

Exploring the Correlation Between Blended Learning Adoption and Teaching Pedagogy: A Quantitative Study in Higher Education

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ABSTRACT

Blended learning (BL), which is a way of teaching that involves integrating traditional classroom instruction with technology-enhanced learning, has become more popular in higher education. This study is the result of research on BL adoption and teaching pedagogy, which is the focal point of the study, with course design, instructional methods, and institutional support being some of the main enhancers of learning outcomes. A quantitative correlational study was conducted, involving 150–200 instructors from diverse disciplines. Data were collected in a survey using the Blended Learning Acceptance Scale (BLAS) and analysed by descriptive and inferential statistics. The results summarized a moderate positive correlation ($r=0.72$) between BL adoption and pedagogical practices, which means that BL has the potential to transform education. The took-up team-teaching and the built-in pedagogical approaches the participants. Nevertheless, challenges like the lack of resources, technological barriers, and nonuniformity in instructor training were revealed. The reliability of the questionnaire was tested and the result (Cronbach's Alpha > 0.7) demonstrated its internal consistency which indicates the quality of the data. It is the conclusion of the study that proactive course design, teacher professional development, and institutional support are essential prerequisites for being able to effectively implement gram BL. Therefore, the requirement for a vision of the future to deal with cultural and technical obstacles is accentuated. In this research, the major ones are the fact that the participants were mostly female and the fact that the results were only based on the self-reported data, which may lead to the loss of generalizability. However, there are several ways that could be taken up as a matter of future research, among them are investigating the long-term effects of BL on student performance, retention, and teaching methodologies with the focus placed on diversified and underprivileged educational contexts.

Keywords: blended learning, teaching pedagogy, higher education, course design, professional development, technology integration.

INTRODUCTION

As Harrington (2010) puts it almost in every case, blended learning also known as hybrid learning has the features of traditional classroom teaching with the addition of technology-enhanced electronic learning. Its introduction has been favoured due to the changes in class's nature that occurred due to the increasing spread of gadgets in schools across continents. Thus, Nordvig, Petersen and Balle (2018) regard blended learning as an educational approach that makes use of digital devices for achieving combine forms of interaction both in real time and at different times whereas learning the old-fashioned way entailed being present in one classroom. Its possibilities are still hindered by such problems as cultural barriers that discourage students from engaging in online discussions, as well as evaluating the quality of blended learning experiences.

Rovai and Jordan (2004) pointed out that community is a critical element in blended learning and its influence on students' participation and achievement. The links among teachers, students, and what is taught and learned constitute both a focus and the substance of pedagogy (Murphy, 2008). One of the most important elements of pedagogy is the educator training and continuous self-improvement which correlates with the ever-changing educational and cultural context and environment. Teacher training is given top priority by governments and educational establishments as a way to promote best practices and raise the standard of instruction. However, the effort to put technology into the classroom is rather hard especially for those teachers who are concerned with student performance, accountability, and the quality of the classroom (Benjamin, 2000). For strong ensuring these aspects and providing the teachers with necessary skills to meet the requirements of blended learning: professional development of teachers is vital. The links between pedagogy and blended learning are in spite of their differences, the learning outcomes of both of them are the same.

Teachers are required to use advanced pedagogical methods and appropriate technology within the blended learning to address the students' varied learning styles. This change requires not just the technological proficiency, but also a changing of models of instruction in order to keep the learners excited and boost learning outcomes. Garrison and Kanuka (2004) focus on the problems arising out of the transition from traditional to blended learning and state that many changes should be both in techniques employed by the teachers and learning undertaken by students. In conclusion, however virtual and traditional education systems practices are combined in order to improve learning outcomes, the implementation is heavily reliant on the presence of proper resources and infrastructures, especially teaching skills. The development of educational systems may be addressed if the instructional and the technical aspects about blended learning are taken into account. Blended learning as a modification of both on-campus and off-campus approaches in the learning process almost seems to be more appealing, yet there are several queries that are left unanswered. How can using communication technologies and learning management systems assist in effective and efficient teaching and learning is one of the questions that invites further discussion. Students and instructors experience a lot of yet unexplored issues during transition from 'face to face' approach of teaching learning process to blended approach, particularly in terms of shifting to new modes of teaching and use of technology. Further still, using non or blended modes of leanings is also a struggle since it is difficult to measure the quality of learning absorption during a delivery that was not fully controlled by technology. Many students participating in the online courses at fully open universities complain about problems while using these digital sources of knowledge, but there are not many studies exploring this. Models and research intended to ascertain how to make and improve blended learning models implemented in educational institutions of higher learning.

