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EXPLORING THE POTENTIAL OF BLENDED LEARNING AND LEARNING MANAGEMENT SYSTEM FOR HIGHER EDUCATION IN ACEH

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Abstract

The paper aims to explore the potential of the blended learning approach for higher education in Aceh. This is a conceptual paper that attempts to provide the concepts and theories associated with implementing the blended learning approach on college-level students and lecturers. Blended Learning is a learning model that is enriched with traditional learning methods and online education materials. In a typical blended learning environment, students may learn contents outside of the class through websites or Learning Management Systems (LMSs), but engage in practical, hands-on activities during class hours. The author believes blended learning is a potentially effective approach if implemented for higher education in Aceh, especially Banda Aceh, which has adequate internet access in numerous areas. Integrating the blended learning approach will enhance students' self-paced learning in Aceh, and in turn improve their critical thinking and collaborative learning. This study also encourages lecturers in Aceh to implement the blended learning approach in their teaching and learning practices, as well as urges the use of various LMSs or Web 2.0 tools as online learning platforms. Finally, the practice of blended learning will support Universities in Aceh in transforming teaching and learning activities from being traditional, to becoming technology-based learning environments.

Keywords: *Blended Learning; Learning Management Systems; Web 2.0; Higher Education; Aceh*

Introduction

The rapid growth of technology, particularly the Internet, has had many positive impacts on the education domain. Lecturers and students in University could exploit the internet for various purposes such as accessing learning resources and

interacting virtually outside class hours. It is no doubt that technology such as the Internet enables learners to be brought together for discussions or learning purposes outside class hours. Halili, Abdul Razak, and Zainuddin (2015) acknowledge that the use of technology in education may promote students' collaborative learning, problem-solving and critical thinking. Students and lecturers could also easily access learning materials anytime and anywhere through numerous websites provided freely by some institutions (Fu, 2013). Those free resources are provided on many websites that can be used as a set of instructions for active learning, and is referred to as Open Courseware or Open Educational Resources (OER). Richter and McPherson (2012) noted that Open Courseware provides free educational resources on web-sites, and allows everyone to access this content. Students can thus freely access and download the content, or watch free online video lessons anytime, at their own pace, and according to their needs.

With the integration of technology in education, traditional classroom activities such as lecturers' talks, homework, and exams could be transferred to websites or Learning Management Systems (LMSs) (Fu, 2013). Besides, technology plays a significant role, since the media available online facilitates communication among learners, as well as between learners and lecturers (Fisher, 2009). Moreover, it has a very important role in student-centered approaches, which instruct students to study actively and independently without always depending on lecturers as the center of knowledge (Gebre, Saroyan, & Bracewell, 2014). Therefore, there is no doubt that technology has had a great contribution in the development of education on a global scale.

Although technology has been widely used in education, it has some limitations, such as students' physical interactions and lecturers' assessments toward students' body language (Kanuka & Anderson, 2007). At the same time, traditional learning plays a contribution in face-to-face social interaction among students, and between students and lecturers during class hours (Sun, Tsai, Finger, Chen, & Yeh, 2008). Therefore, blended learning becomes an important alternative modality, which combines the conventional class-based learning with technology-based learning environments. This reduces the limitation of both learning models. In other

words, blended learning merges both conventional and technology-based learning to exploit the benefits of both.

Traditional Classroom Learning

Traditional classroom learning has always been traditionally practiced with physical attendance in class, the use of textbooks, and paper-based examinations. Staker and Horn (2012) noticed that traditional university courses are usually characterized as curriculum-based and lecture-based teaching where the lecturer acts as the center of knowledge. A course is organized by a curriculum provided through various materials and a number of lecture-based modules that are predetermined and sequenced. One-way lectures are commonly practiced in class, with more answers and discussions rather than problem-solving (Dalsgaard & Godsk, 2007). In other words, traditional class-based learning tends to focus on the lecturer rather than on the individual students.

