Blended Learning as Instructional Media: Literature Review

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Abstract. The utilization of the internet in education world is able to facilitate the increased intensity of educational activities. The lecture process that was previously only in a classroom, is currently undergoing a transition. A mix of teaching methods and materials of direct learning or face-to-face in class and e-learning by online methodologies in formal education as called blended Learning has been popular in educational practice. Regarding to the adequacy of mixed learning have prompted an expanding number of concentrates on this theme. The objective of this paper are to review about characteristics in Blended Learning and evaluation about the issues and challenges in it. There are three databases found for this studies which are Science Direct, IEEExplore and Google Scholar. After the databases filtered, there are 19 papers selected for this review as there are appropriate to the criteria needed. This studies aims to bring the knowledge for developer or research groups about Blended Learning and as instructional media in Learning for manage, create, and deliver courses.

Keywords: Blended Learning, Effectiveness of blended learning, Motivation.

1. Introduction
Practices of blended learning have turned out to be widely accepted in educational networks around the world, furnishing students with all the more fascinating and effective instruction, which is customized to their own needs[1]. Blended Learning was identified as a mix of materials and teaching methods of face-to-face (F2F) or direct learning in a classroom and online methodologies (e-learning) in formal education[2][3][4][5]. Direct (face-to-face) learning guideline includes collaboration between instructors and students who are in a similar area, whereas communication technologies (ICT) and online methodologies essential to intervene cooperations and the learning knowledge without requiring that instructors and students to be in face-to-face contact[6]. The method of conveyance methodologies using mixed learning has been successful in increase student performances and experiences, with the additional estimation of expanded student availability to programs; Subsequently instead of helping with the increment ratio on getting a good results and diminish instructor costs, it is also possible to apply the mix model in creative approaches[7]. For example the used of Online learning has advanced from the early types of distance education that depends on correspondence type of courses, educational television programmes and video conferencing [8].

With the advancement of information and communication technology (ICT) in progress, students has become acquainted with a variety modes of learning delivery to study effectively in an online environment [9]. Virtual Learning Environments (VLEs) are a group of teaching and learning tools designed to enhance students’ learning experiences by using computers and the Internet in learning procedures. Virtual Learning Environments (VLEs) offer advantages to students and instructors/
teachers. In blended learning Teachers/ instructors are responsible to maintain a good cooperation between students and customize methodologies usage for the respective classroom. Students are learning to work with their peers on projects, create shared abilities problem solving and collaborative skills strategies together[10].

Mixed learning has been well known accepted around the world. This learning model has been spread and widely use especially when it has been proven on its rapidity efficiency in control, in understanding and adaptability [11]. The desire to maintain the conventional direct learning (face-to-face) as well as the desire to bring benefits from online learning, has led to the emergence of blended learning strategies [8]. The results evaluated from the previous studies shows some tests on student control using the blended learning model. Social presence was the main observation part through direct learning (face to face) evaluation, while student learning and personalization outcomes were usually measured through the online learning (e-learning). The strategies are mostly to focus on technique as well as coaching the instructor in order to encourage and optimize the learning atmosphere and learning process with mixed learning model [12].

There are some methods in implementing mixed learning. However, there are no specific characteristics or standardization methods used in mixed learning model [5]. For this reason, in this research authors try to present special characteristics in mixed learning that can help further researches in developing blended learning models in future. The e-learning method and the direct learning process has produced an extraordinary blend. Both of them are the main preferences and subjects in learning. Mixed learning must reflect these two main preferences and subjects [13]. Mixed Learning is a smart model learning, which is a combination of direct (face to face) learning and online (e-learning), which is used in educational line. The main objectives are on "Settings and methodologies to improve student learning outcomes", "intuitive learning methods" and "Settings and methodologies for preparing professional instructors". Our aim is to present mixed learning techniques with practical and strategies suggestions by gathering (surveys, portfolio inquiry, tests and observations), sorting, handling and displaying data, for each perspective on the learning and teaching process, ongoing evaluation (Formative), and final (summative) [14].

2. Methods
2.1. Databases in Blended Learning
Three sources of databases was choosen in the selection of databases in this paper. There are Elsevier Science Direct, IEEExplore, and Google Scholar. Search results were limited to papers in English language issuance. This review consist of papers with years of research that published from 2013 until year 2018. In advance search, the authors uses keyword which were following the search terms of "Blended learning", "Effectiveness of Blended Learning" and "Motivation in Blended Learning". In table 1 displayed there are codes of databases used which are presented as P1- P3 to spell out the electronic databases in a classification.

| ID | Databases                | URL                                |
|----|--------------------------|------------------------------------|
| P1 | Elsevier Science Direct  | https://www.sciencedirect.com/     |
| P2 | IEEExplore               | https://ieeexplore.ieee.org/Xplore |
| P3 | Google Scholar           | https://scholar.google.com/        |
2.2. Criteria for selecting the papers for review
The purpose of this review paper is to help in exploring for another words in Blended Learning in order to assist or enhance students’ knowledge and comprehension accession, motivation or engagement on the subject.
To choose fit investigations to be considered by indicating by Various further criteria. Conditions use in this study demands are limited to (i) describe an characteristics in Bended Learning, (ii) Identification of Selected Blended Learning, (iii) Components of Blended Learning model and (iv) include an abstract.

