



Gap Analysis in Blended Learning Studies. A Literature Review

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Abstract

The blended learning approach is new and indispensable in the wake of disruptive technologies and pandemics. The liability of newness has made the blended learning approach suffer resistance due to gaps in knowledge. The purpose of this study is to map research gaps in blended learning as a curriculum delivery approach in public universities. A desktop review approach was used to analyze peer-reviewed articles and reports. The researcher used the Google Scholar database to identify legible literature. Using the Google search engine, 46 documents that met the inclusion criteria were reviewed. The results of the study identified disagreement among scholars on the definition of blended learning, demographic factors, user perceptions, academic performance and theoretical underpinnings. The synthesis also found a scarcity of studies on the use of blended learning for research supervision, policy supporting blended learning, and regional role models in implementing blended learning. In conclusion, the study found blended learning an appropriate approach for the 21st-century classroom and its successful implementation depended on the commitment of the government, universities, and stakeholders to bridge the gaps. Based on the findings, the study recommended further studies on the conceptualization of



blended learning, demographic factors, academic outcomes, and theoretical framework. The study also recommends that the Commission for University Education develop a policy to guide the implementation of blended learning in public universities.

Keywords: Blended Learning, Research Gaps, Curriculum Delivery, Public Universities

Introduction

Background Information

The explosion of new and disruptive technologies has put the postmodern educator at a crossroads. The educator is hence challenged to explore new schooling techniques that fix new and complex schooling problems. The new technologies have altered students' learning and communication behavior. For instance, computers, tablets, and Smartphone technologies shortened learners' attention period and information retention. Other disruptive technologies like the Internet of Things (IoT), big data, Artificial Intelligence (AI), and blockchain emerged and are drastically changing teaching methods (Mitchell, Shiu, Enemark, & Kavanagh, 2020). The technologies displaced the traditional face-to-face way of learning; rendered it obsolete and offered a new range of learning alternatives anchored on computer applications and the Internet (Dube, Eck, & Zuva, 2020). Lecturers have opted therefore to take a paradigm shift from traditional teaching methods to blended learning to accommodate such changes and challenges of the 21st-century classroom (Tukamuhabwa, Kishabale & Lubaale, 2024). Blended Learning (BL) combines classroom-synchronous and online – asynchronous paradigms (Kaur, 2013). The BL lecturer planned the delivery of courses in a way that a portion of traditional face-to-face learning is delivered virtually. In BL, the instructor played both a sage on stage and a guide-by-side role (Shadiev, Zhang, Wu, & Huang, 2020). Blended learning, therefore, is an expanded education delivery approach with a 'technological fix' in the postmodern era that responds to new millennium learners' needs (Kaniaru, Karani, Mirie, & Nyangina, 2019), by 'deterritorializing' classrooms (Reynolds & Webber, 2009), and reducing students' in-class seat time.

Due to its flexibility, BL was adopted in universities to improve curriculum delivery and broaden coverage. Lecturing as a face-to-face classroom teaching method has been used in universities for ages in curriculum delivery. With the increase in demand for higher education and continued learning, lecturing has been found ineffective; passive, and



unfavorable for critical thinking. Instructors who paid attention solely to face-to-face learning frustrated collaborative learning and engagement of high-level thinking (Okaz, 2015). Okaz (2015) averred that university students found wall-confined lecturing boring, unsupportive, and irrelevant to career requirements. This contributed to poor class attendance among students.

Besides the technological revolution, COVID-19 is the latest driver of blended learning adoption. The COVID-19 pandemic ushered in a new normal in the education sector that reinforced BL as an emergency remote form of curriculum delivery (Gaebel, Zhang, Stoeber, & Morrisroe, 2021). Face-to-face teaching became a public health risk because it exposed students to COVID-19 (Abbaca-Tuguic, 2021). On its outbreak, conventional learning activities such as physical classrooms closed worldwide and opened the doors for BL as an alternative method of curriculum delivery (UNESCO, 2020). The need to restrict teacher-learner physical interaction to reduce COVID-19 spread has necessitated the quick uptake of the BL approach by education institutions (Adel & Dayan, 2020).

