

A Check on Planning Access for Blended Learning

Chong Pei Yee, Zamhar Iswandono bin Awang Ismail, Esmadi Abu Abu Seman

Abstract: Higher learning institutions favor implementing blended learning to achieve their educational goals and learning objectives. The purpose of this review is to analyze the ideal blended learning model and the recommendations for planning future blended learning activities. Nine articles published from 2013 to 2018 which provided the frameworks or models and future suggestions were appraised. This review revealed that blended learning is not about using Information, Communication, and Technology (ICT) tools anymore but how the learning process is being blended to deliver effectiveness in learning. The review also discovered that in future blended learning design has to include collaboration among educators and how is the learning process can be applied to actual life. The culture of an educational organization is also an important focus.

Index Terms: Blended Learning, Technology in Education, Educational Framework, Curriculum Design, Higher Education

I. INTRODUCTION

Moving to 21st century learning method is one of the focuses of Higher Learning Institutions. Teaching and learning concepts evolved from physical classroom to the innovations in technology. The concept of Open and Distance Learning (ODL) system that shift from the conventional teaching approach is increasing of the level in technological usage; shifting learning responsibility by giving opportunity to the learners to control their learning in their own time and place [35]. The pressure to utilize Information, Communication and Technology (ICT) at university level comes from changes in student demographic by giving the flexibility to the school leavers to pursue their degrees (Caravias, 2014) [10]. Furthermore, the study by Filippidi, Tselious and Komis (2010) [15] stated that Learning Management System (LMS) proved to bridge the distance between learners by providing learning materials. Compared to traditional learning, LMS embeds social interactions and give opportunity for the learners to become active participants. However, fully implementing e-learning tools and web-based programs in education are not the best ways to instill 21st century learning

characteristics among the students. Web-based programs will be more effective if implemented with other methods of learning. The view is supported by Poon (2013) [37] in her paper mentioned the precaution steps

must be taken in using ICT to guide learners in their learning process and not to take over the precious interaction time between instructors and the learners. Interactive strategy will enhance students' learning experiences. Also claimed by Khlaisang and Likhitamrongkiat (2015) [27] in their study, the combination of online learning systems in blended learning activities could improve cognitive skills for learners to pursue study in degree level.

Due to the limitation in e-learning tools, traditional face-to-face teaching methods are still favored in retaining the attention of learners. Explanations from lecturers are important as a part of contribution in learning process. Learners are able to engage their learning with face-to-face interaction in the classroom environment to provide more effective learning output. However, face-to-face classroom teaching method had been condemned as the minimal learner-centered strategy in learning where the instructors have authority to decide and evaluate students' progress (Chan and Leung, 2016) [11]. The positive transformation by merging classroom and computer mediated learning brought us to the concept of blended learning. Horn and Staker (2014) [23] stated blended learning is the correct path to go beyond the limitation of time, place, path and pace. By understanding their own learning path, students learn according to their learning needs. At this point, blended learning was introduced in education as an alternative solution. It combines both face to face learning and technology-based in delivering educational content. Blended learning provides flexibility for the learners to experience learning in various delivery modes which is most comfortable to them [20] [36]. It presumes that students are autonomous by taking ownership to learn on their own. Learners challenge themselves in different levels of learning. Thus, blended learning has the prospective to stimulate long term learning in higher education [10].

II. BLENDED LEARNING

Blended Learning is an important term in higher education especially in the application of the 21st century learning method. The demand for flexibility in learning and the affordances of technology provided the impetus for the rise of blended learning (Mirriahi, Alonzo and Fox, 2015) [32]. Terms of blended

