

An Integrated Framework Of Web 2.0 Technology And A Collaborative Learning

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Abstract: This paper contributes to the suitability of web 2.0 technology in implementing collaborative learning and proposes an integrated framework of Web 2.0 tools and collaborative learning activities. This paper is also identifying the mismatch between adopting web 2.0 technologies and the delivery of the curriculum on the cloud or via the Internet. It is found that Web 2.0 and a collaborative learning are two platforms to be easily synchronized due to their common attributes that enable their complementarity. This paper argues that integrated framework of Web 2.0 and CL allow users exploit teaching/learning materials maximally and at the same upsurges learners' understanding in the subject knowledge. Suitability of Web 2.0 in implementing curriculum was also encouraged since the proposed framework consists of both components of Web 2.0 functions and activities of collaborative learning environment. Pedagogically, there has been a mismatch between E-learning technologies and mode of delivery, for instance, E-learning platforms are widely used to increase content accessibility only while now this framework introduces that Web 2.0 technology of E-learning can also be used to create, share knowledge among users. The proposed framework if efficiently exploited will also allow users at all levels create personalized learning environment which suits perspective teaching/learning styles of the users. Apart from academic achievement or enhancements of the teaching and learning processes, the proposed framework also would help learners develop generic skills which are very important in the workplaces. As a result of this, fast and independent learning technically depend on technology based pedagogy and in this case, this proposed model has two dimensions which are very crucial to the enrichment of students learning activities.

Inde Terms: Web 2.0, Outcome Based Curriculum, Collaborative Learning, Learning Management System, E-learning and Content Management Systems.

1 INTRODUCTION

OBVIOUSLY integration of ICT with teaching and learning is an emergent phenomenon which contributed a lot to the advancement of education [17]. While social computing (Web 2.0) originated from outside educational ecosystem it has a potential impact on teaching and learning as well as enhancing learning outcomes of institutions. Today, technology is encouraging constructivism paradigm rather than behaviorism due to the collaborative learning mediated by web 2.0 technologies which put students at the center of learning and teaching. Students on collaborative environments are not passive information receivers but also able to generate or construct a new knowledge. Different researchers provide similar definitions to Web 2.0 technologies. Researchers describe Web 2.0 as a set of Internet services and practices that facilitate users to engage with more user centered activities. According to Charles Crook et al [6], defined Web 2.0 as a set of economic, social and technology tendencies that collectively form the bases of the next generation of the Internet and is characterized by more user centered participation in teaching and learning activities. Such platform thus encourages Internet users to participate in and contribute to various communities of knowledge building and knowledge sharing. Web 2.0 can also be defined as an interactive system designed for collaborative environment where users are active and participating fully in the learning and teaching activities (Kristin et al 2012). According to these definitions; Web 2.0 technologies are designed to support collaborative activities among users so that users could easily share information, group discussions, group project writing, video conferencing and other collaborative activities. Collaborative learning is defined as involving situations in which two or more participants interactively build a joint solution to a problem, and distinguish collaborative activity from activities in which tasks are divided and involved independently by individual group members [9]. Web 2.0 technology uses set of tools which facilitate students to perform independent learning under the supervision of their respective instructors. Collaborative learning, students interact with peers to accomplish desired objectives or outcome through learning experience. In this

approach students are grouped into groups where if every student in the group is expected to perform certain activities related to what they are supposed to achieve. Collaborative learning today is supported by a relevant technology which is known as computer supported collaborative learning. Collaborative learning enables students greater interaction among them to achieve certain learning objectives and this improves effectiveness and efficiency of learning and teaching experiences [12]. To this end, students are grouped into functional teams under lecturer's/supervisor's instructions with support to grantee the progress towards the expected outcomes. According to Johnson et al defined collaborative learning as an interactive learning which facilitate group interaction, cooperative activities between teachers and learners by using a different platform of collaborative tools. Due to advancement of technology, developed to enhance teaching and learning, collaborative learning is assisted by a computerized system known as computer supported collaborative learning (CSCL) [4]. This support is collective responsibility of technology, instructional designers and administration. Information technology provides competence for collaborative learning in knowledge-building community of students and instructor, community of practice and community of online learners. [13].

2 PROBLEM STATEMENT

Due the advancement of technologies particularly web 2.0 applications in teaching and learning are transforming instructional strategies employed by academic institutions. As such, higher education institutions do not yet consider about the appropriateness of these technologies for different approaches of curriculum implementation. As result, there is mismatch between adopting Web 2.0 technologies and curriculum implementation strategies. Some universities are now using Moodle, Interwise, and Illuminate live for extending teaching/learning as well as increasing learning accessibility. Learning Management System and Content Management Systems are all instructed lead which does not allow students to be at the center of teaching and learning.

