

Harnessing the Strengths of Blended Learning

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Abstract

In the recent years, due to the pandemic, the use of the internet has become a necessity in almost every aspect of ordinary life. The education institutions are engaged either in online or blended learning teaching as the physical contact between human is banned to prevent virus spreading.

This article charts the concerns related to blended learning as reflected in the educational literature. It is argued that, to appreciate the potential and limitations of blended learning in education, we need to trace what harness the strengths of the blended learning. The study applied the integrative review method, which involved reviewing the current literature in the implementation of blended learning. The research questions that guided the study were about the learners' characteristics and needs in blended learning, the design features that should be considered in blended learning and finally which application of self-regulated learning is possible in blended learning. The recommendations justified by the research will be addressed to educators, designers of the education system aiming the advancement of effective blended learning environments. This study shows that students have a high potential of learning and retaining academic content through blended learning, especially concerning demonstrating learner self-regulation. Blended Learning aims to enhance student learning and develop crucial analytical skills and learning competencies. Our findings confirm that learners' ability to assess and critically assess knowledge sources accompanied by face-to-face support, interaction with peers, motivation and satisfaction of the learners is provided.

Keywords: e-learning; education; covid-19; learner; education institution

1. Introduction

The disruption created by the COVID19 pandemic underscore the vital need for continuous learning that promotes collaborative and systemic improved outcomes for students, faculty and staff. A rapidly changing environment requires campuses to evolve as agile and adaptive learning organizations. Especially in this COVID-19 situation while the physical contact between human is banned to prevent virus spreading. All traditional way is forced to change into the new norms. Likewise, the daily life behaviors will be changed and driven by online technology that is called the New Normal.

The education institutions engaged in a massive and rapid transition to remote learning that exposed a new cadre of faculty with no prior online teaching experience to the use of digital learning techniques. Blended Learning (BL) is the educational approach to combine face-to-face (F2F) instruction with ICT instruction. Blended learning facilitates learners' accessibility

to learning materials at any time and any place while still benefitting from the traditional face to face interaction. Blended learning can be defined to be an integration of opposite approaches to achieve specific individual or organizational goals. Such combination can be between online and face to face experiences, informal and formal learning, and collegial connections, and digital references, the reliance of directed paths, and self-direction.

2. Background of the study

Blended learning is based on performance and knowledge. It may take many forms and involve casual and structured interactions with peers, instructors, mentors, supervisors, and coaches (Saragih et al., 2020). It may happen in class, at home, or in the field. It can also involve time spent with reference manuals, reference manuals, databases, checklists, reading materials, checklists, templates, or even time spent in a group or peer discussion. A while ago, blended learning was seen as a learning component in the business, politics, and entrepreneurship markets. However, with the development of technology and high transitions of communication and interactions to an online platform, blended learning has become an essential component in education.

Blended learning has become a significant advantage to many students today. According to Nwankwo (2015), due to the involvement and integration of technology brought about by blended learning, students become more interested in learning. They are more excited and focused on studying even in monotonous subjects like math. The technological aspects of blended learning are enhancing the retention of information for many students. Blended learning enables students to look up information using computers and with combinations of internet research resources provided,

Students can stay focused longer than in the traditional mode of learning (Andrade, 2015). Using the learning materials increases students' ability to set appropriate and achievable learning goals and control their learning process, which helps them develop an attitude that is translatable across all courses. According to Farhan et al. (2019), learners tend to become self-driven in blended learning; mainly since most of the modes are blended learning entails online classes where students have the most freedom.

Blended learning has been found to give educators a platform that allows them to give students real-time feedback (Saragih et al., 2020). Teachers can also analyze and review students' work online. Generally speaking, through blended learning, e-learning has become a significant asset in the academic industry and circle. Hence, improving the effectiveness of the online blend is essential in enhancing the benefits of blended learning.