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learning keep changing based on advancement of information technology. Generally, blended learning involves integration of face-to-face method and online technologies [9] [19] [23] [24] [36] [43]. Blended learning environment is popular in enhancing teaching and learning in most of the university courses. In blended learning model for teaching practice, Caner [9] found that well-organized blended teaching can encourage active participants among the students. Akyol and Garrison's [2] research examined that in blended learning, the frequency of activity at integration phase provide high-order thinking learning processes and outcomes compared with online course. The result from the research by Grgurovic [20] showed that students have flexibility in deciding their learning activities. Therefore, blended learning environment enables students to become autonomous learners to take control and responsible on their own learning. Caner [9] stated that blended learning can contribute in teaching professional development and increasing skills of preparing lessons in teaching. According to Gregory and Trapani [19], blended learning was able to improve planning skills for laboratory preparation. Thus, it increases the quality of learning outcomes that developed throughout their learning by demonstrating their skills and understanding in a non-theoretical session. George-Walker and Keeffe [18] stated that a successful learner must be aware of their learning needs and preferences. They will be able to find a method to fit their changing needs in their study. For this purpose, the course content development has to support learners with their own individualized blend.

higher learning education, (2) suggestions to implement blended learning.

One latest definition, Horn and Staker (2015) [24] explained that blended learning is a combination of three parts; through Online Learning, Supervised Brick-and-Mortar Location, and Integrated Learning Experience. Web-based tools that integrated in blended learning refer to any classroom-based learning guided by a teacher in which part of learning process happen informally outside the classroom via e-learning. Learners have the right to decide what to learn, to choose when and where they learn and to ensure their learning occur. The second part of definition is the face-to-face approach that the student learns partially in traditional classroom which monitored by educators and the learning process to be continued at home with self-study. Horn emphasized that to produce various aspects of learning experiences, learners' learning styles must be associated in the directions of blended program. The evolution of blended learning frameworks happen in every decade and have to restructure for the new research direction (Garrison, Anderson and Archer) [16].

III. METHODOLOGY

Articles published from 2013 to 2018 were searched in the Google Scholar and Emerald online databases. The following keywords searched include: 'blended learning', 'framework', 'model', 'higher education' and 'approach'. The papers were screened to meet the following criteria which discussed: (1) blended learning framework or model in

IV. DATA ABSTRACTION AND SYNTHESIS

	Source	Model/Approach	Objective of Paper	Tools	Suggestions
1	Lily Wong, Arthur Tatnall, Stephen Burgess, 2013	Blended Learning Assessment (BLA) framework	1. To measure and improve the framework to be more realistic in current living.	1. WebCT web page 2. IlluminateLive tutorials	1. Consider the readiness to adopt. 2. Ensures the effect of blended learning technique in designing blended learning program. 3. Assessment in the quality of the program towards individual blend.
2	Ike Shibley, Katie E. Amaral, John D. Shank, Lisa R. Shibley, 2014	ADDIE model (Analysis, Design, Development, Implementation and evaluation)	1. To restructure the course to enhance students' excellence in blended program. 2. Provide a well-conducted guideline for the team to help in reorganize blended designing process. 3. To achieve the goal of shifting to a more active learning pedagogy.	Analysis – Learners' characteristics and learning objectives Design – Critical thinking, Team work, Logical analysis Development – Encourage students spend time-on-task to face-to-face Implementation – Questions disseminated via classroom and response in system Evaluation – Redesigned course	1. Efficacy of various multimedia components 2. Attitudes toward collaborative learning 3. The design of blended course aims to bring out more active activities
3	Lynn M. Jeffrey, John Milne, Gordon Suddaby, 2014		1. To inspect blended learning activities by providing possibilities that can build into implementing of blended learning in an educational institution. 2. To identify aspects in their courses to put online and what they used in the classroom and explain these decisions. 3. To carry out teaching and learning strategies to assess quality of students' engagement in their lesson.	1. Content analysis used to interpret the interview data by theme and groups. 2. Assessment on web-based learning on learners' commitment. 3. Data rated the components (online and classroom) in their pedagogical value.	1. Put learning content online or classroom based on usefulness (ease to use) and student pressure into consideration. 2. In promoting surface learning, too much online content / resources gave learners a wrong expectation and increase number of absentees in class. 3. Compare to online tools, developing educational courses and face to face interaction are essential. 4. Give excitement to the students when they are able to submit materials online after class.
4	Au Thien Wan, 2015	Blended Learning Experiences Technological Framework	1. To emphasis the different types of learning involvement can be controlled to undergo deeper learning. 2. To scaffold and formulate a novel framework of Blended Learning technological architecture to show how a harness learning experiences to be	1. Core components in the system: - E-Learning - Back-end database system - data analysis tools - feedback and recommender system	1. Disappointment in the result from the learning process can be motivated via online course. 2. Stimulate collaboration among educators and participate in contribution with others. 3. Encourage self-reflection via

