

Methodology in Teaching and Learning: a Paradigm Shift in Tertiary Education with Web 2.0

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Abstract: This conceptual study looks at how Web 2.0 can be used to improve teaching and learning in tertiary institutions' research processes. The study investigates the dynamic technical and philosophical developments in education, as well as how to put new technology into practice. It explores various aspect of Web 2.0 as well as the evolving perspectives on teaching and learning in higher education. The integration of appropriate pedagogies and Web 2.0 tools can help create and support collaborative student learning and teaching.

Key word; Paradigm shift, web 2.0, higher education

I. INTRODUCTION

Web 2.0 is associated with a specific subset of applications such as, Facebook, Twitter, twitter Telegram and many others that are identified as representative of the new wave of technology. It may be harder to determine a comprehensive definition, but there is an "intuitive recognition" of which sites form the popular conception of Web 2.0 (O'Reilly, 2007). Tim O'Reilly first coined the term Web 2.0 in 2004 as a conference marketing phrase. Since then, Web 2.0 has focused the conversation about the future of the web and has successfully moved from tech-speak to mainstream. Web 2.0 was regarded as the advanced information services, when it started in 2005. Russell Shaw surmised that Web 2.0 was not as tidy and integrative as had been portrayed, and consisted of "various standards and technologies, some were compatible and others were not. Some were revolutionary, some were evolutionary, some were collaborative, others were competitive with each other" (Shaw, 2005).

In the academic world, there is digital innovation and excitement, educators had been encouraged to adapt are to adopt the new forms of technologies for communication, since they are the style that are shaping emerging generations through the use of PowerPoint for teaching, Web conference teleconferencing, skype etc. (Bass, 2009). Researchers in education are beginning to explore the implications and consequences of implementing Web 2.0 technology (Bass 2009, Luo, 2009; McLaughlin and Lee, 2008). Tim O'Reilly is generally credited with popularizing the term, following a conference dealing with next-generation Web concepts and issues held by O'Reilly Media and Media Live International in 2004. O'Reilly Media has subsequently been energetic about

trying to copyright "Web 2.0" and holds an annual conference of the same name.

Web 2.0 controversy Critics of Web 2.0 maintain that it makes it too easy for the average person to affect online content, which can impact the credibility, ethics and even legality of web content. The extent of data sharing and gathering also raises concerns about privacy and security. Defenders of Web 2.0 point out that these problems have existed ever since the infancy of the medium and that the alternative -- widespread censorship based on ill-defined elitism -- would be far worse. The final judgment concerning any web content, say the defenders should be made by end users alone. Web 2.0 reflects evolution in that direction.

What Is Web 2.0?

Web 2.0 indicates such internet apps which enable sharing and collaboration chances to individuals and empower them to express themselves online. Web 2.0 is a business transformation in the computer industry brought on by the internet as a platform, as well as an endeavor to comprehend the rules for success on that new platform."– Tim O' Reilly. It can be seen of as a somewhat better version of the original World Wide Web, with the addition of social media and a shift away from static user-generated content. Online 2.0 refers to rich web applications, web-oriented apps, and social web applications. It refers to changes in how people access information on the internet. A major percentage of human knowledge may now be accessible in seconds by anyone using a range of devices. And, as information becomes more widely available, the definition of knowledge alters as well. Web 2.0 provides a platform for the creation of information and, as a result, knowledge.

Web 2.0 technologies

Technologies used in Web 2.0 Rich Web technologies such as Adobe Flash, Microsoft Silverlight, and JavaScript are commonly utilized to offer web 2.0. Web 2.0 applications are frequently based on the successful decentralized download methodology, in which each content downloader is also a server, sharing information and making highly demanded content more accessible than it would be in a centralized model, where demand could lead to multiple servers and pages.

2.0 is the present state of online technology as compared to the early days of the Web, with more users, interactivity and collaboration, widespread network connectivity, and improved communication channels.