Although the traditional classroom may be associated with physical face-to-face interaction, and is of low cost since minimal technology is used, this classroom model has a number of problems. For example, teaching and learning activities only focus on text books and lectures, and students tend to be disengaged in active learning because they have a lack of time to express their abilities or performances in class. Traditional learning tends to produce a low level of student engagement, and students often pay less attention to subjects they learn (Carini, Kuh & Klein, 2006). Nguyen (2011) also noted that traditional class activities also focus on textbooks and lecture talks; students tend to be disengaged in their learning activity. Hence, students who are disengaged in learning will show some negative habits such as boredom, restlessness and disruptive behavior (Freeman, O'Connor, Parks, Cunningham, Hurley, Haak, & Wenderoth, 2007).

However, the evolution of technology has rapidly changed the culture of teaching and learning in education. Several emerging technologies have contributed to education such as the Internet, online learning, Computer-Assisted Learning (CAL), Web-Based Distance Learning (WBDL) and other technologies. Hence, blended learning is an alternative emerging technology which integrates the conven-

tional class with technology based-learning environments. It is believed that the traditional learning approach which focuses on teachers as the center of knowledge is irrelevant in today's digital age, and should be blended with technology-based learning (Wang & Heffernan, 2010).

Blended Learning Class

Blended learning is the integration of both conventional and modern teaching-learning processes, and has shifted the culture of teaching-learning from being lecturer-centered, to becoming student-centered. The learning activity is more active compared to lecturing in the classroom, and students are facilitated by the lecturer to be more active in solving problems independently. Mortera-Gutierrez (2005) mentioned that blended learning is the combination of multiple approaches to learning, combining several different delivery methods such as collaboration software, web-based courses or computer communication practices and traditional face-to-face instructions. Poon (2014) Stated that there are numerous definitions of blended learning and the common definition is the combination of learning with physical and virtual environments. Blended learning is a general scope of the teaching-learning model.

Poon (2014) also stated that blended learning has reformed teaching and learning activities from being teacher-centered, to becoming student-centered, and thus positively impacts students' self-directed learning. Also, students and teachers have more opportunities to interact and communicate both in and out of the class. According to Ginns and Ellis (2007), blended learning has contributed in establishing strong interaction between learners and instructors, as well as among learners themselves.

Blended learning does not ignore traditional learning because it applies both face-to-face interaction in the classroom, as well as online multimedia technology outside the classroom (Halili & Zainuddin, 2015). Online learning allows learners to gain access to educational content, and engage in one-way or two-way communication with other learners and instructors through the Internet. It also provides quick, easy and flexible access to all forms of content through digital devices.

O'Connor, Mortimer, and Bond, (2011) stated that blended learning appears in the world of education because of the significant growth of computers and the Internet. According to history, blended learning became familiarly used as a pedagogical concept in the beginning of the year 2000 (Guzer & Caner, 2014). Poon (2014) supported that blended learning was introduced in the year 2000 when *e-learning* lost its credibility, and was altered by a blended learning model. He also noted that blended learning has been widely applied in many higher institutions worldwide. Besides, it has also been widely practiced by corporate training and K-12 education. The following table 1 summarizes the example of categories of blended learning models.

Table 1. The categories of blended learning models

A. Higher Education Twigg (2003)	**B. K-12 Education** Staker & Horn (2012)	**C. Corporate Training** Rossett & Frazee (2006)
A.1 Supplemental • Supplemental online materials • Online quizzes • Additional online activities • Flexibility of online activities for computer lab or home	**B.1 Rotation** • Rotation among learning modalities, at least one of which is online • Station Rotation - rotations within a classroom • Lab Rotation - rotations within locations on a school campus • Flipped Classroom - rotation within a given course or subject including online remote (at home) • Individual Rotation - individually tailored rotation schedule for a course or subject	**C.1 Anchor Blend** • Introductory substantive face-to-face (F2F) classroom experience • Subsequent independent online experiences
A.2 Replacement • Reduction of in-class meeting time • Replacement of face-to-face class time with online activities • Flexibility of online activities for computer lab or home	**B.2 Flex** • Instruction primarily online in a classroom with customized F2F support when needed	**C.2 Bookend Blend** • Introductory experience online or F2F • A substantive learning experience online or F2F • A conclusion that extends the learning into practice at work
A.3 Emporium • Elimination of class meetings • Substitution of a learning resource center with online materials and on-demand personal assistance	**B.3 Self-Blend** • Option of an entirely online course to supplement traditional courses	**C.3 Field Blend** • A range of instructional assets • Choice of when and where to use the assets as needed to meet work-related challenges • Availability of online instructional assets • A possible classroom experience as part of the mix