According to Zhang & Rieckmann (2018), e-learning implementation has been evolving due to advancements in technology; evolution leads to narrow down or more specific online learning materials. The application of pedagogical strategy in e-learning is necessary (Turvey & Pachler, 2020). The approach means establishing a learning process that takes into account the learners' personal needs and experience. With the current advancement of technologies, e-

learning has moved from computers to more mobile electronic devices. The high rate of development of information technology in society has led to the fast adoption of e-learning and social media acceptance as an ordinary communication channel used in learning (Qian, 2018). This encourages researchers and designers to strive to not only provide the necessary tools to learners but also to understand the students and their needs. For instance, e-learning is now common in China, and it is sold on WeChat social media platform. The lessons provided relate to the classes' specific topics; the duration of the lessons is based on a monthly or weekly basis. The developers have ensured live and constant communication with the learners to adjust the content according to the needs of the leaders. The lessons are improved, and the learning goal is achieved.

3. Problem statement

Economic factors have affected many people in the United States, resulting in unemployment, making the job market more competitive. Many people have adopted online courses as a way of improving their employment prospects and skills. Such courses offer flexibility as people can incorporate continuing education even from geographically diverse areas. Currently, many online programs offer degrees and certificates that will often cost less than traditional learning learners can deal with other engagements like working while still juggling academic activities (Peters & Romero, 2019). This is an advantage for people applying self-directed blended learning or self-regulated learning.

In the current COVID-19 environment, the concept of online courses and e-learning has become the primary mode of education. Before a teacher can begin a learning process, they should ensure that school systems promote engagement, feedback, and the well-being of the learners. The fact that the emotional, physical, spiritual, and social well-being of the learners is a significant priority calls for researchers to assess the students' needs and experience in e-learning. According to Nwankwo (2015), the students' needs create a gap between the current skills and knowledge and what the learner ought to achieve from the learning experiences. Each learner has unique qualities that reflect on their learning styles, motivation, and knowledge set. The instructors should have a better understanding of the learners' preferences and should ensure they customize the design of the learning process.

The teachers are supposed to develop a system that will adapt and promote in-person and online learning in the currently needed hybrid environment (Nwankwo, 2015). In most education sectors, teachers are expected to apply the strategy to foster excellent performance; enhance critical and creative thinking, and enhance learning goals (Farhan et al., 2019). Instructor goals should be aligned with learner needs. Many studies have explored students' characteristics and how they affect the adoption of blended learning and e-learning through internet self-efficacy, internet experience, technical skills, computer experience, and attitude towards e-learning. However, most of the studies are limited by methodology. Hence, there is

a need for an integrated research review that will enhance accurate, efficient, and valid evaluation of learners' needs in blended learning.

4. Objectives and Justification of the Study

- Objectives

1. The study objectives of the study are to examine how learners' characteristics influence effectiveness of blended learning and determine the learners' needs in the blended learning environment
2. The study will determine design features that should be considered in blended learning.
3. The study will establish application of self-regulated learning in blended learning environment.

- Justification

The study will give recommendations regarding the application of e-learning in education systems and mostly in the current pandemic era. Currently, there are no sufficient studies on harnessing the strengths of the blended learning and hence the study will fill the research gap. The recommendations justified by the research will be addressed to educators, designers of the education system and curriculum, and policymakers in the concerned sector. Answering the research questions will benefit the education systems at all levels. This will ensure the education curriculum can effectively continue amidst the Covid-19 pandemic.

- Research questions

This study is meant to contribute greatly in implementation of blended learning. The overarching research questions that guide the study are:

1. Which are the learners' characteristics and needs in blended learning?
2. Which design features should be considered in blended learning?
3. How is the application of self-regulated learning possible in blended learning?

5. Literature review

5.1 Learners' characteristics and needs

Ting & Chao (2013) assessed the factors influencing blended learning and e-learning and concluded that students' and instructors' characteristics and technology had a significant influence. Saragih et al. (2020) showed the need to assess learner characteristics for effective implementation of blended learning. Personal characteristics and needs influence learners' behavioral intention to adopt technology in their studies.