Greater collaboration among Internet users, content providers, and businesses is one of the most significant contrasts between web 2.0 and the conventional World Wide Web (WWW, retroactively referred to as web 1.0). Previously, material was uploaded on Web sites, and users merely read or downloaded it. Now, consumers have more say over the nature and extent of web information, and in some situations, have real-time control over it. Websites provide community-based input, interaction, content-sharing, and collaboration, which is another fundamental difference between web 2.0 and the original, static Web 1.0.

Elements of Web 2.0

Wikis are Web 2.0 website elements that allow users to contribute, collaborate, and update site content. Wikipedia is one of the most well-known and well-established wiki-based sites. The widespread use of web 2.0 for learning has been aided by an increase in Software as a Service (SaaS), online apps, and cloud computing rather than locally installed programs and services. The development of smartphones, tablets, and other mobile devices, combined with readily available Wi-Fi networks, has aided this trend. In addition to Ajax, RSS, and Eclipse, rich web technologies like as Adobe Flash, Microsoft Silverlight, and JavaScript are utilized to deliver web 2.0. Its apps are based on Bit Torrent's restructured download approach, in which each content downloader is also a server, sharing the workload and making content more accessible. The use of web 2.0 technology and tools encourages more participation in projects and idea exchange, resulting in better-thought-out design and more efficient manufacturing, as well as stronger customer relationships and improved interactions with partners.

Mash-ups:

Mash-ups are web pages or programs that combine elements from two or more different sources.

Social networking: Social networking is the process of increasing one's commercial and/or social relationships through forming links with other people. Facebook, Telegram, Twitter, LinkedIn, and Google, among others, are social networking sites.

Collaborative efforts: This is predicated on the capacity to reach a huge number of people and their combined resources through methods like crowdsourcing, crowdfunding, and testing.

User-generated content (UGC): Individuals who develop writing, photos, music, and video content, among other things, make it freely available online. Hosted services are one example of Web 2.0. Google Maps, Web applications, video sharing sites such as YouTube and MediaWiki, blogs

(WordPress), social networking sites such as Facebook and Whatapp, microblogging (Twitter), podcasting (Podcast Alley), and content hosting services are just a few of the numerous services available. The main distinction between web 1.0 and web 2.0 websites is that web 2.0 websites allow users to create, share, collaborate, and communicate their work with others without requiring any web design or publishing abilities. These features were not available in Web 1.0, the first version of the World Wide Web. The way people receive information on the internet has evolved dramatically; nowadays, people use content that is relevant to them, and they frequently use Web 2.0 tools to do so.

Web 2.0's key characteristics enable users to classify and find dynamic information that flows two ways between site owner and site user via assessment, comments, and reviews. Users of the site can post stuff for others to see. APIs are provided by Web 2.0 sites to facilitate automated consumption by an app or mashup, just as location metadata is provided by a simple browser tool.

Benefit of Web.2.0

Collaboration, Creativity, Conversation, Community, and Control are five fundamental qualities of Web 2.0 that allow us to participate in the cloud (Hicks, 2009). It's a read-write web in which "people are just as important as the content they upload and share with others" (Cormode, 2008). Web 2.0's participatory and open nature allows us to interact with fresh knowledge and build empowering relationships and communities between people. Because there is no single centralized entity governing the web, it empowers us to creatively use and reuse material in innovative ways. Finally, and perhaps most critically, Web 2.0 transforms us from passive to active information consumers, allowing us to participate in the conversation through our online voice. We need Web 2.0 to interact with and direct the future of education and training because the way we produce, store, and consume information has changed. Web 2.0 has far-reaching consequences because it connects us to new information realities. It gives users access to information that is generated on a daily basis, making information more relevant and useful in a world where knowledge is always changing. The following are some of the advantages of web.2.0: It is accessible at any time and from any location.

- Variety of media.
- Ease of usage.
- Learners can actively be involved in knowledge building.
- Can construct dynamic learning communities.
- Everybody is the author and the editor, every edit that has been done can be logged.
- User-friendly. Wiki updates are instantaneous.

