Development of a Blended Learning Tool for Tertiary Students

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The State of the Art in ODEL

Abstract

The advantages and benefits gained from modern technology brought online learning a perfect venue to migrate academic activities. Despite of this compliment, several researches cited that issues are encountered in online learning. Social interaction between student to student and faculty to student where true learning happens impacted by online learning thus became a loophole of online. Furthermore, the rapid change in technology affects greatly online learning. Most online developers and online learning ready applications are focused on the technology rather than the learning content, which is the most important part of learning. This study presented the development of e-ARAL, a blended learning environment tool to address the issues encountered in online learning with a feature and functionality of face-to-face learning. Students awareness and faculty readiness were gauged to be an input on the development of the tool. e-ARAL Blended learning component models were integrated and Rapid Application Model was utilized as a guide on the software development process. As a result of the development, the blended learning environment tool addressed the issues encountered in an online learning environment as discussed on the study. It is suggested to study the depth of learning achieved from using the tool. It is also recommended to review and analyze other issues of online learning to improve and enhance the tool.

Keywords: Blended Learning, Online learning, Face-to-Face learning

Introduction

Online learning became the partner of educators in teaching students. Instructional and assessment materials are entrusted in this technology to easily disseminate knowledge and skills to the student. Despite the fact that it offers convenience due to its twenty-hours and seven days a week availability, online learning has it limitations and issues. These limitations are categorized into technological limitations, personal issues, limitations compared to traditional campus, design limitations and other limitations in online learning (Wong, 2007). Kamarudin (2004) also stated that interactivity issues is one of the barriers of e-learning (*i.e. online learning*), it was classified into three categories (1) material-to-student interactivity; (2) tutor-to-student interactivity and; (3) student-to-student interactivity. He emphasized that to be immediately abreast with the leading technology in education, "providers often concentrates on the delivery tools rather than content." He also cited that, "the tools must be used appropriately, so as to achieve the right impact." "Most content developers are more concerned with showcasing their technology-enhanced products rather than enhancing the knowledge aspect of e-learning" (Teo et.al, 2006; Tham & Tham, 2011). Second, tutor-to-student interactivity issues is very common to all online learning environment, the lack of immediate feedback

and assistance are not provided, which made student encountered the feeling of isolation and results to frustration (Rovai & Jordan, 2004; Wong, 2007; Kamarudin, 2004). Lastly, student-to-student interactivity issues highlight the absence of interaction between students (Kamarudin, 2004) and Ng (2010) showed that number of views for online posting is higher than the number of messages posted by the students.

On the other hand, face-to-face learning has its own limitations where online learning was able to resolve, the limited number of lecture hours in traditional classroom makes online learning work extend the teaching and learning hours. But the ambiguity and vagueness of instructions posted in an online environment lacks the motivation and do not have the capability to read student gestures which face-to-face learning made necessary to provide the instruction clearly and inform the educator to extend necessary assistance to students (Chen & Jones, 2007; Rovai & Jordan, 2004).

The stated scenarios made blended learning plays a major role. EDUCAUSE (Volume 2004, Issue 7) found that *"blended courses have the potential to increase student learning outcomes and blended learning results in success and attrition rates comparable to the face-to-face modality for all ethnicities."* However, several published researches do not provide the essential information on how the development of blended learning environment was done.

The main purpose of this study is to present the development of the blended learning environment tool. The author explains how online and face-to-face learning be appropriately combined, identify the things to be considered in the development of blended learning environment tool and discuss the stages of development of blended learning environment tool.

Methodology

Blended learning is commonly defined as combination, convergence, utilizing both online learning and face-to-face learning. (Simpson, 2008; Lynch & Dembo, 2004; Educause, Volume 2004 Issue 7; and Precel et. al. 2009). It is defined in this study as the merging of the strength and influence of online learning and the irreplaceable capability of face-to-face learning. The problem in this paper was answered through conducting four specific procedures namely e-learning participant's baseline, blended learning model components, software development model and software development process.

E-Learning Participant's Baseline

This approach was used to gauge students awareness and faculty readiness in e-learning. Aguinaldo & Leal (2009) revealed that the entire student in the study has access to computer and use the internet in completing their requirements. Faculty had shown the utilization of technology in their teaching methodology and assessment. Learning materials and activities are created to require students utilize the internet. The result of the study became an input on the development and ensures the full acceptance of blended learning environment tool.

Blended Learning Model Components

Based on various review of literatures, it is recommended that blended learning shall consider important things mainly the appropriate mix of instructional and media component, however, it should be implemented on the right learning environment. The

development of the blended learning environment tool was based on the blended learning model components presented below.

Figure 1. *Blended Learning Concept Model, Holden, Jolly (2007)*
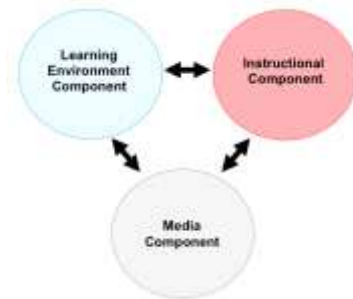
The feedback/discussion form of the blended learning environment tool was created to exchange ideas with other students and the teacher. It will work under asynchronous mode, thus, ideas can be posted anytime at any place. This will be organized based on the course and topic to attain the course objective.

