

ATTITUDE TO AND EFFECT OF VIRTUAL LEARNING ON UNDERGRADUATES' ACADEMIC PERFORMANCE IN AN EDUCATION CORE COURSE

By

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Abstract

The rapid advancement of technology has significantly transformed the landscape of education globally, with virtual learning emerging as a prominent mode of instruction. Influence of learners' attitude to virtual learning and its effect on their academic performance on research method course is of paramount to education stake holders and the society at large. This will increase need for high quality research that solve problems and meets global publishing standards. This research aims to explore and understand the attitudes of Nigerian university undergraduates towards virtual learning and its potential impact on their academic performance. This is action research and an ex-post facto research design was adopted. The study population is undergraduates who had taken both Measurements and Evaluation and research techniques courses in faculty of Education in a Nigerian University in 2018/2019 and 2019/2020 academic session. A purposive sampling technique was used to choose a total of 2,931 students who had scores in both courses. A researcher designed questionnaire with reliability coefficient of 0.79 was used to elicit information from the respondent on their attitude, while Profoma was used to collect their scores in the two courses. Descriptive and inferential statistics were used to analyse the data collected. The results revealed that the undergraduates have positive attitude to virtual learning of EDU 316 and this in turn brings about good performance in the course. Also, importance of discipline-specific nuances in the effectiveness of virtual learning was revealed. Based on the findings of the study, it was recommended among others that more

effort should be made to provide enabling environment for online learning through establishment of online learning facilities in all schools.

Keywords: Attitudes, virtual Learning, Academic performance, Education Core Course

Introduction

In recent years, the landscape of higher education has undergone a significant transformation globally with the integration of technology playing a pivotal role. The emergence of virtual learning environments has presented both opportunities and challenges for students, particularly in developing countries like Nigeria. As the world grapples with the implications of the COVID-19 pandemic, the reliance on virtual learning has become more pronounced, making it crucial to examine how Nigerian university undergraduates perceive and engage with this mode of education and its impact on their academic performance.

Virtual Learning is known as e-Learning, Web-based learning, online learning, distributed learning, computer-assisted instruction, Internet-based learning or Distance Learning (Anekwe, 2017). It is primarily a web-based system of education that makes information or knowledge available to users or learners. On the whole, virtual learning disregards geographic proximity. Transition to virtual learning is a multifaceted process influenced by various factors, including technological infrastructure, pedagogical strategies, and individual student attitudes. Understanding how Nigerian university undergraduates navigate this shift is essential for educators, policymakers, and institutions striving to enhance the quality of education in the digital age.

Attitude refers to a psychological construct that represents an individual's evaluation, feelings, and behavioral tendencies toward a particular object, person, group, event, or idea. Attitudes play a crucial role in shaping human behavior, influencing how individuals perceive and respond to the world around them. Success of virtual learning is contingent upon the attitudes and adaptability of students. The shift from face-to-face instruction to virtual platforms requires a fundamental change in the learning approach, and students' perceptions and attitudes play a pivotal

role in determining the efficacy of this transition. Understanding how Nigerian university undergraduates perceive and engage with virtual learning is essential for educators, administrators, and policymakers seeking to optimize the use of technology in higher education.

Furthermore, the impact of virtual learning on academic performance is a subject that warrants thorough investigation. While technology offers unprecedented opportunities for interactive and flexible learning, it also introduces potential challenges such as digital inequities, distractions, and the need for self-discipline. Consequently, there is a need to investigate how virtual learning may influence learners' academic performance especially in a must passed education core course (EDU 316) before graduation from faculty of Education in Nigerian University. Research methods (EDU 316) is a compulsory course that provides learners with comprehensive understanding of research methodologies and statistical analysis. Essentially students are required to apply information gained in these courses to conduct an autonomous investigation in their respective area of study. From experience as one of the lecturers teaching this course students' performance is unsatisfactory and this reflects in undergraduates project writing. This observation corroborates Okebukola (2002) and Awe (2020) submission that the academic achievements of university students in research methods examination do not match the increasing need for high-quality research that meets both local and national publishing standards, with the primary objective of making significant contributions to the existing body of knowledge.