Importance of Web 2.0

The influence the Internet is having on our everyday lives is reaching almost unimaginable levels. The extent of the

information revolution can only be compared to inventions of speaking, writing and printing in the past, which are all major achievements that allowed new ways of sharing thoughts and ideas between people. Web 2.0 is important and revolutionary, both in a good and a bad way. It brings a new perspective and new opportunities to different arts and sciences, such as business, education, sociology, psychology, literature, politics and many others. Professional and academic work focuses mainly on its influence on information science and technologies, but it's clear that this new paradigm has a huge global effect, whose scale we still can't fully estimate. Now we just have to hope younger generations don't get too overwhelmed because of it and will be able to adjust to this new reality without abusing it too much.

Web 2.0 is information revolution, and to understand why it's so important, we have to observe all the significant applications it represents (according to Wikipedia). This will hopefully give us a better insight into the potential they bring to our personal and professional lives, besides their impact on the whole humanity which we still perhaps don't fully comprehend.

Social networking: Social networking sites enabled probably the greatest migration of people to the virtual world. People have a new opportunity to interact not only in real life, but also in cyberspace, where geographical and other physical barriers don't exist. I'm not saying this is a promising thing overall, some people are obviously overdoing it, but it's still useful for keeping in touch with people. Together with the implementation of feeds and streams which enable dynamic information, social networking could represent the biggest and most important component of Web 2.0, reshaping business, marketing, and politics and just being plain amazing (Ogunlade & Fakuade, 2018).

Video sharing: we read the newspaper, listened to the radio and watched television. Today, we have a super medium that supports all of it at once. Video, as the most complex form of multimedia, is something that you can record with your telephone and publish online in minutes, from where it can go anywhere. If distributing a video is easy, anything else surely has to be a piece of cake. This fact obviously holds massive potential for science and arts in general (Ogunlade & Akhigbe (2016)

Wikis and folksonomies: Wikis and folksonomies are tools which harness the amazing effect of participation and collaboration of millions of people to create information and knowledge. Wikipedia is the biggest encyclopedia in the world, holding knowledge whole mankind can benefit from. Folksonomies, such as tools for collaborative tagging and social indexing enable structured knowledge, while recommendation engines help us get information from massive quantity of data available online. Today, if something important is discovered, everybody knows it in minutes.

Blogs: Most people have the need to express themselves, and blogs (and microblogs) are the perfect tool for that. Plain and

simple: anybody can be a journalist and if you have something smart to say, people will listen. Those who are influential enough can even break out of anonymity and become opinion leaders.

Web services and mashups: Web services and mashups enable and use open flows of data from one online service to another, from one online platform to another. System integration used to be one of the most complex things in IT, but thanks to new standards, protocols and technology, data can freely travel from and to different sources. This provides a perfect ground for exchanging information and enables evolution from software services to software platforms.

What is "Web 3.0?"

Unlike Web 1.0, which was akin to a source or means of communicating information, Web 3.0 is referred to as intelligent web or third generation of internet based services? The term was coined by John Mark off in 2006. He explained "There is no easy consensus about how to define what is meant by Web 3.0, but it is generally seen as a reference to the semantic Web. While it is not that much more precise a phrase, the semantic Web refers to technology to make using the Internet better by understanding the meaning of what people are doing, not just the way pages link to each other." but more connected and intelligent with major emerging technology trends like g, machine learning, natural language processing, artificial intelligence and other on information which is machine facilitated. So Web 3.0 is the idea of such a web in such a way that computers and other devices will understand on their own. The creator of the World Wide Web, Tim Berners-Lee, suggests that the Web as a whole can be designed more intelligently to be more intuitive about how to serve a user's needs. Berners-Lee observes that although search engines index much of the Web's content, they have little ability to select the pages that a user really wants or needs. He suggests developers and authors, singly or in collaboration, can use self-descriptions or similar techniques so that new context-aware programs can better classify the information that might be relevant to a user. Web 3.0 will involve the publishing of web resources in languages intended for data such as XML, RDF to supplement them with metadata that will allow software to analyze, classify and deliver content for more personal relevance.