Apart from mitigating COVID-19 transmission, blended learning allowed interaction, flexibility, customized assessment forms, and reduced dropout rates. Blended learning (BL) leveraged the power of information technologies to balance face-to-face and online teaching methods. COVID-19 control requirements and the emergence of digital and social media turned blended learning into a necessity (Marunic & Glazar, 2015). Despite these benefits, much is not known about its implementation in public universities, where it is needed most.

Problem Statement

Despite much literature being available on blended learning, it is still scanty on levels of blended learning adoption by lecturers, students, and institutions (Oduor, Ayiro, & Boit, 2018). Facts on Kenyan public universities' preparedness in terms of structures, support systems, strategy, and human resources to accept and implement blended learning are little discussed in current literature (Porter, Graham, Spring, & Welch, 2014). These gaps humpers policy development and the progressive rollout of the BL approach for teaching and learning in public universities. Since the blended learning approach is relatively new in Africa, particularly in Kenya, there is a need for more research in this area. Indulging in studying blended learning will support public university management in Kingston using blended learning as a key part of learning ecologies (Galvis, 2018). The study explores the missing information that would help university management implement blended learning and highlights key issues that should be addressed by research. Finally, it is necessary to carry out this study to help public universities address



the challenges of digital natives, increasing demand for higher education under constrained resources, and COVID-19-driven learning.

Research objectives

The main objective of the study is to map research gaps in blended learning as a curriculum delivery approach in public universities through analyzing the inconsistencies in the findings of studies on blended learning for curriculum delivery in public universities.

Methodology

The researcher used the desk review method. Desk review uncovers new ideas, builds knowledge, and shapes the thinking of the researcher on the problem under investigation (Sekaran & Bougie, 2013). The literature reviewed was obtained through a search of the Google Scholar database using the Google search engine. The focus was on literature about blended learning and higher education. Therefore, the search terms were 'blended learning,' 'university education' or 'higher education.' The study limited itself to literature that was written in English, between the years 2015 and 2024, either report or peer-reviewed articles. The researcher excluded updated studies, blended learning in elementary education, and articles without clear methodology. According to the search, 46 documents met the inclusion criteria and therefore reviewed. The review adopted the seven-step guidelines: identification of the purpose of review; protocol drafting and team training; applying practical screens; search for literature; data extraction; quality appraisal; synthesizing studies and writing reviews (Okoli, 2015). Critical information such as the authors, year of publication, title, country of origin, population and sample size, study design and methodology, outcomes, and results were extracted from each study to provide a description and critical information for this study (Ramdhani, Ramdhani, & Amin, 2016).

Findings and Discussions

Definitions of Blended Learning

Defining blended learning has been elusive to many scholars. Various scholars have variedly defined it. In one instance, blended learning was defined as the mixing of classroom-based interventions with online interventions to bring about and sustain learning (Boelens, VanLear, DeWever, & Elen, 2015). Another is 'hybrid learning' or 'flipped classroom' that mixes online with face-to-face learning (Muthuraman, 2018). According to Alsalhi, Eltahir, and Al-Qatawneh(2019), BL is a strategy that combines internet-based



technologies to score educational goals; a hybrid of traditional education methods, technology, and the internet; an amalgam of various teaching methods based on multiple theories; and educational program that combined in-person classroom time with virtual delivery. Rogers, Usher, and Kaznowska (2011) described blended learning as the entwining of e-learning resources into courses that were primarily physical and class-based.

Between 2015 and 2024, a survey of journal articles found 4 different definitions of BL (Boelens, VanLear, DeWever, & Elen, 2015; Muthuraman, 2018; Alsalhi, Eltahir & Al-Qatawneh, 2019; Rogers, Usher & Kaznowska, 2011). This shows that there is no single agreed-upon definition of BL that can be used across all education sectors. This opens the door to analyzing the previous definitions and coming up with one comprehensive definition of blended learning.