A.4 Buffet	B.4 Enriched Virtual
• Several learning options from which students choose	• School experience mostly online with some on-campus enrichment

Source: *Graham, C. R., Henrie, C. R., & Gibbons, A. S. (2014). Developing models and theory for blended learning research. In A. G. Picciano, C. D. Dziuban, & C. R. Graham (Eds.), Blended learning: Research perspectives, volume 2 (pp. 13-33). New York, NY: Routledge.*

Learning Management Systems (LMSs)

Learning Management Systems (LMSs) are also called Electronic Learning platforms. LMSs are online, Web-based systems that tie together 21st Century Education with effective and creative uses of technology. The majority of LMSs are Web-based, and thus facilitate anytime, anywhere access to learning content and administration. They utilize synchronous and asynchronous technologies to facilitate access to learning materials and administration (Black, Beck, Dawson, Jinks, & DiPietro, 2007).

LMSs contain videos, lessons, assignments, quizzes, tests, forums, a scheduling tool, collaborative work space and grading mechanisms. According to the profile of LMS market in the higher education market as of autumn 2013, Blackboard is the leading provider with 41% market share, with Moodle (23%), Desire2Learn (11%) and Vclassrooming being the next three largest providers (Green, 2013). They are web-based and provide a variety of tools that can make a blended course more effective giving new possibilities for learners.

LMS is usually used in leaning activities outside the class in blended virtual classrooms. Students could submit assignments, access content, and interact with lecturers virtually outside the class through LMSs (Black et al., 2007). Moodle is an example of a supplement which can be integrated for a blended learning course. Moodle offers flexible and dynamic management of the learning process, and satisfies new needs with regards to methodology and information technologies. Moodle makes it possible to create an individualized process of learning where students can interact with each other and with their teachers, which encourages their close collaboration (Kumar, Gankotiya, & Dutta, 2011). Students can study outside classes at any convenient time, thereby increasing education efficacy. Many teachers have found that they can save time and increase student learning by allowing students to

engage in material outside the class, which allows them to use face-to-face time for troubleshooting (Cole & Foster, 2008).

Besides, there are various other Web-based systems that provide a variety of tools that can create a blended course more effectively for learners. Numerous Web 2.0 tools can be used in blended learning courses to establish two-way communication between the students and instructors outside the class, and also to give personal feedback for students' improvement (Schmidt & Ralph, 2014). Majumdar (2012) mentioned that Blogs, Wikis, Podcasts, Twitter, MySpace and Facebook are very popular Web 2.0 tools used in teaching and learning activities. Blogs, for example, have been widely used to establish students' interaction with their teachers, share learning materials and learn to solve problems with their peers (Garcia, Brown & Elbeltagi, 2012). Other social sites such as Facebook, MySpace, LiveJournal, and Bebo also allow users to share various materials with other users, and establish virtual interaction outside class hours (Pempek, Yermolayeva & Calvert, 2009).

The advantages on implementing blended learning

Some people assume that the use of technology in blended learning will ignore students' social interactions, especially with their friends. Actually, this is a wrong assumption because blended learning will not ignore traditional classrooms; students will interact with each other whether physically in the class or virtually outside the class (Kuo, Belland, Schroder, & Walker, 2014). Moreover, in the classroom, students do not just sit and listen to lectures, but interact with friends and establish group discussions or work in peers (Fearon, Starr, & McLaughlin, 2011). Blended learning becomes an important alternative modality for reducing the limitations of both face-to-face and online learning, mainly because it adopts the advantages of both types of learning approaches (Graham, 2005). Blended learning has reformed the activity of teaching and learning processes from being teacher-centered, to becoming student-centered. Students' learning activities are more active than lecturing, and therefore students have more opportunities to develop their ideas in solving the problem at hand. The use of technology media and interactive group activities is a concept of blended learning.