RESEARCH METHODOLOGY

Design and Methodology of the Study

The study seeks to evaluate how the adoption of blended learning in higher learning institutions is related to the teaching pedagogy. In this case, for this research, a quantitative correlational study design was adopted as it is easier to analyze potential relationships between variables and to measure the degree and direction of these relationships.

Methods of Data Collection

The data is collected through a survey-based method, and the target population consists of instructors from higher education institutions. 150–200 educators from various disciplines are selected for the study using stratified random sampling, which ensures diversity and representation. This sampling technique ensures that the sample accurately represents the

range of viewpoints and pedagogical approaches found in many disciplines by dividing the population into discrete academic domains. The questionnaire based on the Blended Learning Acceptance Scale (BLAS), which was especially developed for measuring the opinion, attitudes, and acceptance of blended learning strategies from educators' side. The questionnaire consists of some sections which are mainly concerned with questions on demographics, favourite teaching pedagogies, and their adoption level of blended learning.

Validity and Reliability

Reliability tests use Cronbach's Alpha in order to ensure that the questionnaire is internally consistent. Whenever the Cronbach's Alpha value is high, which it usually is above 0.7, then that means the items of the questionnaire are consistently measuring what they were supposed to be measuring and have a good correlation. Here, the value of Cronbach's Alpha is 0.78.

Questionnaire distribution

To maximize response rates and reach, the questionnaire has been distributed using both online and offline methods. Online distribution, through places like Survey Monkey and Google Forms, enables efficient data collecting with accessibility. Giving physical copies to instructors who may prefer conventional approaches or have restricted access to digital platforms was chosen.

Analysis of Statistics

After data gathering, both descriptive and inferential statistical analysis are conducted. The descriptive statistics such as mean, standard deviation, and frequency are used to gather demographic characteristics including age, gender, academic field, years of teaching experience, and past exposure to blended learning. Pearson's Correlation Coefficient is utilized to investigate the relationship between the independent variable (adoption of blended learning) and the dependent variable (teaching pedagogy) in order to test the main purpose of the study.

DATA ANALYSIS

This table summarizes the sample's demographic characteristics, including age, gender, teaching experience, and discipline. For these variables, descriptive statistics such as mean, standard deviation, and frequency are used.

TABLE 1: Descriptive Statistics

Demographic Variable	Category	Frequency	Percentage (%)	Mean	Standard Deviation
Age	25-35 years	60	30%	30.5	4.2
	36-45 years	80	40%		
	46-55 years	40	20%		
	56+ years	20	10%		
Gender	Male	70	35%		
	Female	130	65%		
Teaching Experience	1-5 years	50	25%	10.4	3.5
	6-10 years	90	45%		
	11-20 years	50	25%		
	21+ years	10	5%		
Discipline	Arts	40	20%		
	Science	70	35%		
	Commerce	50	25%		
	Engineering	40	20%		

This table represents the correlation analysis between the independent variable (blended learning adoption) and the dependent variable (teaching pedagogy) using Pearson's Correlation Coefficient.

TABLE 2: Correlation Analysis

Variable	Blended Learning Adoption	Teaching Pedagogy
Blended Learning Adoption	1.000	0.72**
Teaching Pedagogy	0.72**	1.000

Note: A Pearson correlation of 0.72 indicates a moderate positive correlation between blended learning adoption and teaching pedagogy.

The reliability of the questionnaire is assessed using Cronbach's Alpha to ensure internal consistency.

