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Effects of Blended Learning on Academic Achievement among Part-Time Undergraduates in Bayero University Kano, Nigeria

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Abstract

This study investigated the effects of blended learning on the academic achievement of part-time undergraduate students in Kano State, Nigeria. The study employed a quasi-experimental pretest–posttest control group design. The population comprised 319 level 200 part-time undergraduate students of Bayero University, Kano, from which a sample of 60 students was selected using multi-stage sampling techniques. The participants were divided into an experimental group and a control group, each consisting of 30 students. The experimental group was exposed to blended learning, which combined face-to-face instruction with the use of a Learning Management System (LMS), while the control group was taught using the conventional lecture method. Data were collected using a standardized GSP 2201 (Use of English) achievement test. The data obtained were analyzed using independent samples t-test at a 0.05 level of significance. The findings revealed a significant difference in the mean academic achievement scores between students in the experimental and control groups in favour of the blended learning approach. However, no significant differences were found in academic achievement based on gender or academic discipline (Arts and Science). The study concluded that blended learning significantly enhances students' academic achievement regardless of gender and field of study. It was therefore recommended that higher institutions adopt blended learning as an instructional strategy, provide adequate technological infrastructure, and offer training for both lecturers and students to facilitate effective implementation.

Keywords: *Academic achievement, Blended learning, Learning Management System (LMS), higher education, Nigeria, part-time undergraduates.*

Introduction

Education is widely regarded as a critical component of human resource development. Students' academic achievement plays a vital role in producing high-quality graduates who can contribute effectively as leaders and skilled manpower for a nation's economic and social development. Academic achievement is also a key criterion considered by employers, particularly when recruiting fresh graduates (OECD, 2022; World Bank, 2023). Consequently, students are expected to strive for excellence in their academic pursuits in order to secure better career opportunities and meet labour market demands.

The contemporary educational landscape is increasingly characterized by the integration of technology in teaching and learning processes. Both educators and learners now utilize multiple technological platforms for communication, content delivery, and collaborative engagement. This shift has created diverse and flexible learning environments that support improved access to educational resources (UNESCO, 2023; Hodges et al., 2022). The widespread availability of computers and the internet has significantly contributed to the growth of online teaching and

learning environments, thereby transforming instructional delivery systems. As a result, the development of effective learning processes in education depends largely on the integration of innovative instructional strategies that enhance flexibility and improve academic outcomes (Means & Neisler, 2021).

Higher education is currently undergoing a transformation in its approaches to teaching and learning, particularly with the increasing use of both physical and virtual learning spaces. This transformation necessitates that institutions re-conceptualize and redesign their instructional practices to meet the demands of 21st-century learners (Bozkurt et al., 2021). Universities are no longer defined solely by their physical campuses but by the totality of the student learning experience, including engagement within digital environments.

Globally, the application of Information and Communication Technology (ICT) in education has significantly influenced teaching and learning in higher education. Initially, ICT tools such as email and internet platforms were primarily used for communication and information exchange. However, advancements in technology have expanded their role to support instructional delivery and enhance learning outcomes (Bond et al., 2021). Despite these advancements, research in educational technology has often focused on limited aspects such as instructional design and system development (Zawacki-Richter & Qayyum, 2022).

In Nigeria, although the ICT revolution has introduced new opportunities, its impact on educational technology development has been relatively limited due to insufficient awareness and implementation (Adebayo & Oladele, 2022). Traditional face-to-face instructional methods, once dominant in higher education, are increasingly being complemented or replaced by technology-driven approaches. This shift reflects the need to improve the effectiveness of teaching and learning processes and enhance students' academic achievement.

The integration of internet technologies into education has intensified academic activities and transformed instructional delivery. Teaching methods have evolved from purely face-to-face or distance learning modes to more integrated approaches that combine both. This has led to the growing adoption of blended learning as a prominent instructional strategy in higher education (Hrastinski, 2021).

Blended Learning (BL) combines face-to-face classroom instruction with online learning experiences. It emerged from efforts to harness the strengths of both traditional and digital learning environments. A blended course typically involves a significant proportion of instruction delivered through technological means (Garrison & Vaughan, 2022). This approach provides flexibility, enhances access to learning materials, and supports diverse learning needs, ultimately contributing to improved academic achievement.

Blended learning is considered one of the most innovative educational approaches of the 21st century. It addresses challenges such as increasing student enrolment, limited physical infrastructure, and the growing demand for flexible learning opportunities (OECD, 2022). By integrating technology into instruction, blended learning enhances the effectiveness of teaching, provides access to up-to-date information, and supports interactive and engaging learning experiences.