Some studies suggest that demographic factors and student characteristics such as socioeconomic class have a significant influence on academic performance; however, there are no studies that have assessed how to enhance blended learning effectiveness in both male and female students. According to Peters & Romero (2019), the success of blended and e-

learning is dependent on the experience, attitudes, and skills in using computer applications and the internet. Research concurs that effective implementation of blended and e-learning and its success will depend on the teachers' and students' willingness and capability of participating in blended learning (Farhan et al., 2019). Shraim and Khlaif (2010) noted that 72% of the teachers and 75% of the students did not have sufficient the skills to use internet and computer applications. This factor alone is a major determinant of whether the current education system is ready to adopt blended learning as the new curriculum of learning. Abubakar & Adetimirin (2015) noted that computer literacy is an important aspect that should be considered before the implementation of online classes. This was supported by Andrade (2015), who added that computer and time management skills are important for effective blended learning. Time management helps the learners handle the physical and online learning environment and ensures better performance. In blended learning, students will be able to contact their teachers and peers through chats online platforms, emails, and the physical environment. The freedom available in blended learning requires learners who are able to manage their time. Islam (2014) noted that e-learning, especially outside school environments, is affected by learners' ability to manage their time and prioritize the important things. Factors like family responsibilities and employment can impede the learners' ability to adopt blended learning. Cohen, Stage, Hammack, & Marcus (2012) noted that study load, family, work, and insufficient time made many students withdraw for e-learning.

The attitudes of the learners in blended learning play a crucial role in the program's effectiveness, and these determine the behavioral intentions and, hence, their persistence in the blended learning environment. Nwankwo (2015), stated that learner's attitude towards blended learning and the online classes is the determinant factor of whether and how the blended learning environment is implemented. Studies have determined no significant differences in outcome performance in blended learning between male and female students, and people of different ages. This implies that gender and age factors do not hamper the effectiveness of blended learning. Despite various studies being assessing the learners' characteristics in blended learning, most of the current studies have focused on establishing the effectiveness of e-learning and not blended learning.

6. Design features in blended learning

The design features to be considered in the study are interactions, physical (face-to-face) support, technology, learning resources, and system management tools. According to research, the lack of proper learner interaction often leads to dropping out of online classes and outcomes failure. In many cases, it has been noted that withdrawal from online courses is related to a lack of connectedness of learners. According to Ting & Chao (2013), the ability of the learners to make friends through the blended and e-learning environment affects how connected the learners feel to experiences and the learning process. Islam (2014) stated that

feeling of isolation related to online courses is a significant hindrance to enhancing the blended learning approach. Therefore, the interaction of learners with peers and teachers is a significant feature for strengthening blended learning effectiveness. Spanjers et al. (2015) agree that the system's reliability, quality, and user-friendliness determine how efficient a learning system even in blended learning. Substantially, system functionality affects the experience of learners and their attitude in continuing with the process. Ensuring the learning system is user friendly is highly likely to harness the strengths of blended learning and e-learning. Osgerby (2013) investigated the perceptions of learners towards learning management systems and found that the systems' design and features determine how useful learners find the system. According to the study, a learning management system with inadequate response hinders the effectiveness of blended learning, especially where the bandwidth is poor.

Many types of research have investigated learner satisfaction and how it influences the effectiveness of blended learning. According to a study done in 2015, learners appreciated the Moodle's contribution to blended learning as it enhanced their course understanding of the learning materials (Goyal & Tambe, 2015). The study's methodology entailed descriptive statistics to assess the improvement of learning by using Moodle session plans and uploaded courses. According to the study, the improved learning system with Moodle promoted the sharing of study materials among learners, submission of assignments, and time management by using the provided calendar. Learners stated that Moodle was an effective learning instrument.