The web as a whole can be designed more intelligently around serving a user's wants or needs. The developers and authors, singly or in collaboration, can use self-descriptions or similar techniques so that the information provided by the new context-aware program is relevant to the user.

What is the future – Web 2.0 or Web 3.0?

The business forecasters are all claiming that Web 2.0 is an intermediate phase between the World Wide Web's and Web 3.0 Manufacturing 2.0 The integration of Web 2.0 communication and collaboration applications into traditional manufacturing practices and processes has been dubbed

Manufacturing 2.0. Manufacturing 2.0 takes typical Web 2.0 apps and services and incorporates them into every stage of development and production. The use of these technologies and tools facilitates greater collaboration and sharing and referencing of information in a business, ideally leading to better thought out design and more efficient production.

Enterprise 2.0 Similarly, the inclusion of Web 2.0 technologies into an enterprise’s business processes, intranet and extranet is sometimes referred to as Enterprise 2.0. Most enterprise 2.0 followers use a combination of blogs, social networking and social collaborative tools as well as free, paid and homegrown technologies. The term Enterprise 2.0 was coined by Harvard Business School Associate Professor Andrew McAfee in an MIT Sloan Management Review he named "Enterprise 2.0: The Dawn of Emergent Collaboration." and a more established phase they’re calling Web 3.0.

The differences between Web 1.0 Web 2.0 Web 3.0

- ✓ Content
- ✓ destination sites and personal portals
- ✓ Speed
- ✓ more timely information and more efficient tools to find information
- ✓ Ubiquitous
- ✓ available at anytime, anywhere, through any channel or device

Fig. 1 Differences between Web 1.0, web 2.0 and web 3.0

Web 1.0	Web2.0	Web. 3.0
Content: uses destination site and personal portals	Speed: Timely information and efficient touch to fine information	Ubiquitous: Available at any time anywhere through any channel or devices
Search: Content drives needs search engines	Collaborative: Actions of users a mass and are prioritize content	Efficient: Relevant and contextual information available instantly
Commerce: Users goes mainstream and digital use	Dependable: Users establish a trustworthy network that ate reachable anywhere in the world	Individualized: Users filtered and share by friends on trusted network and the language suitable

Web 2.0 in Teaching and Learning

The implementation of Web 2.0 technologies in teaching and learning brought a paradigm shift from traditional learning to a new pedagogy inherent in Web 2.0 tools (McLaughlin, 2009). Recently, some higher institutions in Nigeria embraced a teaching model based on traditional conceptions of learning and internet learning.

Learning is no longer an observable change in behavior rather a model now included a series of complex internal processes involving changes in cognition and meaning that would result in observable behaviors. Students' prior knowledge, motivation, and meta-cognition became the focus as control of learning shifted from the instructor to a shared process

involving both the instructor or facilitator and student. In addition learning was not seen as an individual act but a process that is socially situated in learning communities that engage in conversation and collaborative work (Ogunlade & Fakuade, 2018).

Shifting technology and a growing interest in learning activity paralleled and intersected with many of the developments in constructivist learning theory. The evolution of Web 2.0 is one example of a shift that created many opportunities for constructivist learning. Increased accessibility to information and subsequent changes in the use and creation of knowledge has changed the way we communicate and interact. With Web 2.0, the emphasis is on "participating, doing and experiencing rather than knowing what or where" (McLaughlin, 2008)

The importance of social interaction and context are key. Greenhow (2009) proposes broadening a conception of classrooms "which posit learning as located in the minds of individuals rather than in contexts and relationships, sociocultural theory are based on the assumption that learning derives from participation in joint activities, is tied to social practices. Development of learning through web 2.0 can make learners create and participate in multiple learning contexts.

II. CONCLUSION

Web 2.0 enhances the creation and development of information and knowledge based on community, collaboration, creativity, and control of knowledge. Tertiary institution needs to adapt the use of web 2.0 for better teaching and learning. Web 2.0 service are rapidly evolving to meet the need of not just teaching and learning but also for research with the help of diverse technologies and its potentials. Though developing country like Nigeria may not be able to access most of the potential as a result of some technological challenges such as, poverty, power and many others.

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