3 OBJECTIVES

The following set of objectives guided this research paper:

1. To explore the suitability of Web 2.0 technologies in implementing collaborative learning
2. To develop and propose an integrated framework of Web 2.0 technology and collaborative learning.
3. To address different dimensions of collaborative based curriculum and Web 2.0 technologies.

4 SIGNIFICANCE OF THE STUDY

Web 2.0 is a set of Internet services and practices that give a voice to individual users. Such services thereby encourage Internet users to participate in various communities of knowledge building and knowledge sharing. This has been made possible by the ever-extending reach of the (worldwide) 'web'. Meanwhile, navigating and exploring this web of knowledge has been greatly facilitated by the increased functionality of the web 'browser'. The browser has thereby become the network reading/display tool that offers a universal point of engagement with the Web. More than that it has become a platform for using a wide range of digital tools and taking part in a wide range of community interactions. Curriculum implemented through Web 2.0 technologies allow users develop 21st century skills required in the job market.

5 WEB 2.0 AND COLLABORATIVE LEARNING MODELS

It is very important to comprehend nature of the Web 2.0 technology models before discussing its integration with collaborative learning model. Examples of Web 2.0 tools are very familiar to many, due to the seemingly ubiquitous adoption of such tools for entertainment and personal communication: YouTube, Skype, Facebook, Google Docs, Word Press, Blogger, Wikipedia and Padlet (formerly Well-wisher). Whereas, Web 1.0 technology is characterized by one-way communication, such as reading a web page or viewing an image and it is not interactive. Web 2.0 allows us to interact with the contents of the web such as leaving comments, live text, audio or video discussions. It enables content to be shared in a small group or across the whole world in real time and enables two-way communication. A particularly important facet of Web 2.0 is the cloud application. An application does not need to be installed on any device, but operates instead through a web browser and an Internet connection. Many cloud applications such as Google Docs are free [5]. There two basic categories of web two technologies; synchronous and asynchronous technologies. Interwise, illuminate are examples of synchronous technology of web two whereas learning and content management systems fall to asynchronous tool. The following diagram presents a framework for developing Web 2.0 based learning. This framework was designed to support students build skills and attain the required outcome [7]. To do this, students should participate in creating their learning environments. Applying this approach to developing and deploying collaborative learning requires adopting a constructivist-based learning with technology platform [6]. The framework also clues up the

effective and efficient integration of the two environments as technology is enabler and ensures synchronization and compatibility of the two structures.

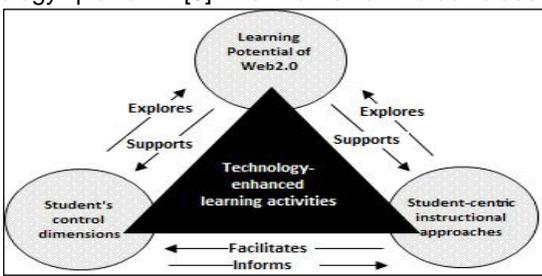
Collaborative learning framework, Ebrahim, 2014

According to this framework, students are facilitated to control their learning activities through student-centric instructional approaches (collaborative learning). Students start to engage in several teaching activities using Web 2.0 tools. This facilitates students employ technology to manage teaching and learning activities allowing lecturers opportunities to follow and understand students' learning process so as to improve their teaching process. As a result, the engagement of students and teacher with Web 2.0 technologies can help them to explore the affordance and learning potential of these technologies and operationalize this affordance to enhance educational outcomes [8]. Establishing Web 2.0 mediated learning framework is very essential to identifying the compatibility of web 2.0 activities and collaborative learning. To comprehend functional features of Web 2.0 and collaborative learning demands description about their counterpart model or frameworks. E-logbook 3A interaction is a model which provides a clear picture in the context of Web 2.0 technologies. This model consists of a set of three units Activities, Actors and Assets. Actor is any entity privileged to initiate events on the collaborative environment on Web 2.0 technologies. An activity is a set of interrelated tasks and discussions performed by the users to attain common goals. An asset is resources available including multimedia documents wiki links and the like shared among participating community of actors.



Fig. 1 e-Logbook 3A interaction model

Collaborative learning is interactive approach to teaching and learning which is based on the idea that learning is naturally social and interactive act. Based on this scenario, good learning outcomes can be achieved through Collaborative effort. To foster participation and content sharing, several CL activities are being considered in this research [3]. The activities were chosen according to their appropriation in Web 2.0 Environment. Table 1 describes some CL activities and functions of Web 2.0 tools. As outlined in the following Table 2, Web 2.0 function and CL activities are two complement sets of functions with its corresponding activities. This table describes the compatibility of Web 2.0 practices or activities and CL activities as perfectly fitting each other.