In blended learning, the traditional classroom and mode of learning are combined with e-learning. Blended learning is, therefore, a blend of two-mode of learning, face to face interactions, and computer and internet-oriented form of learning. A study by Spanjers et al. (2015), stated that learners preferred face to face interaction as it was more active and enhance communication and social interaction in the classroom environment. The preference of the learners to e-learning was in the condition that it complimented the traditional classroom learning. Learners in the study by Osgerby (2013) stated that blended learning was effective as it made them more focused and invested in the learning process; however, they preferred the step-by-stem instruction aspects provided by the face-to-face blend.

Similarly, Farhan et al. (2019) stated that a large percentage of learners reported better experience and personal interaction with peers and instructors and preferred the physical part of the blend. Beard, Harper & Riley did a study in 2004 comparing the reception of on-campus learning with online courses by learners; the results showed that most learners preferred physically attending the classes. Although this study is old and did not focus entirely on blended learning, it is essential to single out the two blends. Researchers indicated that the physical presence and face-to-face interaction with learners reduce the gap between them. It ensures the psychological needs of the learners are met hence leading the better learning. This

is due to the verbal aspects of humor, appreciation, discussion of viewpoints, gestures, facial expressions, etc. These draw the learner psychologically closer to the teacher.

Learner outcomes determine the design features to be included in a blended learning approach. The learner outcomes to be assessed are motivation, knowledge construction, satisfaction, and performance. In this case, motivation is assessed as an outcome as it influences the course grades and participation of the learners. According to research, high motivation among learners taking online courses leads to persistence in learning and better outcome (Kuo et al., 2013). Nwankwo et al. (2015), stated that less motivated learners had a poor performance in tests than the group that had a high motivation. Learner's motivation influences his or her involvement in learning activities, directly affecting the effectiveness of blended learning.

Cohen et al. (2012) noted that learner satisfaction was a strong factor in blended learning and determined its effectiveness. The dissatisfaction of learners can result from a complication of the learning management systems and their incompetence as a learning tool (Islam, 2014). Islam found the systems did not promote prompt feedback from instructors dissatisfied and discouraged the learners in the online course program. Dissatisfaction also resulted from ambiguous instructions and technical difficulties. These factors should be addressed to promote learner satisfaction in blended learning and e-learning. Farhan et al., (2019) noted that difficulties in operating the technology and poor participation of other students in group projects discouraged many learners from engaging in an online course. Proper teacher-learner interaction has been found to help overcome most issues related to learner's dissatisfaction. Peters & Romero (2019) indicated that the physical part of blended interaction should not be disregarded because it is the foundation of learner satisfaction and interaction between learners hence making the blend more effective. Naaj, Nachouki, & Ankit (2012) stated that the learners' satisfaction with online learning, which was a video conference and physical interaction with the teacher, was 3.7 and 3.8, respectively.

Concerning knowledge construction, studies have indicated that learning is more effective when learners are active in the learning process, and this is an indicator of an efficient learning environment. An effective blended environment will require learners who can engage in initiating, discovering, and accomplishing knowledge achievement with ease. According to a study done in 2011 that used qualitative form of data collection, learners could construct knowledge through group discussion of the assignments given. By sharing information among their peers, the researchers noted that learners wrote down what they understood and tended to retain it (Rahman, Yasin & Jusoff, 2011). This can be seen as the completion of knowledge construction. This can be understood as the effectiveness of the blended learning environment.

7. Application of self-regulated learning in blended learning

Many studies have indicated that the traditional form of learning does not promote self-regulated learning (Ting & Chao, 2013). Self-regulated learning strategies are influenced by motivation and desire to learn and may require additional efforts necessary to succeed. This may include controlling the way they receive information. The advantage that e-learning has over traditional learning is to provide the learners freedom to study at their own time. The modern learning approaches in teaching and learning focus on activating education by focusing on acquiring knowledge and understanding rather than assessment (Svinivki & McKeachie, 2011). To learners, online classes are their opportunity to take control of their learning process. Self-study allows you to control what you learn when, how you learn without worrying about it, however, it can be difficult for students who do not have the discipline to maintain a supportive learning environment due to various distractions. Where time and learning occur, it has been suggested that highly self-regulating learners can use blended learning environments to monitor and manage learning plans in their daily lives (Yamada et al., 2017).