Although blended learning has been widely adopted in developed countries, its implementation in Nigeria is still emerging, primarily within private universities and selected public institutions (Okoye et al., 2023). The COVID-19 pandemic significantly accelerated the adoption of online

and blended learning approaches due to the closure of educational institutions. During this period, universities relied heavily on digital platforms such as Microsoft Teams, Google Classroom, Zoom, WhatsApp, and Learning Management Systems (LMS) to deliver instruction (UNESCO, 2022). This shift has had a lasting impact on higher education delivery in Nigeria.

Given these developments, there is a need to examine the effectiveness of blended learning in improving students' academic achievement. Therefore, this study investigates the effects of blended learning (using a Learning Management System) on the academic achievement of part-time undergraduate students in Kano State, Nigeria.

Statement of the Problem

Academic achievement remains a major concern in higher education, particularly among part-time undergraduate students who often face challenges such as limited study time, work commitments, and reduced access to conventional classroom interactions. In Nigerian universities, including those in Kano State, persistent reports of low academic performance among students have raised questions about the effectiveness of traditional teaching methods in meeting the diverse needs of learners.

The conventional face-to-face mode of instruction, which has long been the dominant approach in higher education, is increasingly proving insufficient in addressing the complexities of modern learning environments. Overcrowded classrooms, inadequate instructional resources, and limited contact hours further constrain effective teaching and learning, thereby affecting students' academic achievement. These challenges are even more pronounced among part-time students who require flexible and accessible learning systems.

With the advancement of Information and Communication Technology (ICT), blended learning has emerged as an innovative instructional approach that integrates face-to-face and online learning experiences. While this approach has gained considerable attention globally for its potential to enhance learning outcomes, its adoption and effectiveness in improving academic achievement within Nigerian higher education, particularly among part-time undergraduate students, remain inadequately explored.

Furthermore, although the COVID-19 pandemic accelerated the adoption of digital learning platforms in Nigerian universities, there is limited empirical evidence on how blended learning specifically influences students' academic achievement in this context. Many institutions have implemented Learning Management Systems (LMS) without a clear understanding of their impact on students' performance.

Therefore, the problem of this study is to determine whether the use of blended learning as an instructional approach can significantly improve the academic achievement of part-time undergraduate students in Kano State, Nigeria. This study seeks to fill this gap by examining the effectiveness of blended learning in enhancing students' academic performance, particularly in courses such as GSP 2201 (Use of English) at the School of Continuing Education, Bayero University, Kano.

Objectives of the Study

The study was guided by the following objectives:

i. To examine the effect of blended learning teaching approach on academic achievement among undergraduates in Kano State

ii. To find out the difference in the effect of blended learning teaching approach on academic achievement between male and female undergraduates in Kano State

iii. To find out the difference in the effect of blended learning teaching approach on academic achievement between Arts based and Science based undergraduates in Kano State

Hypotheses

The following hypotheses were formulated to guide the study:

i. There is no significant difference in the mean academic achievement scores between control and experimental groups.
ii. There is no significant difference in the mean academic achievement scores between male and female in the control and experimental groups.
iii. There is no significant difference in the mean academic achievement scores between Arts based and Science based in control and experimental groups.

Theoretical Framework

Constructivist Learning Theory

Constructivist Learning Theory states that learners actively construct their own knowledge and understanding based on their experiences, prior knowledge, and interaction with the environment. Learning is not simply receiving information from a teacher; rather, students build meaning through exploration, problem-solving, discussion, and reflection. The Major proponents are Jean Piaget and Lev Vygotsky.

Community of Inquiry (CoI) Framework

The Community of Inquiry Framework explains how meaningful learning occurs in online and blended learning environments. It suggests that effective learning emerges through the interaction of three types of presence:

1. Cognitive Presence – learners construct and confirm meaning through reflection and discussion.
2. Social Presence – learners interact socially and feel connected to others.
3. Teaching Presence – instructors design, facilitate, and guide learning activities.

The framework is widely used in e-learning research to assess the quality of online learning experiences. Developed by: Randy Garrison, Terry Anderson, and Walter Archer.

Technology Acceptance Model (TAM)

The Technology Acceptance Model explains why individuals accept or reject a technology. According to the model, two factors primarily determine users' intention to use technology:

1. Perceived Usefulness (PU) – the degree to which a person believes that using the technology will improve performance.
2. Perceived Ease of Use (PEOU) – the degree to which a person believes that the technology is easy to use. When users perceive a technology as useful and easy to use, they are more likely to adopt it. It was developed by: Fred Davis.

Relevance of the Theories

In a nutshell, this theory in a way that, constructivist Learning Theory explains how learning occurs. Community of Inquiry Framework explains how meaningful online learning environments are created. Technology Acceptance Model explains why students and lecturers adopt educational technologies. These three frameworks can be combined effectively in educational psychology and educational technology research.