There is a growing interest in exploring the dynamics of virtual learning in the Nigerian higher education context. A study by Gordon and Gabriel (2021) examined the challenges and opportunities of virtual learning in Nigerian universities, shedding light on the experiences of both students and educators during the initial phases of the pandemic-induced transition. Their findings underscored the importance of addressing technological disparities and providing adequate support systems to facilitate effective virtual learning. Maisha and Shetu (2023) delved into the factors influencing the acceptance and adoption of virtual learning platforms among students. Their research emphasized the significance of understanding students' attitudes, perceptions, and motivations towards

virtual learning, highlighting how these factors contribute to the overall success or failure of the virtual learning experience.

However, despite the growing body of literature on virtual learning in Nigeria, there remains a notable gap in research specifically examining the attitude to and effect of virtual learning on undergraduates' academic performance in educational research methods which is a core course for faculty of education students in Nigerian university. This study aims to bridge this gap by exploring the nuanced perspectives, and assessing the direct impact on learners' academic performance in order to shape the future of higher education in the country. Hence, this study aims to investigate:

- a. attitudes of undergraduates in a in Nigeria University towards virtual learning of EDU 316
- b. effects of virtual learning on undergraduates' academic performance in EDU 316 in a Nigerian University
- c. effects of virtual learning on undergraduates' academic performance in EDU 316 based on department in a Nigerian University

Methodology

This is an action research which specifically aimed at improving teaching - learning process. The study adopted an ex-post facto research design. Participants' score in two mandatory team-taught courses were collected. Five academics (researcher inclusive) at the Faculty of Education taught the courses. Introduction to Measurements and Evaluation is the first course and is offer by second-year students in the Faculty of Education. It serves as a requirement for the subsequent course called Introduction to Educational Research Methods and Statistical Inferences, which is offer by third-year students in the Faculty of Education. In the 2018/2019 academic session, 3,635 students took the Measurements and Evaluation tests in their second year. These students were taught using face-to-face method.

During the 2019/2020 academic session, these students were in their third year and received online instruction (zoom) in Introduction to Educational Research Methods and Statistical Inferences from the same group of academics. A total of 3,254 students took the test on Introduction

to Educational Research Methods and Statistical Inferences. However, a total of 2931 students with complete records in both Measurements and Evaluation and Introduction to Educational Research Methods and Statistical Inferences in the academic years 2018/2019 and 2019/2020 respectively, were included in this study. Therefore, a purposive sampling technique was used. The examination items underwent content validation by professionals in the field of test and measurement. The acquired data, consisting of students' scores in the two courses was analysed employing descriptive statistics in the form of percentages to address the research question. In addition, inferential statistics- t-tests and Analysis of Variance (ANOVA) were used to test the hypotheses at a significance level of 0.05.

Results

Research One: What is the attitudes of undergraduates in a in Nigeria University towards virtual learning of EDU 316?

In order to answer research question one, participants’ responses to all items on their attitudes towards virtual learning of EDU 316 in the questionnaire were subjected to percentage analysis. The minimum, maximum and range score of respondents were 32, 57 and 25. The range was divided by two levels (negative and positive). The cut off was 13 approximately. Thus, 32-44 and 45-57 scores indicated negative and positive towards virtual learning of EDU 316 respectively.

Table 1: Descriptive Analysis of attitudes of undergraduates in a in Nigeria University towards virtual learning of EDU 316

Attitudes	Frequency	Percentage
Negative	469	16
Positive	2462	84
Total	2931	100

Table 1 shows the descriptive analysis of university of attitudes of undergraduates in a in Nigeria University towards virtual learning of EDU 316. It is revealed that 469, 32 (16%) and 2462 (84%) of the participants indicated negative and positive attitudes of towards virtual learning of EDU 316 respectively. Thus, attitudes of undergraduates in a Nigerian

University towards virtual learning of EDU 316 is positive because majority (84%) of the respondents indicated that.