This learning approach will also establish good communication between lecturers and students while outside the class using online platforms or Web 2.0 technologies. The responsibility of lecturers towards students does not only apply in the classroom, but also outside the classroom. Jones and Chen (2008) stated that in this model of learning, the lecturer will have the time to give feedback to students outside the classroom, and the lecturers will answer question and motivate students with their progress.

Scholars and practitioners believe that blended learning, which refers to the systematic and integrated combination of online and offline teaching and learning activities (Goeman & Van Laer, 2012), holds the potential to make higher education more attractive, accessible and effective for adult learners. Prior research has reported that students' social interaction in technology learning environments is more effective than that in traditional classrooms. Without using technology, students in traditional classrooms tend to interact physically in the classroom and ignore the interaction outside class hours. It can be assumed that students' social interactions will not decrease when technology media is integrated into the classroom. Technology use will indeed help students interact easily with all communities, both inside and outside the class. Missildine et al., (2013) reported that the blending of new technology and traditional classrooms has established interactive learning. Another study also reported that students can enrich the dialog with other students inside and outside the class because the activity of teaching-learning in flipped classroom is not only limited to within the classroom walls (McLaughlin et al., 2013).

The challenges of implementing blended learning

There remain some obstacles in designing online learning (Karadeniz, 2009) such as designing the content based on video, animation or simulations, and the lack of time in developing the content. Lecturers usually encounter difficulties in delivering the course in blended learning, and those who are not well-trained will encounter difficulties in the teaching-learning process. Besides, another challenge is the limited access to videoconferences and content because of low bandwidth on the network. One Australian institution faced a challenge while applying the blended learning approach on students, mainly because this country has large and more re-

mote and regional areas. The Internet broadband and capacity of downloading in those areas is limited (Poon, 2014). Therefore, the quality of the Internet usually becomes a common issue in applying technology-based learning.

Furthermore, not all students and lecturer are aware that the utilization of technology media is important in the teaching and learning processes. To facilitate and motivate students to learn independently while outside the class also becomes another obstacle for teachers. Some lecturers are unable to boost students' motivation to use technology as instructions. Then, some studies have reported that, in the use of blended learning for learning activities, not all students are able to study independently the content provided. For example, students stop to watch video lectures posted on website or LMS because of uninterested and tedious (Woo, Gosper, McNeill, Preston, Green, & Phillips, 2008).

The Design of Blended Learning Environment

Classroom sessions in blended learning approaches are used for hands-on activities, discussion and interaction. In the transformed lecture, the lecturer would not present the subject matter in its entirety, but rather give an introduction and provide a background in order for the students to work on the problem. Their role changed has to that of being guides, answering questions, promoting dialogue and recognizing students' needs of assistance (Oliver & Stallings, 2014). All areas of importance in problem-based learning focus on improving students' critical thinking in solving problems (Wilkie, 2004).

However, there is no single model in implementing the blended learning approach. The lecturer could apply and modify this approach in different models using different LMSs or online platforms. Hence, the successful and effective design of blended learning is based on flexible learning for the learners or their needs. In this case, the lecturer may understand students' needs such as their learning styles, self-efficacy, attitudes, motivation and interests (Lim & Morris, 2009). Therefore, when planning to choose an LMS, the characteristics of the learners should be taken into account, because no single instructional technology is best for all learners, and this must be designed according to students' needs. In other words, each person has specific preferences and strengths in the way they receive and process the infor-

mation presented to them. Learners will be able to achieve learning goals more efficiently when learning environments are adapted or accommodated to their individual differences (Federico, 1991).

Best Practice of Blended Learning for Higher Education in Aceh

The 21st century brought with it different challenges for universities. Many institutions are responding to the pressure by embracing new technologies. Technology has a vital role to play in building up 21st-century skills, broadening access to education and personalizing the learning experience to adapt teaching to the unique needs of each learner. Besides, today's students come pre-skilled with technology proficiencies to universities and a built-in acceptance for new technology (Erdem & Kibar, 2014).