2.3. Reviews of characteristics in Bended Learning
There are 11 papers reviewed related to previous studies in Blended Learning concerning on the characteristics of e-learning particularly in Blended Learning with Regards to the concern of how Blended Learning can be effective as an instructional media. Six characteristics are described in a group consist of motivation, satisfaction, effectiveness interaction, communication, and the challenges. The purpose of this review paper is to provide erudition to researchers/ application developers for future research especially on how the platform should be built.

2.4. Components of mix Learning model
This review will reveal about components of mix learning model. There are three component of mix learning that has been found in these studies. Which are learning environment component, Instructional component and media component that will be explain further in the result point.

3. Results and Discussion
3.1. Database Preference
There are a specific criteria uses in this databases. Four criteria has been classified of references which are. (i) The Years of the papers that used of the paper reviewed were from 2013 – 2018, (ii) Journal and conference papers finding for these databases to be in English languages, (iii) the reviewed papers contains title and abstract that related to the research title, and (iv) the reviewed papers contains the cohesive research in Blended Learning. There are 142 papers was found after using these criteria and from the specific criterias. These reviewed papers has also been recognized as cohesive criterias for these research studies. Three elected databases were used in this research including the URL. These databases analysis as per according to three segment criterias as per tabulated in table 1 (section 2.1) earlier.

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**Figure 1.** Total of Databases

In figure 1 above shown a collective of 142 databases finding by using the databases keyword (table 1: section 2.1). Among it, there were 63 databases found from Elsevier Science Direct, 51 for IEEEExplore and 28 for google scholar keywords. Within the same 142 databases, 66 of the database has been exempted for further review due to the accordance to the title and analyst, 13 databases were
removed based on abstract and conclusion, 38 databases were removed from records that excluded basis on related studies whilst 5 databases with exempted in full text filtering. Finally, only 20 papers that has been selected and shortlisted in this review to be useable as according to the studies in full text filtering.

There are ten countries chosen for blended learning review based on review from 20 papers selected. Countries chosen for the this review were from Spain – 4 papers, Brazil, USA and Malaysia which with 3 papers selected respectively, 2 papers from China and Canada and 1 paper from India, Australia, Saudi Arabia and Taiwan (see figure 2).

![Databases by the Country](image)

**Figure 2.** Countries of Selected Papers in Studies of Blended Learning (2013-2018)

There were lot of collaboration founded between several researches in different or in the same researches’ countries selected. Averagely, the researchers found that similar mixed-techniques were used like quantitative and qualitative data; such as study case, survey and questionnaire required in between them.

### 3.2. Characteristics of Blended Learning

To presenting a new innovation there are some characteristics introduced in Blended Learning [15]. There are motivation, satisfaction, effectiveness, interaction, communication, and the challenges through student’s point of view. In Table 2 below shows the characteristics of Blended Learning model that are being evaluated.

| Author and Year | Characteristics | Description |
|-----------------|-----------------|-------------|
| Tondeur, jo etal 2018 [16]; Zainuddin 2018[17] | Motivation | Motivation is the main impetus of understudies' decisions and the degree of their commitment, exertion and constancy in their learning procedure[16]. Student motivation illustrates the eager nature of students who shows their willingness to learn and take the initiative to participate in lectures [17]. |
| Alshehri, Abdulrahman | Satisfaction | Student satisfaction does not |
F.2017[18]; Aluwi, etal[19] only focus on how many students enjoy their time in using Blended Learning, but also how well they do in it.[18]. Satisfaction with the blended learning defined as the sum of student’s behavioral convictions and attitudes that gathered by the advantages student receives by using blended learning course [19].

Effectiveness are to be indicated in terms of achieving goals. Thus analysis of objectives are the first activity in planning & teaching in a blended learning model in the use of data, facilities, or the time or effort through certain activities both physically and non-physically to obtain maximum results both quantitative and qualitative[20].

The effectiveness of the learning model used is a factor that influences the quality of learning outcomes. Instructors can also be expected to have the ability and creativity to develop various approaches in the learning process.[2]

Interaction is the main factor that determines success in blended learning between both interaction students and teachers, interactions student and students in direct learning or interaction student with e-learning systems for students involves [21]. In the context of e-learning, Successful knowledge sharing depends on the number and quality of interactions between students, as well as willingness and ability to use knowledge, [22].

Communication An alternative to traditional methods of learning was provided by Blended learning pedagogy-based on communication skills training to enhance students’ satisfaction and self-efficacy levels in communicating with others [23].