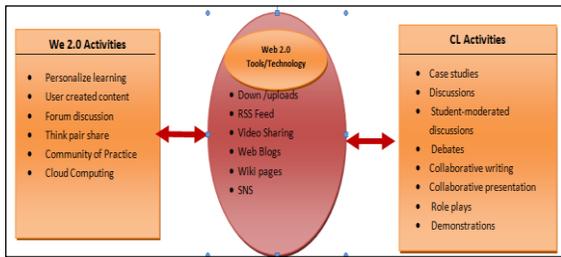


Figure 3: An Integrated Framework of Web 2.0 CL environment

Table1: Summary of Web 2.0 and CL activities

Functions of Web 2.0 tools	CL activities
Personal Learning Environments (PLEs)	Collaboration and/or distributed authorship
Participation processes	Active, open-access, "
Social networks / Communities of Practice (CoP)	Continuous production,
User-created content	Openness of content, renunciation of copyright, distributed ownership
Learning diaries/e-portfolios	Lack of finality
Communication	Taking place on WWW,
Learner and peer interaction	Group discussions
Research Sharing	Peer teaching

Here, as summarized in the above table and deeply analyzing the structures and functions of the two platforms of Web 2.0 tools and CL activities would result an integrated framework containing Web 2.0 functions and activities in collaborative learning. Before integrating the two structures let us consider and discuss the structures and activities in CL. Collaborative learning is a general method with different approaches which join academic efforts of students and teachers. Collaborative learning refers to innovative methodologies in which learners are exposed to engage in common activities which would results the expected goals and individuals are dependent to each other for achieving learning objectives. Collaborative learning also brings synergies among learners as they engage in collaborative writing, group projects and other activities related to learners' teaching and learning processes [9].

6 INTEGRATION OF WEB 2.0 AND CL MODELS

Web 2.0 technology and collaborative learning share compatible functions or activities and they are complementary if they are properly integrated. The Web 2.0 tools and CL environments are two different environments with different structures but their activities are like a mirror image. Collaborative tools of Web 2.0 technology enable users to be active and involved rather than being passive and content consumers. Similarly, collaborative learning allows learners participate in teaching and learning activities. Since activities of Web 2.0 environments are due to technologies employed for collaboration to take place among different users. The following proposed model benefited the complement features and activities of the two environments and encouraged their combination as multidimensional framework which contains their corresponding attributes. As technology is an enabler, using Web 2.0 technology facilitates collaboration among users and puts learners in the center of teaching and learning. Likewise, collaborative learning is user-centric approach in which students are allowed to perform outcome oriented

activities and are supposed to be passive as teacher lead classroom instructions. The above proposed framework was designed in a way that depicts the suitability of Web 2.0 technology in collaborative learning in which students are allowed to fully participate in the teaching/learning process. Web 2.0 tools as indicated in the framework enables users to create, edit and publish contents including other collaborative activities performed by users when using these tools.

8 DISCUSSIONS AND CONCLUSIONS

This paper presents a proposed integrated complex model of Web 2.0 technology and a collaborative learning model. Research results also indicated that collaborative learning fostered creative thinking as members in a group generated new ideas, strategies, and solutions more frequently than working individually [10]. Indeed, the effectiveness of collaborative learning over the Internet has been confirmed by various studies. It is noticed that students' level of participation in teaching and learning session empowered to have deeper understanding of the subject matter. This allows students to have significant capacity to apply what they learned in real context innovatively [11]. It can be concluded that the research objective of studying the suitability of CL activities in Web 2.0 environment has been successfully achieved. The following conclusions can be drawn from this study: First, CL and Web 2.0 are found to be two compatible functions if they are properly integrated. Web 2.0 technologies meet all requirements for performing collaborative teaching/learning, and this happens only if well designed learning is deployed by adopting the suitable technologies which have the capacity and functions to perform all CL activities of the users. Second, some Web 2.0 tools that can be used as content management system which provides users an interactive and a collaborative environment for them to share knowledge, resources and complete tasks together and simultaneously. Features of W.20 technologies and activities of CL enable users develop their own learning styles and preferably create personalized learning environment. Finally, Collaborative learning in web-based environment possesses very different characteristics compared with classroom-based environment. Some methods and strategies stated in this paper are mainly developed to apply in the web-based collaborative learning environment. Definitely, some web-based collaborative learning methods and strategies came from classroom-based environment. These methods and strategies should adopt the characteristic of web-based environment. According to our experience, the optimum of collaborative learning performance should integrate collaborative learning web-based and classroom-based together.

AUTOBIOGRAPHY

Mr. Mohamed Madar is a PhD candidate in Management Technology. Prior to this, he studied Master's degree in IT management at UTM in Malaysia. Madar is the current director of quality assurance and examinations at Amoud University, and also works as an associate researcher at Heritage Institute for Policy Studies in Mogadishu, Somalia. Madar's research area is very multidisciplinary; E-services, education, management are some of his research interest. He is now also a reviewer at indexed Journal; African Educational Research.

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