Methodology

This study adopted a quasi-experimental pretest–posttest control group design to examine the effect of blended learning on students' academic achievement. Two groups were used: an experimental group exposed to blended learning and a control group taught using the conventional face-to-face method only. The population comprised 319 Level 200 part-time undergraduate students (B.A. Ed and B.Sc. Ed) enrolled in GSP 2201 (Use of English) at Bayero University, Kano. A sample of 60 students was selected through multi-stage cluster sampling, with 30 students assigned to the experimental group and 30 to the control group.

Data on academic achievement were collected using a standardized GSP 2201 achievement test consisting of 100 multiple-choice questions. The instrument generated scores ranging from 0 to 100 based on the number of correct responses.

The study was conducted in four phases: orientation, pretesting, treatment, and post-testing. During the orientation phase, students in the experimental group were introduced to the Learning Management System (LMS) used for the study and trained on how to access course materials and participate in online activities. The LMS served as the online component of the blended learning intervention and provided features such as content delivery, assignment submission, discussion forums, announcements, and feedback mechanisms.

Both groups completed a pretest before the intervention commenced. The treatment phase lasted six weeks. Students in the experimental group received instruction through a blended learning approach that combined weekly face-to-face classroom sessions with online learning activities delivered through the LMS. Face-to-face sessions focused on lectures, explanations of course concepts, and guided classroom discussions, while the LMS was used to provide lecture notes, supplementary reading materials, quizzes, discussion forums, assignments, and instructor feedback. Students were required to access learning resources online, participate in asynchronous discussions, complete assignments, and engage with course content outside scheduled classroom hours.

In contrast, students in the control group received the same course content exclusively through conventional face-to-face instruction, consisting of classroom lectures, note-taking, question-and-answer sessions, and paper-based assignments, without access to the LMS.

At the end of the six-week treatment period, both groups completed the post-test using the same achievement test instrument. The pretest and post-test scores were compared to determine changes in academic achievement resulting from the instructional approaches. Data were analyzed using inferential statistics, specifically the independent samples t-test, to determine whether a significant difference existed between the academic achievement of students exposed to blended learning and those taught through the conventional method at the 0.05 level of significance.

Results

Data Analyses

The data were analysed according to the hypotheses formulated and were tested with t-test for independent sample at a 0.05 level of significance.

Hypothesis One: There is no significant difference in the mean academic achievement scores between control and experimental groups.

Table 1: t-test for independent Sample in Mean Achievement Scores between Control and Experimental Groups.

Group	N	Mean	S.D	Std. Error Mean	t-value	df	*P* value	Decision
Experimental	30	60.9000	12.28498	2.24292				
Control	30	37.7000	5.70632	1.04183	9.381	58	.000	Sig.
Total	**60**							

The above table presents t-test for independent sample performed via SPSS to find out the significant difference in the mean academic achievement scores between control and experimental groups. From the table above, experimental group have a mean score of 60.90 while the control group are having a mean score of 37.70 respectively. The t value was found to be 9.381 with a sig. value of .000 which was <.05 meaning that the mean scores for the two groups differ significantly. Based on the findings therefore, the null hypothesis was rejected. Thus, it was concluded that there is a significant difference in the mean academic achievement scores between control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.

Hypothesis Two: There is no significant difference in the mean academic achievement scores between male and female in the control and experimental groups.

Table 2: t-test for independent Sample in Mean Academic achievement Scores between Male and Female in the Experimental Groups.

Group	N	Mean	S.D	Std. Error Mean	t-value	df	*P* value	Decision
Male	40	50.2000	14.13887	2.23555				
Female	20	47.5000	17.01547	3.80478	.651	58	.518	Not Sig.
Total	**60**							

The above table presents t-test for independent sample performed via SPSS to find out the significant difference in the mean academic achievement between male and female in the control and experimental groups. From the table above, males had a mean score of 50.20 while the females were having a mean score of 47.50 respectively. The t value was found to be .651 with a sig. value of .518 which was >.05 meaning that the mean scores for the two groups do not differ significantly. Based on the findings therefore, the null hypothesis was accepted. Thus, it was concluded that there is no significant difference in the mean academic achievement

scores between male and female in the control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.

Hypothesis three: There is no significant difference in the mean academic achievement scores between Arts based and Science based in control and experimental groups.

Table 3: t-test for independent Sample in Academic Achievement Mean Scores between Art-based and Science-based in the Control and Experimental Groups.