Vincent Compe’re etal, 2017[20]; Lau Siong Hoe etal 2018 [2] Effectiveness

Xiaoqing Gu etal,2018[21]; Plekhanova& Prohorets,2015[22] Interaction

Hui-Chen Chena etal, 2018[23]; Michiel Voet etal, 2017[12] Communication
The communication between instructors and learners/ students is also important in the online component of mix learning environments[12]. The use of blended learning Challenges where came from several areas. One of these are generated in terms of quick development timeline and courses delivery [2]. The methods challenges are not only about professional development for teacher in teaching or acquiring technology to run on networks, but also contains of insuring the success programme by supporting and utilizing the relevant technologies[24].

3.3. Components of Blended Learning model

There are three major components of blended learning that has found in this studies. There are learning environment component, Instructional component and media component as per indicated in Model Figure 3 below.

**Figure 3.** Components of mix Learning Model

3.3.1. Components of Learning environment

A learning environment component is an area where the learning process takes place to support the occurrence of a good and effective teaching and learning process. The environmental conditions referred here are include the environmental conditions in the school itself and the supporting conditions in the form of the environment around the school [25].

3.3.2. Media component

Media are the tool, methods, and techniques use in order to make communication more effective and interactive between teachers and students in the process of educational and learning which inseparable
part of the teaching and learning process for the achievement of educational goals in general and learning objectives in particular.

### Table 3. Media component in mix Learning

| Live face-to-face (formal) | Live face-to-face (informal) |
|----------------------------|-------------------------------|
| Instructor-led classroom   | Colleagial connections        |
| Workshops                 | Work teams Role modelling     |
| Coaching/mentoring         | Virtual                       |
| On-the-job (OTJ) training |                               |
| Virtual collaboration/synchronous | E-mail               |
| Live e-learning classes    | Online bulletin boards        |
| E-mentoring                | Listservs                    |
|                            | Online communities            |
| Self-paced learning        | Performance support           |
| Web learning modules       | Help systems                  |
| Online resource links      | Print job aids                |
| Simulations Scenarios      | Knowledge databases           |
| Video and audio CDs/DVDs   | Documentation                 |
| Online self-assessment     | Performance/decision support tools |
| Workbooks                  |                               |

#### 3.3.3. Instructional component

This part of methodology/ technique in mixed learning that helps to achieve the learning target. This methodology serves to ensure learning objectives and the result of learning objectives. Preserving the instructional quality is a principle when developing mixed learning. Furthermore, learning objectives need not to be endangered when developing integrated learning solutions.

#### 3.4. Issues and the Challenges of Blended Learning

The finding of this review shows three major issues found in these studies. There are the content issues, Interaction Issues and Novice Teachers in the transition of face to face (direct) learning to online (e-learning).

### Table 4. Issues and challenges of Blended Learning

| Applicator                      | Issues             | Challenges                                                                 |
|---------------------------------|--------------------|-----------------------------------------------------------------------------|
| Traditional /Direct (face to face) learning | Content           | Content cannot be imitated from a traditional(face-to-face) learning to an online(E-learning) setting [26]. |
| Interaction                     | In face-to-face learning, interactions are built to increase social presence, and student motivation by discussing in groups [27]. In this case, developing transition from direct learning to e-learning was needed with the content that supports students to can communicate with each other in forum discussion or chatt forums[28]. |
| Novice Teachers                 | Novice teachers is The major | 

pedagogical challenge to seamlessly transfer their direct(face-to-face) course materials to the online/ e-learning environment [29].

| E-learning (online Learning) | Content |
|-----------------------------|---------|
|                             | Content should be learner centered that provide facilities for the student interaction between student-student and also student-teachers. The collaboration is another strategy in other to enhance learning and engagement. The best practice recommended for developing e-learning content are a combination of clear assessment criteria, collaborative activities, reflective activities, and integration of technology [30]. |

| Interaction |
|-------------|
| To increase student engagement and student motivation in online/ e-learning used, interaction must be built by having synchronous/ asynchronous facilities. Synchronous can contains a live e-learning classes, e-mentoring, web meetings/ web conferencing. Asynchronous can be a board bulletin online/ online discussion forum [31]. |

| Novice teacher |
|---------------|
| To ensure e-learning success, novice teachers must receive specific training in elearning pedagogical delivery to ensure that they understand how students learn and how to increase student engagement. To make optimize the learning process, instructors must be a good communicators and a listener as well as take extra effort and time to engage students by conduct discussion session in each others [32]. |

4. Conclusion
This study focus on the development of face to face (f2f) learning into Blended learning as a mix of teaching methods and materials. As for direct learning or face-to-face (F2F) in a classroom online methodologies (e-learning) are acts as formal education method. Through the characteristics, the components, issues and the challenges reviewed, the mixed learning are expected to provide better effectiveness of mixed learning in learning processes.
Future research will profit from the research by giving the systematical research description and detailed experimental which displays the advancement highlights mostly in supporting learning and developing engagement of mixed blending education.
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Acknowledgment
This publication was supported by Management & Science University, Shah Alam Malaysia.