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			analyzed and possibly be used in a feedback system.		visualization learning measurement.
5	Negin Mirriahi, Dennis Alonzo, Bob Fox, 2015	Proposed The Blended Learning Framework	<ol style="list-style-type: none"> To give support in producing a reconcilable quality blended program to be applied in various higher learning institutions. To use as a reflection guideline to indicate potencies and deficiencies in blended learning activities that carried out. To develop a series events for professionalism improvement. 	1. Standards in blended learning framework.	<ol style="list-style-type: none"> A standard of self-assessment that assist educators to indicate the quality of blended learning activities to guide educators to improve their practice and professionalism. Suggest a framework with three degrees of detailed standards relate to a set of behaviors.
6	Anil Kumar, 2016		1. To highlight the important of technologies use in blended learning to support teaching and learning in administration diversity of higher institutions.	<ol style="list-style-type: none"> A deep analysis and course design are essential to proceed to blended learning practice. Learners use various technologies and higher institutions have to utilize them to reach learners' learning desires in blended learning program. A complete analysis and practical overview where technologies occupy in universities' life is needed before implementation. 	<ol style="list-style-type: none"> Three major shifts in educational technology landscape that will make a large impact on Teaching and Learning in the years to come: <ul style="list-style-type: none"> - use the social network - growth of mobile devices - use of cloud based technologies To have a large impact on teaching-learning process that already making inroads.
7	Bidarra José, Rusman Ellen, 2017	<i>Science Learning Activities Model (SLAM)</i>	<ol style="list-style-type: none"> The framework is regarding to the science projects with the expectation those activities carry out are appropriate and relate to life in present-day. To propose three design dimensions: context, technology, and pedagogy. 	<p>SLAM Model</p> <ol style="list-style-type: none"> Context - formal and informal learning, individual and collaborative, open and closed Technology - virtual and physical interaction Pedagogy - theoretical and hands-on activities 	<ol style="list-style-type: none"> Students are techno-culture with multidimensional and interactive media sources, suggest a need for convincing learning scenarios and design that engage learners. The evolution in academic programs that integrate existing materials with technological age.
8	Josephine Adekola, Vicki H.M Dale, Kerr Gardiner, 2017	Holistic framework to support effective institutional transitions into enhanced blended learning.	<ol style="list-style-type: none"> To provide possibilities in overall improvement by helping higher institutions to adapt into blended learning advancement. A deeper understanding of key considerations for higher education in the transition to enhance blended learning. 	<p>Four keys driver:</p> <ol style="list-style-type: none"> Changing digital landscape Internationalization Quality assurance and enhancement Increasing digitally fluent students and staff. 	<ol style="list-style-type: none"> To support higher institutions in accomplishing their adaption of blended learning, integral strategies are necessity. Explicit guidelines for staff, networking to share experience and expertise, staff-student partnership.
9	Ping Lieser, Steven D. Taff,	Webinar Integration Tool	1. To indicate the ideal teaching and learning method via webinar	1. Technology consideration: tools with tasks combination	1. The best practice for students engagement is to involve more

Anne Murphy-Hagan, 2018			incorporate with technologies. 2. To aid institution in coordinating learning outcomes with suitable webinar learning tasks. 3. To encourage the development and sharing strategies for integration and designing blended learning with teaching experience.	2. Organizing approaches with the principles of learning. 3. Boost active learning with 4Es (Engage, Explore, Explain & Extend) Learning Cycle model. 4. Identify factors for effective learning through webinar.	learner-centered strategies with digital integration. 2. Combination of digital tools and applications is to give inspiration to the learners to transform themselves into independent learner and partake actively. 3. To encourage development, sharing, and establish a professional learning community to work collaboratively.
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V. FINDINGS