There are many studies mentioned that support that self-regulated studies are highly influenced by the motivation and attitude to learning of the students. In self-study, the student has to accept that time management is at the forefront of how he can succeed in learning (Effeney, Carroll, & Bahr, 2013). If learners are unable to manage their time properly, it may take longer to meet the course requirements, hence affecting the effectiveness of learning. In general, self-regulated learners establish the learning objectives and control their behaviors and manage their time to achieve them. Generally speaking, the application of blended learning in the current era COVID 19 pandemic should consider factors influencing the effectiveness of self-regulated learning. Various studies conclude that understanding learner's characteristics, and needs in developing a learning management system enhance user-friendliness hence improving learner satisfaction. According to Goyal & Tambe (2015), the best learning management system is the one that promotes learner motivation and enhances constructive social pedagogy that influences the collaboration and interaction of students with teachers.

8. Methodology

The study applied the integrative review method, which involved establishing the current literature on the identified research questions. This study method is broad and distinguished from other methods like meta-analysis, as it is mainly based on theoretical research approaches. The methodology of this study involved a literature review, data evaluation, and analysis. The Study incorporated the following stages;

a) Problem identification

Although many studies focus on blended learning, there is still the question of the effective applicability of blended and e-learning. In the current pandemic era, most education systems are faced with establishing a blended learning environment that will promote learning and enhance knowledge construction. There are many known strengths and advantages of blended learning; however, there is a lack of clarity on how these benefits can be ensured.

b) Literature research

A variety of electronic databases was utilized to search for relevant, valid, and efficient studies. The databases include the Education Resources Information Centre (ERIC), Web of Science, and ScienceDirect. The search was based on keywords and terms to describe blended learning and online courses. Keyword combinations include self-regulated learning, blended learning, computer-assisted learning, online classes, online courses, teacher-learner interaction, e-learning, learning management systems, new learning approaches, and online vs. traditional learning.

c) Data evaluation

An assessment of the studies' relevance was done based on the abstract, methodology used, and conclusion made. The irrelevant, too old, and insufficient studies were removed from the research. The contents of the remaining papers were assessed. The second assessment entailed examining each paper's reference list to identify potential research papers that were missed during the search. Each research paper was read with much attention to the objectives and research questions. The papers that did not meet the inclusion criteria were excluded.

d) Analysis

The research papers picked during the evaluation process were categorized under quantitative and qualitative and mixed research methodology. An appraisal checklist was used to critically appraise the studies. The analysis did not consider the quality of the paper but rather on its relevance. This decision was to ensure a relevant conclusion could be drawn from all related studies. A content analysis was done to determine the tentative themes in the studies. A deductive approach was used. A preliminary interpretation of the content and the implications was made.

9. Results

Several factors about blended learning were derived from the studies. Various studies identified learners' personal characteristics as the main factor in the effectiveness of blended and e-learning. About ten studies defined and discussed the design features necessary in modification and establishment of blended learning. Semi-structured interviews and questionnaires were the main forms of data collection in almost all the studies. The identified

quantitative studies addressing blended learning were very few. One study reported measuring learner's outcomes with consideration of their motivation and interest in online courses in a blended learning environment. All studies identified challenges that hinder the effectiveness and strengths of blended learning and e-learning; however, few solutions were provided.