Group	N	Mean	S.D	Std. Error Mean	t-value	df	*P* value	Decision
Science	28	50.9643	15.66190	2.95982				
Art	32	47.8438	14.62016	2.58450	.798	58	.428	Not Sig.
Total	**60**							

The above table presented t-test for independent sample performed via SPSS to find out the significant difference in the mean academic achievement scores between Arts based and Science based in control and experimental groups. From the table above, science-based had a mean score of 50.96 while the Art-based were having a mean score of 47.84 respectively. The t value was found to be.798 with a sig. value of .428 which was >.05 meaning that the mean scores for the two groups do not differ significantly. Based on the findings therefore, the null hypothesis was accepted. Thus, it was concluded that there is no significant difference in the mean academic achievement scores between Arts based and Science based in control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.

Summary of Findings

The following are the summary of the findings based on the analyses presented:

1. There is a significant difference in the mean academic achievement scores between control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.
2. There is no significant difference in the mean academic achievement scores between male and female in the control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.
3. There is no significant difference in the mean academic achievement scores between Arts based and Science based in control and experimental groups among level 200 part-time undergraduates of Bayero University, Kano.

Discussion of Findings

The pretest results indicated that there was no statistically significant difference between the experimental and control groups before the intervention, suggesting that both groups were comparable at baseline. This finding strengthens the internal validity of the study and supports the conclusion that the differences observed in the post-test scores can be attributed primarily to the instructional approach rather than pre-existing differences among participants.

The study found that students exposed to blended learning achieved significantly higher academic performance than those taught through the conventional face-to-face method. This finding is consistent with previous studies that reported positive effects of blended learning on

student achievement and engagement (Bond et al., 2021; Means & Neisler, 2021; Hrastinski, 2021). The improved achievement observed among students in the blended learning group may be attributed to several factors. First, blended learning provides greater flexibility, allowing students to access learning materials at their convenience and revisit instructional content as needed. Second, the integration of online resources, quizzes, discussion forums, and feedback opportunities promotes active learning and sustained engagement with course content. Third, the combination of face-to-face interaction and online learning accommodates different learning styles and enables students to learn at their own pace while still benefiting from instructor support.

These advantages are particularly important for part-time undergraduate students, who often balance academic responsibilities with employment, family obligations, and other commitments. The flexibility afforded by blended learning enables such students to participate in learning activities beyond the traditional classroom setting, thereby reducing barriers associated with time and location. Consequently, blended learning can enhance access to educational opportunities and support improved academic outcomes among non-traditional learners.

The finding that gender did not significantly influence academic achievement aligns with studies by Alharthi (2021) and Martin and Bolliger (2022), which found no significant gender differences in learning outcomes within blended learning environments. This suggests that the blended learning approach provided equitable learning opportunities for both male and female students, allowing them to benefit similarly from the instructional intervention.

Similarly, the finding that academic discipline did not significantly affect students' achievement supports the assertion that blended learning can be effectively applied across different fields of study. This finding is consistent with Zawacki-Richter and Qayyum (2022), who reported that the flexibility, accessibility, and learner-centered nature of blended learning make it beneficial across diverse academic disciplines.

The findings of this study have important practical implications for university administrators and policymakers. University administrators should consider investing in reliable Learning Management Systems, digital infrastructure, and faculty development programmes to facilitate the effective implementation of blended learning. Adequate training for lecturers and students is essential to maximize the benefits of technology-enhanced learning environments. For policymakers, the findings provide empirical support for policies that promote the integration of blended learning into higher education curricula, particularly for part-time and adult learners. Such policies could enhance educational access, improve learning outcomes, and contribute to the development of more flexible and resilient higher education systems.

The finding that gender does not significantly influence academic achievement aligns with recent studies such as Alharthi (2021) and Martin and Bolliger (2022), who found no significant gender differences in students' performance in blended learning environments.

Conclusion

This study examined the effect of blended learning on the academic achievement of level 200 part-time undergraduate students at Bayero University, Kano. The findings revealed that blended learning significantly improved students' academic achievement compared to the conventional face-to-face method. This indicates that integrating online instructional tools with

traditional classroom teaching enhances students' learning outcomes and overall performance. Furthermore, the study established that gender does not significantly influence academic achievement, as both male and female students performed similarly under both instructional approaches. Likewise, no significant difference was found between Arts-based and Science-based students, suggesting that blended learning is equally effective across different academic disciplines. Overall, the study concludes that blended learning is an effective instructional approach for improving academic achievement among part-time undergraduate students.

Recommendations

1. Universities, especially in Kano State and Nigeria at large, should adopt blended learning as a standard instructional approach to enhance students' academic achievement, particularly among part-time undergraduate programmes.
2. Educational institutions should provide adequate technological facilities such as reliable internet access, functional Learning Management Systems (LMS), and digital learning resources to support the effective implementation of blended learning.
3. Universities should organize regular training and capacity-building programmes for both lecturers and students to improve their competence in using blended learning tools, thereby maximizing its impact on academic achievement.

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