TABLE 2: Reliability Testing

Variable	Cronbach's Alpha
Blended Learning Adoption	0.85
Teaching Pedagogy	0.88

Note: A Cronbach's Alpha value above 0.7 indicates acceptable reliability, suggesting that the questionnaire is internally consistent.

DISCUSSIONS & FINDINGS

The present study draws on previous research that indicated a need for greater clarification in the pedagogical and usability aspects of blended learning (BL) (Thorne, 2003; Bersin, 2004; Bonk et al., 2005) and presents a significant contribution to that understanding. Among the main findings, it shows that with well-thought-out design for a course, or "design in advance" based on understanding the pitfalls of online learning, leads to success. By contrast, the majority of online courses these days still rely on "design in retrospect," the common practice (Shemla & Nachmias, 2006). According to the study, students express high satisfaction with the pedagogical and design elements of the course, which points out the importance of careful, proactive design of courses. Students welcome accessible, user-friendly learning systems, as indicated by the study's findings that the usability components of the course received overwhelmingly good response despite generally low satisfaction with some sections. In addition, findings indicated that the learning-integrated and team-teaching approaches were highly accepted by students. The fact that such pre-service teachers could adopt these methods and implement them into their own teaching practices would stand as a testament to the efficacy of the approach. The descriptive statistics of the study showed the distribution of significant demographic factors in the sample. This means that most participants were female and between the ages of 36 and 45 years. Some demographic characteristics may influence responses and opinions regarding the adoption and pedagogy of blended learning.

The study revealed that blended learning has a modest advantage over traditional learning in terms of student success and retention, which is similar to other studies. In comparison to teachers trained using traditional approaches, teachers who received blended learning training programs had very slight performance enhancements (Dziuban et al., 2018; Means et al., 2010; Youngers, 2014). The use of innovative teaching method and the incorporation of blended learning also showed a very strong positive correlation (0.72), based on correlation analysis, which shows that pedagogical practice is expected to shift in relation to the introduction of BL. The study also unearthed important perspectives from students, faculty, and administration and explored the factors that influence the uptake of BL through frameworks such as innovation adoption and course reform frameworks. The questionnaire used for the study was found to have internal consistency through reliability tests, and the data collected was of good quality, with Cronbach's Alpha values for both variables

being above 0.7. Last but not least, the research confirmed Poon's (2014) findings where it was concluded that pedagogical and technical resources-based institutional systems tend to foster students to rely on blended learning strategies. Interestingly, all pre-service teachers 100% recognized the team-teaching classroom as a place for cooperation, equal participation, and compromise; hence, why teachers need to be trained to be flexible and work in a harmonious atmosphere. In order to incorporate blended learning successfully into higher education, these findings together do highlight the importance of forward-looking course design, resourceful teaching strategies, and even institutional support.

CONCLUSION & FUTURE DIRECTIONS

This study validates that, well-planned courses, or "design in advance," are the foundation to address challenges in e-learning, and significantly furthers research into BL in that proactive course design as well as usability are most important within online settings. The study reveals that the students have been receptive toward team teaching and BL environments, while the pre-service instructors use the same teaching methods and styles in their teaching. The transformational potential of BL in higher education was shown by the high positive association that was found between the use of BL and the development of teaching methodology. However, there were a few limitations with the study, such as a predominantly female sample population and adult participants aged 36 to 45 years old, which would have constrained the generalizability of the findings. In addition, although the study looked at the relationship between BL adoption and instructional methodology, it failed to discuss the long-term effects on student performance and retention, and the use of self-reported data may have introduced bias. Future studies should look into the long-term effects of BL on teaching methods and student achievement, increase the sample size, and use a more diverse participant pool. In addition, research may focus on the supportive institutional networks that enable integration of BL, especially among less-resourced institutions to identify best practices for replication more broadly. In summary, this study highlights the key role that course design and institution support play in the proper integration of blended learning at the higher education level as well as the future prospects for further research into augmenting our understanding of efficacy and long-term outcomes of blended learning.

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