Blended Learning and Demographic Factors

Demographics refer to race, age, sex/gender, location, level of education, marital status, and income levels, among others. These attributes are highly considered predictors of the ultimate behavior of a population in education studies, blended learning included. In the southern region of Saudi Arabia, a cross-sectional study on healthcare students' perception towards implementing e-learning between April 2020 and July 2020 showed that being a female or male did not significantly affect learners' attitudes towards e-learning. However psychological distress, technical issues, experience, and unpreparedness had significant effects on students to accept e-learning aspects of blended learning (Alavudeen, et al., 2021). In a survey of students in the United Arab Emirates, gender, college, and status positively and significantly influenced the use of blended learning which enhanced academic performance (El-Refae, Kaba, & Eletter, 2021). For example, research students' characteristics like gender significantly influenced their academic performance but were not significant in blended learning (Kintu, Zhu, & Kagambe, 2017). In Slovenia, a study was done on demographics and selected aspects of e-learning in higher education. The findings showed that the year of study influenced students' attitudes towards blended learning. Female learners found it easier to identify certain activities in the e-course as compared to their male counterparts (Aristovnik, Tomazevic, Kerzic, & Umek, 2017). These mixed findings demand more studies to clarify the differences.

Blended Learning and Academic Outcomes

Among tenth-grade students studying a world history course in South Carolina, USA, a mixed method research discovered that students' positive perception of blended learning positively influenced their academic



performance (Turpin, 2018). In North Carolina, it was contrary among students who used blended learning in American History II. Experimental design research found no statistically significant difference in academic performance between students who learned the course through blended learning and those who learned through traditional face-to-face methods. However, blended learning increased the students' online readiness skills (Rinehardt-cline, 2018).

A quasi-experimental study on 112 students enrolled in ninth grade for science in the 2017/18 academic year in the United Arab Emirates found that their attitudes towards blended learning were positive and improved their performance. Blended learning made students active, creative, and better prepared for class. In addition, it made it possible for students to access educational resource material (Alsalhi, Eltahir, & Al-Qatawneh, 2019). Among the undergraduates who had enrolled to learn Mathematics (MTH121) course at Ajman University through blended learning, academic achievements were greater as compared to those who learned through a traditional face-to-face approach (Alsalhi, Al-Qatawneh, Eltahir, & Aqel, 2021).

Blended Learning and Research Supervision

In a mixed design mini-study on perceptions of graduate student supervisors at Kenyatta University on blended approach for thesis supervision, Miheso-O'Connor, Bwire, and Mwangisi (2020) found the students' attitude not positive. There was lethargy in adopting the approach. At Kenyatta University, there were inconsistent efforts to build supervisors' capacity and the university lacked resources to effectively implement blended learning which affected the completion rate of postgraduate students doing research (Miheso-O'Connor, Bwire, & Mwangisi, 2020). There is a need for more research on the use of blended learning for guiding students in their projects, theses, and dissertations.

Blended Learning and Perceived Usefulness (PU)

Another mix of findings was on users' (instructors and learners) perceptions of blended learning. A survey of 1083 Ljubljana Students of public administration in Slovenia, using Moodle LMS platform in the University found that lower high school grade students perceived traditional face-to-face learning more useful. On the contrary best high-school grade students found blended learning more useful. In addition, students who lived away from the campus found blended learning more useful than face-to-face learning (Aristovnik, Kerzic, Tomazevic, & Umek, 2016). First years perceived blended learning as less useful than third years. Across the European Higher Education Area (EHEA), 90% of higher education institutions used blended learning for



library services, and 65% used Emergency Remote Teaching (ERT) as a response to COVID-19. In Turkey, experimental research on 52 students in 7th grade enrolled in social studies revealed that blended learning gave larger and more effective learning outcomes than face-to-face learning (Cifta, 2020). Subsequently, students and lecturers were highly positive towards blended learning. In a survey of students enrolled for English lessons at Universitas Kristen Indonesia Jakarta, students perceived blended learning as more positive than face-to-face instruction. They described blended learning as more effective, efficient, convenient, and useful. Further, they believed that blended learning improved their creativity, critical thinking, and computer and internet skills (Nazara, 2016).