A. Blended Learning Tools

The early trend was identified where the ICT tools played a significant role in educational process. However, due to the limitations of the ICT tools itself, the features in the e-learning tools were not enough to perform a great impact in the teaching and learning process [9] [20] [28]. Based on the data accumulated from the issued journals, it can be divided into two parts; pedagogical efforts to engage learning and integration of blended learning in real life.

Five of the nine papers published in the years between 2013 and 2015 were focusing on the affective balance; learning subjects, exploring educational theory and motivation presence. The papers proposed that social, cognitive and motivation presence have to be borne in mind with a very careful thought in designing blended learning approach. The result for these papers are discussing about effectiveness of blended learning design in developing educational content in order to produce successful learners. Therefore elements such as motivation, learning flexibility, learners' style, engagement in learning, learner-centric were emphasized in developing learning tools [9][18][19]. Overall professional preparation can be improved by identifying these key elements in the online course [3][17][40]. The papers also stressed on some other factors and features in implementing blended learning such as; warm-up activities, learning materials and interactivity to enhance learners' engagement can lead to the success of a blended learning design [8][12].

However, some researchers indicated that there were other aspects to be considered. The latest four papers between 2016 and 2018 tried to relate blended learning experience with the real world situations. Researchers raised the issue regarding the relevance of the blended learning's activities to contemporary life [7]. From the blended learning models, researchers extended blended activities by providing hands-on learning experiences and increase of digital fluent throughout educational processes and learning outcomes [1] [7].

Future Planning

In the future planning approach for blended learning in an education institutional is more to how they blend their learning process. The suggestions from nine articles split into three aspects; professional development, technological efficacy and relevant to real life.

In promoting future blended learning, collaboration can increase communication among course members; among the instructors and students [4][21][31]. Integration of collaborative models will give a spark to the instructors to design blended activities creatively and increase curiosity among students. It can be done by establish professional learning community (PLC) as a platform of collaborative sharing [30]. Pye, Holt, Salzman, Bellucci, & Lombardi (2015) [39] suggested a general blended learning design and activities are needed because teaching staffs might implement their own strategies as their own contribution. It will be the crucial element of blended learning which allow faculty to evaluate and develop learning community to share the best practices among them (Napier, Dekhare & Smith, 2011) [35]. This is important because most of the educators are from different background and generation; even some of them have not experienced it during their own education (Moskal, Dziuban and Hartman, 2013) [33]. Schools become true learning communities; capable of adapting approaches and models to meet their unique needs (Tucker et al., 2017) [42]. Adekola, Dale, & Gardiner, 2017 [1] outlined the future development of blended learning will gather the educators to share expertise and experience in a networking environment and it is better to have explicit guidelines. Thus, the integration of blended learning will be a part of institutions culture to work collaboratively among educators and students. Tucker, Wycoff and Green, (2017) [42] stated effective teamwork as a culture in blended learning that instilled in the organization is more important than the learning strategies itself.

In the aspect of technological efficacy, Kumar (2016) [29] suggested educational technology tools that will give a great influence in the future for learning purpose are mobile devices, social networking and cloud technologies. Dinning et al. (2015) [13] claimed that applications in information technology engage students effectively throughout their learning progress. Social media becomes a popular platform among the learners that allows them to convey their thoughts in and after formal



session and assists learners to construct their ideas (Chan and Leung, 2016) [11]. Facebook and Twitter will a better option in supporting peer exchanges and cooperative learning by assigning individual tasks and defend arguments [26][39]. However, Pye et al. (2015) [39] argued that mobile devices only allowed limited downloading and the use of learning resources which are more suitable to hold an online discussion or to keep track of dates. To overcome this shortage, Jeffrey, Milne and Suddaby (2014) [25] recommended the method and strategies of blended learning have to move to classroom engagement strategies and encourage interaction between the students.