Figure 2. Feedback/Discussion Form of the Blended Learning Environment Tool

This functionality can be done both online and face-to-face to attain the course objective as well as to guide the students on the right learning path. Subject experts are gathered to create a standard course syllabus with its corresponding activities to conform to the instructional component. The output such as the course syllabus and course content are stored on the blended learning environment tool. Communication media are done based on the requirements of the course such as email, skype for online discussion and video conferencing, selecting related videos online to integrate on the course. Blended learning environment tool has the capability to upload answers on the activity to directly record the work of the student.
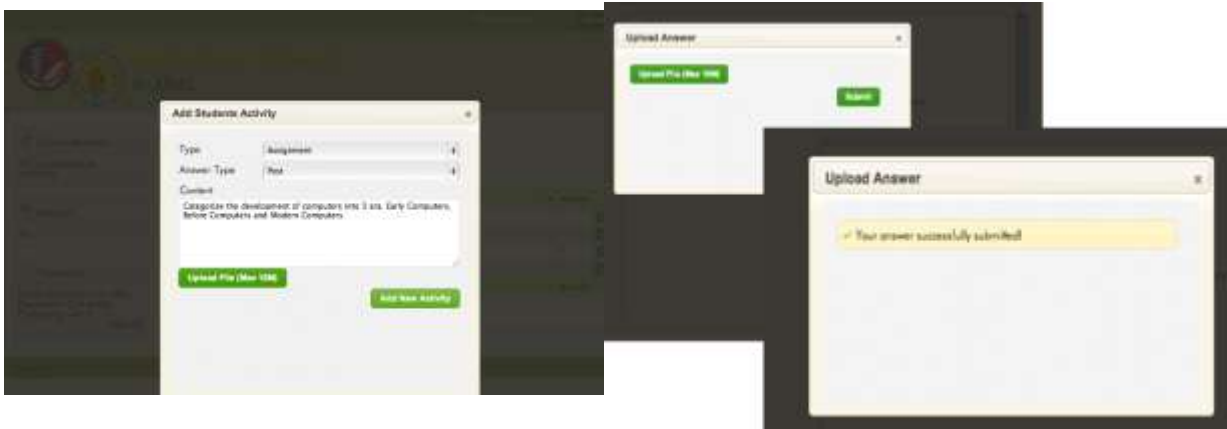
Figure 3. (a) List of Courses and (b) Lectures posted

(a)   (b)

Figure 4. Activity Form

Software Development Model

Rapid Application Development (RAD) model was utilized in the development of the blended learning environment tool. The process involve in this model is highly applicable in the development, after thorough evaluation of the curriculum, content and activity, a prototype (i.e. user interface) was designed and presented to the teachers for evaluation, modifications are made based on the teachers input. Same procedure will be repeated until all information are integrated on the tool. Series of software testing are done before its implementation.

Figure 5. Rapid Application Development Model
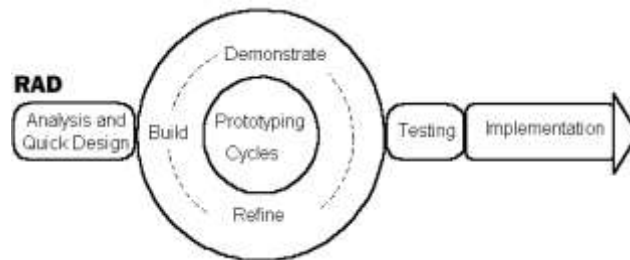
Software Development Process

Features and its functions are identified based on the curriculum and teachers requirements. The development platforms utilized are PHP for server scripting and MySQL for database. It runs on the WAMP (Windows, Apache, MySQL, PHP) platform. Source codes and other files are stored on a dedicated server. Levels of security are created to identify the distinction of accessibility of files for each different types of user.

Results and Discussions

Online and face-to-face learning are appropriately combined based on the involvement of the faculty and user on the development of the blended learning environment tool. The result of the study on student's e-learning awareness and faculty readiness aid the smooth development of the tool. Blended learning components model served as the basis of the development. Learning environment component, instructional component and media component are the things to be considered in the development of the blended learning environment. First, the learning environment was considered by feedback/discussion feature of the tool works in an asynchronous learning environment. Furthermore, it has the functionality to close the discussion on a particular topic based on the due date. This feature will let the student be motivated and integrate self-discipline. Second, instructional component, the tool allows the faculty to upload the learning materials to be viewed by the students. This feature allows faculty to continue the lectures and activities discussed in the traditional classroom in online environment. Student activity can be uploaded online while faculty can give grades and save it directly on the tool. This feature will minimize the findings of Ng (2007) in which students spent more time on viewing messages than posting messages. Lastly the media component, the blended learning environment tool is not overloaded with media such as real-time chat, video conferencing and audio conferencing to address the technological limitation cited by Wong (2007). This feature allows student with slow internet connection to easily access the learning materials as well as upload files. Rapid applications development model was utilized as software development of the tool to integrate immediately the comments of the faculty on the design.

Conclusion
This study presents how online and face-to-face learning are merged to develop a blended learning environment. Blended learning attempted to patch the issues encountered both in online and face-to-face learning to utilize the capabilities of online and face-to-face learning. Blended learning environment tool was developed by addressing some issues of online learning. Its emphasis is to have continuity of learning done in a traditional classroom and stimulate social interaction between student-to-student and sustain feedback mechanism between faculty-to-student to achieve the complete learning process.

Recommendations
This study customized the blended learning environment tool based on the need and e-learning experience of student in the university. It is recommended to improve and enhance the tool based on different types of learners. The tool was developed based on issues of online learning discussed on this study. In addition, it is suggested to review and

analyze other issues of online learning cited in published researches to be included in future enhancement of the tool. Furthermore, another research should focus on the depth of learning attained using this tool.

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