Many higher-education institutions worldwide have integrated LMSs or e-learning systems with their traditional education, creating a 'blended-learning' environment to give value to learners and businesses, while some others utilize it fully to support distance-based education. In the United States, more than half of higher-education institutions offer various forms of Internet-based technology courses (Evans & Haase, 2001). The Internet is a significant tool in blending the class where the students may access the contents online through websites outside the class. In addition, Aceh is a province in Indonesia which has adequate internet facilities, especially Banda Aceh, the capital of Aceh, which is considered the *Islamic Cyber City* equipped with adequate free internet access in many areas such as coffee shops and parks. A survey in 2010 reported that 93 free Wi-Fi spots were spread around Banda Aceh city (Adiwaluyo, 2013).

After the Tsunami disaster in Aceh in 2004, hundreds of modern coffee shops were built with full Wi-Fi facilities, and many students spent more of their time in these places to access the Internet. Additionally, the existence of Wi-Fi coffee shops has replaced Internet kiosks (*warung internet*) in Banda Aceh. In other words, most college students have abandoned Internet kiosks and go to coffee shops as an alternative to accessing the Internet. Therefore, since many college students visit coffee shops for accessing the Internet, the author believes that it is a great opportunity for

the lecturers in Aceh to construct blended-learning environments in their teaching-learning practices.

The author believes that Aceh has a great opportunity in implementing blended-learning environments for higher education. This province also has a number of higher education institutions which offer professional degrees such as Ar-Raniry State Islamic University, Syiah Kuala University, Malikussaleh University, Samudra University, Teuku Umar University and Lhokseumawe State Polytechnic.

Furthermore, the significant use of blended-learning for higher education is driven by the reality of so many university students coming to class unprepared for subjects, during which the instructor needs to explain the content from the basics. Most of the classroom time is used by the instructor to talk, and not by the students to ask, discuss and solve problems (Bristol, 2014). Hence, this paper encourages lecturers in Aceh to implement blended-learning in their teaching and learning practices, as well as urging the use of various technology tools (LMSs) or Web 2.0 platforms. Also, the blended-learning model enables lecturers in Aceh to promote active learning in the classroom, and also to cultivate students' confidence in group discussions. This teaching model assists good lecturers in improving teaching and learning environments, and offers all lecturers an opportunity to change the way they teach.

The use of technology (Web 2.0) for higher education in Aceh has been successfully practiced by Silviyanti and Yusuf (2014); they investigated the effectiveness of using blogs to support collaborative English writing activities for English students in Syiah Kuala University. The results reported that using blogs in teaching and learning English has successfully transformed the lecturer-centered approach into a student-centered approach, and has also demonstrated a positive effect on students' English writing skills.

Conclusion and Potential Future Studies

Technology has played a major role on higher education in the 21st century, and it will continue to play a larger role in the future across all levels and disciplines of higher education. Therefore, higher education institutions in Aceh must continue to increase their Internet infrastructure, multimedia resources and Internet-based ed-

ucation programs. The hope is that the lecturers in Aceh should take advantage of using technology to enhance students' engagement, interaction, motivation and achievement in the teaching-learning process.

This study has clearly explained the theories and concepts of blended-learning environments. The implementation of blended learning would change the culture of student learning from being lecturer-centered, to becoming student-centered, with more class activities belonging to students. Students would learn through hands-on and project-based learning activities. With no time dedicated to the lectures, students have more occasions to practice their lessons with their friends and at their own pace. In addition, they have more time to interact with their friends and instructors inside and outside the class. Students are aware of learning independently at their own pace, and have experienced using various technology tools for learning activities.

The author believes that this study may contribute to a better understanding of technology use in teaching-learning activities in Aceh. This paper also provides a major implication for the Ministry of Education (MOE) or policymakers in Indonesia in general, and Aceh specifically, to determine blended-learning as a contemporary model to be implemented in teaching-learning activities at a number of universities in Aceh. Moreover, policymakers and practitioners in Aceh should seriously examine the research of blended-learning in order to transform the traditional lecturer– student centered learning environment to a student-lecturer learning environment.

The limitation of this study is that it is a conceptual paper. Hence, there is still a room for improvement in future research through empirical studies. In future work, more quantitative research about the blended-learning instructional model in relation to academic benefits or students' effective learning should be conducted. Also, the study and practice of blended learning in Aceh should be continuously practiced with the use of various technologies and tools (e.g., LMSs and Web 2.0 frameworks).

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