The impacts of Industrial Revolution 4.0 (IR 4.0) influence Education 4.0 which shaped by innovations can lead to the major changes in education aspects; delivery of pedagogy, the content and the structure of education. In the initiative to produce graduates to fulfill the jobs in era of IR 4.0, highly creative, critical thinking, innovative, self-learning skills, communication and collaboratively skills will be far important than ever. Therefore, Bidarra and Rusman (2017) [7] suggested that future design of blended learning course must be realistic and able to be transferred to actual environment. The structure of blended learning must be able to deliver skills to the students to make lifelong learning a permanent part in real life. To impart in-depth learning among the students, Shibley, Amaral, Shank, and Shibley (2014) [41] suggested that the new educational course should include critical thinking and logical analysis elements when designing a blended course. In the cognitive domain based on Bloom's model, students should be able to apply, analyze, evaluate and create with the knowledge they have. To provide students with better learning experience, enhancement of blended learning with own pace learning system is needed which is independent of time and place.

VI. DISCUSSION & RESULTS

The adoption of blended learning has been favored in learning contexts in degrees. Many higher institutions are trying to apply blended learning in educational process. Therefore, various frameworks of designing and evaluating blended learning can be found in the review. However, none of the frameworks to be recognized as the best practice for implementing blended learning in higher institutions. Each educational institution designed their framework according to their own understanding of blended learning, pedagogical approaches, and academics judgements on appropriate tools that consider to be used. It can be concluded that the framework was tailored according to the needs of certain institutions and did not fulfill criteria in all perspectives in educational purposes. Mirriahi et al. (2015) [32] in her paper also stated it was one of the challenges to bring blended learning into advancement of academic practice because the available frameworks are problematic regarding to particular aspects such as the outline and standard of blended learning. Furthermore, the review also describes the meaning of blended learning were not explained properly. The boundary and limitation of blended learning were according to the educational purpose of different higher learning

institutions. The interpretation of blended learning was defined in accordance to the interest of the educational organization. An institution must identify their own definition of blended learning so that the implementation of blended learning's strategies can be designed to fulfill their learning directions to provide learning experiences in the contexts of higher institution. It is useful in helping an institution to select a suitable learning model to meet their learning climate. Ma'arop and Embi (2016) [31] in their paper argued that it is difficult to determine the ideal blend between face-to-face with web-based learning due to shortage and insufficient of knowledge and applied skills to conduct the blended program. Similarly, as mentioned by Moskal et al.(2013)[33] there is no "one method matches all" strategy or technique to ensure success.

VII. CONCLUSION AND RECOMMENDATION

The achievement of blended learning only can be determined with the continuous effort over several years. The culture of an organization plays a vital role to the success or failure of a blended learning initiative that undertaken to meet education climate of certain educational institutions. The current blended learning approaches are not merely to the use of technology, but the most important results come from the learning gains by the students from any educational effort. Besides students' engagement, professional development is one of the main concerns in the process of designing blended learning. In the meantime, educators may take an initial step to look forward by integrating learning technologies in IR 4.0 in the blended environment. The flexibility of the usage of technologies or gadgets such as smart phone, tablets can be widespread use to gain learning experience. Learning is not just on desktop or laptop any more. In accordance with the rise of gadget usage, applications in the smart phone become more popular and offer variety choices to the users. Students hold their gadgets most of the time to search information any time anyway.

The realistic of blended learning in learning process become one of the requirements in future planning. Arguments occurred on how the learning process can be related to the real world. Therefore, it is recommended to bridge the 21st century learning elements into the blended learning design. The main four components that have to be interconnected with the 21st Century teaching and learning process are collaboration, critical thinking, communication, and creativity. The outcomes of learning in 21st century are focused on skills, knowledge and proficiency to triumph in career and survive to live. The combination of 21st century learning components in blended learning is to navigate humans' life and working environment to support lifelong learning.

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