers, students and other experts. Collaboration and resource sharing in this manner also generate new thoughts and propositions.

Knowledge creation: Web 2.0 technologies provide students a platform where they can become knowledge creator. Students can create content themselves rather than just listening to lectures. They also get feedback instantly which further motivates them to improve upon their content by doing more research.

Ease of use and flexibility: Web 2.0 has been the advancement of technologies which has made the use of these technologies easier. This technology is flexible also.

Writing and technology skills: Web 2.0 technologies also help in developing writing and technical skills among students. This also helps teachers to understand its pupil in better manner. The pedagogical benefits of Web 2.0 have been well documented in the literature also. Richardson (2009) says that Web 2.0 has the potential to create more interactive and powerful learning environments in which learners become knowledge creators, producers, editors, and evaluators. Web 2.0 technologies has the ability to “support active and social learning, provide opportunities and venues for student publication, provide opportunities to provide effective and efficient feedback to learners, and provide opportunities to scaffold learning in the student’s Zone of Proximal Development” (Hartshorne & Ajjan, 2009). Huang, Yoo, and Choi’s (2008) study, for example, found that correlation exists between learning style and learners’ preferences and attitudes towards using Web 2.0 technologies. Lambert and Kidd’s (2008) explored the potential impact of the design of Web 2.0 environments on cognitive load. While such studies are collectively useful in providing a broader view of issues surrounding instructional uses of Web 2.0 technologies, they are limited in scope, as they address such issues within the context of one or two courses.

Web 2.0 as a teaching tool

Web 2.0 websites typically can be helpful in teaching learning process as it includes some of the following features/techniques (Stem, 2018):

- **Search:** the ease of finding information through keyword searching.

- **Links:** guides to important pieces of information. The best pages are the most frequently linked to.
- **Authoring:** the ability to create constantly updating content that is co-created by users. In wikis, the content is *iterative* in the sense that the people undo and redo each other's work. In blogs, it is *cumulative* in that posts and comments of individuals are accumulated over time.
- **Tags:** categorization of content by creating tags that are simple, one-word descriptions to facilitate searching and avoid having to fit into rigid, pre-made categories.
- **Extensions:** automation of pattern matching for customization by using algorithms (i.e. Amazon.com recommendations).
- **Signals:** the use of RSS (Real Simple Syndication) technology to create a subscription model which notifies users of any content changes.

Barriers to using Web 2.0 technologies in teaching

In spite of utility of Web 2.0 tools, An & Williams (2010) has identified some barriers to use Web 2.0 technologies in teaching:

Uneasiness with openness: Web 2.0 technologies are relatively open for anyone to access and see. This characteristic makes many people bit hesitant to use this platform.

Technical problems: Continuously advancement and updates in technology make the users of technologies to remain up to date and also requirements of upgradation in system are felt.

Time: Time is another barrier as to use this technology one has to invest ones time to learn the processes.

Conclusion

Web 2.0 has the potential to provide a more interactive and customized learning environment. This technology gives wings to students thought. Students can express their views and may also get instant reviews of their works. This enhances the learning among participants as they get instant feedback which is generally impartial. Similarly, teachers have a platform ready in front of them which they can use for faster communication and better interactions with students. But, one should also understand that these techniques are just like helping platform. Web 2.0 in itself is not capable of providing any knowledge. It is just a facilitating instruments and its effectiveness lies on the capabilities of the users. Thus, to use these technologies effectively is a

major challenge. One may also complain about the authenticity of the content which may exist on this platform. Openness and privacy is another major concern. Many students and teacher may not find this platform attractive because of open nature of the technology. Here anyone or everyone can have access to others content. Nevertheless, use of such technology should be encouraged as it has a great potential to increase learning and writing skills among students and teachers.

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