Blended Learning and Perceived Ease of Use (PEU)

In North Sumatra, Indonesia awareness and attitudinal study of private university students on blended learning was done. Mixed perceptions and attitudes were found among the students. Some perceived blended learning as useful and easy to use, but some perceived it as hard to use (Winarto & Tambunan, 2019). Among 19 universities that offered bachelor of nursing in Kenya, experimental research was done in two public and two private universities on how they utilized blended learning on undergraduate nurses for post-intervention outcomes. The respondents were 486 fourth-year nursing students taking NRS 400: Education Concept and Teaching Strategies in Nursing. The study revealed that most nurse students n=302(62.1%) were motivated to embrace blended learning. However, 75.1% of them experienced challenges while using the blended learning mode of delivery (Kaniaru, Karani, Mirie, & Nyangina, 2019).

Blended Learning and Policy Support

In Canada, after reviewing university websites, and policy documents and interviewing faculty members in the University of Manitoba case study, Wallace and Young(2010) observed that the blended delivery approach was not supported by institutional policy. It was largely an individual initiative to migrate from face-to-face to blended delivery. Such policy gaps may hamper the continuity and effectiveness of the practice as well as support or undermine the university mission (Wallace & Young, 2010). An online survey on an e-learning community in the western central part of Alberta, Canada revealed that integrating learning centers and mentors with online teaching by use of a web-based learning management system as a conferencing tool was a significant determinant of academic success (Sacher, Sacher, & Vaughan, 2014). However, there were 'value gaps' such as sustainability, passivity, and lack of community of learning. Resources to sustain blended learning activities



were inadequate, blended learning was perceived as passive, and a sense of community was lacking when engaging in blended learning (Kanuka & Rourke, 2013). A summative evaluation of blended learning in universities in East Africa revealed that blended learning was highly relevant. Most universities (80%) used blended learning. However, they lacked supportive policies that caused inconsistency in the application of blended learning for curriculum delivery (Young, et al., 2021).

Blended Learning and Theoretical Deficiencies

In blended learning literature, most studies used one theory, especially the Technology Acceptance Model (TAM) which had an overreaching weakness that needed a combination with other theories like connectivism. As education delivery systems rapidly change, theoretical frameworks change from 'pre-connectivism theories' such as behaviorism, cognitivism, and constructivism to new ones that address issues of connecting virtual and physical elements in delivering courses within the university environment. Connectivist theories include the Connectivism learning theory, How People Learn (HPL) framework, the theory of engaged collaborative discourse, a community of inquiry framework, transactional distance theory, structuration theory, conversation theory, and diffusion of innovation theory (Graham, 2013). The literature review also showed that most theories had weaknesses and needed improvements by either combining or introducing new variables.

Scarcity and Regional Information Asymmetry

The fifth literature review shows that there were no records of success to build on (Kizito, 2016). The available literature is mostly from developed countries and not developing countries (Ashraf, et al., 2021). There were no documented university role models in developing countries, whose best practices and models could be used to inspire and mentor others.

Conclusion and Recommendations

The purpose of this study was to map research gaps in blended learning as a curriculum delivery approach in public universities. After a systematic review of the literature, several gaps were identified that needed further research. The gaps include no unified definition of blended learning, no agreed-upon demographic factors that influenced uptake of blended learning, uncertainty about blended learning enhancing learning outcomes, and mixed user perceptions on the usefulness and ease of using blended learning. The synthesis also revealed that there were gaps in knowledge in BL use for supervising students doing research, inadequate policy support, and scarcity of information on blended learning role models in the East African



region. The theories were weak to explain the blended learning studies, too. This hampered the uptake and usage of blended learning in public universities across the region. In conclusion, blended learning was a very new concept in Kenya. There is a need for rigorous studies in blended learning to support its successful implementation to reap its proven benefits. Therefore, the study recommends:

- 1) The Ministry of Education developed a policy that defines blended learning, its implementation, and monitoring as means of curriculum delivery in public universities.
- 2) Further researchers focus on the improvement of blended learning theories, appropriate data analysis techniques, and factors influencing blended learning in various universities in different geographical areas, genders, faculties, and years of studies.

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