10. Discussion

Research has been done on dealing with learners' characteristics in the influence of their performance outcomes. Various studies have dealt with resilience, personality types, emotional intelligence, and experience in blended learning and e-learning. The results show that a significant number of studies suggest that understanding the needs of the learners will ensure the development of a learning management system that promotes learner satisfaction and performance. Although e-learning is not a new thing, some people are still no onboard with it. As identified in the literature review, the type and features of the used technology highly influence the learner's ability to use the provided resources, attitude, motivation, and perspective towards e-learning. The concept of e-learning blended learning is lagging and affects its effectiveness. The mere issue of computer and internet literacy is a major hindrance to the strengths of blended learning. Shraim and Khalif's study proved this point well. This means that despite the technology is very advanced, and it should not be assumed that people understand internet applications without guidance.

Understanding how to use internet and computer application in the blended learning environment has been discussed by various studies like Abubakar & Adetimirin (2015), Andrade (2015), Spanjers et al. (2015), and Osgerby (2013). The conclusion made in all these recent studies indicates that e-learning without face-to-face support is impossible. Research shows that e-learning should be a complement of the traditional learning environment where, despite having access to all the necessary learning materials through internet applications, interaction among peers and with teachers enhances the advantages of e-learning. However, the lack of that support leads to the great dissatisfaction of learners, which has been found to lead to dropping out of online courses. This supports that any development of an e-learning platform or system should be based on the needs of the learners such that it is user friendly and should also be reliable. Islam (2015) discussed this issue further and noted that poor feedback prompt also led to learner dissatisfaction and discouragement from the studies.

One of the main benefits of a computer blend of blended learning identified is the freedom granted to learners to engage in learning activities in their own free time. This is an aspect that was not applicable in a traditional learning environment. Blended learning provides room for self-regulated learning. However, as noted earlier, harnessing any strengths of blended learning require the learners to be motivated, satisfied, and able to use the materials. These factors also reflect on the application of self-regulated mode of learning, lack of motivation, poor attitude, and dissatisfaction directly affects the effectiveness of self-regulated learning in

blended learning. Blended learning should ensure learners are able to track learning progress, improve performance, and see if their learning plans are effective. Self regulated leaning has a lot of advantages that are promoted in the online blend of the learning environment. A study of college students in a statistics class found that students who monitored learning and self-efficacy performed better on four regular exams (Bloom, 2013). This is because in self regulated learning learners have freedom on when they take on their online classes, and they can plan their time to fit every activity in their list with no inconveniences.

Learners need to be able to focus on their learning goals. Some learners experience distraction; however, this is not considered in a self-regulating learning environment. Nevertheless, motivated learners, while practicing SRL, take responsibility for being distracted and act to get back on track.

11. Conclusion

Using technology in teaching and learning to drive innovative educational approaches requires an effective blended learning environment. Examining learner characteristics or backgrounds, learning preferences, and learning outcomes as effective factors helps in designing conducive learning environments, including face-to-face and online dimensions. All the learner characteristics and design features considered in this study are important factors in the harnessing the strengths of blended learning. Further research is however required to determine if various demographic factors like economic status, geographical location, gender and age are significant predictors of learner performance and whether they affect expected outcomes and competencies in a blended learning environment. These gaps are open for further investigation to see if they can be important predictors of blended learning effectiveness in similar or different learning environments.

Planning the development and implementation of blended learning, which is currently needed in the education sector should be based on the implications of this study. Universities should be aware of the interplay between student characteristics, design characteristics, and learning outcomes as indicators of blended learning performance. This study shows that blended learning has great potential if modified so that the e-learning blend is based on user-friendliness, quick feedback, and relevance. It should also allow learners to improve their time management.

This study thus, shows that students have a high potential of learning and retaining academic content through blended learning, especially concerning demonstrating learner self-regulation. Blended Learning aims to enhance student learning and develop crucial analytical skills and learning competencies. Our findings confirm that learners' ability to assess and critically assess knowledge sources accompanied by face-to-face support, interaction with peers, motivation and satisfaction of the learners is provided.

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