Hypothesis One: There is no significant effects of virtual learning on undergraduates’ academic performance in EDU 316 in a Nigerian University.

In order to determine effects of virtual learning on undergraduates’ academic performance in EDU 316 in a Nigerian University, the undergraduates’ scores in EDU 212 and EDU316 were compared using paired sample t-test

Table 2: Summary of paired sampled t-test showing effects of virtual learning undergraduates’ academic performance in EDU 316 in a Nigerian University

Variable	N	Mean	SD	Df	t-value	p-value	Decision
EDU 212	2931	50.88	7.06	2929	5.50	0.00	NS
EDU 316	2931	53.89	8.67				

As shown on Table 2 the t-test calculated value is 5.50 while its p- value is 0.00 at alpha level of 0.05. The null hypothesis one is rejected since the p-value 0.00 is less than 0.05 alpha level ($0.00 < 0.05$). Thus, there is significant effects of virtual learning on undergraduates’ academic performance in EDU 316 in a Nigerian University. Higher mean of 53.89 in EDU 316 implies a significant better performance than their performance in EDU 212. This better performance in EDU 316 could be attributed to virtual learning of EDU 316.

Hypothesis Two: There is no significant effects of virtual learning on undergraduates’ academic performance in EDU 316 based on department in a Nigerian University

In order to determine effects of virtual learning on undergraduates’ academic performance in EDU 316 based on department in a Nigerian

University, the undergraduates’ scores in EDU316 based on department were compared using ANOVA statistics.

Table 3: ANOVA Summary Table showing effects of virtual learning on undergraduates’ academic performance in EDU 316 based on department in a Nigerian University

Group	SS	df	Mean Square	F	p-value	Decision
Between Groups	2821.06	8	352.63	84.97	0.00	NS
Within Groups	12138.52	2922	4.15			
Total	14959.580	2930				

Table 3 shows an F-value 84.97 which is significant at 0.05 alpha level. The null hypothesis two is rejected since the p-value 0.00 is less than 0.05 alpha level ($0.00 < 0.05$). Thus, there is significant effects of virtual learning on undergraduates’ academic performance in EDU 316 based on department in a Nigerian University. Duncan’s Post Hoc was carried out to find the sources of the difference on Table 4

Table 4: Duncan’s post hoc of significant effects of virtual learning on undergraduates’ academic performance in EDU 316 based on department in a Nigerian University

Department	Subset for Alpha	
	1	2
Arts Education	45.50	
Counsellor Education	46.25	
Human Kinetics	47.87	
Health Promotion	48.50	
Educational Management	50.10	
Science Education		54.25
Adults and Primary Education		56.09
Social Sciences Education		57.08
Educational Technology		58.67

Table 4 shows the Duncan's post hoc on significant of virtual learning on undergraduates' academic performance in EDU 316 based on department in a Nigerian University and a significant effect was revealed. Undergraduates from Science Education, Educational Technology, Adult and Primary Education and Social Sciences Education with higher means significantly performed better in EDU 316, which could be attributed to virtual learning of EDU 316.

Discussion of Findings

This study found that university of Ilorin undergraduates' attitudes towards virtual learning of EDU 316 is positive. This finding is in tandem with the study carried out by Zabadi and Al-Alawi (2016) in Saudi Arabian university. The findings revealed that the students had positive attitudes towards virtual learning.

The finding that there is a significant effect of virtual learning on undergraduates' academic performance in research methods suggests that the mode of instructional delivery, specifically through virtual learning platforms, has a noticeable impact on how students perform in their research methods courses. Several key factors and considerations such as flexibility and convenience, increase access to resources and interactive and engaging learning environments among others contribute to this finding. This finding is uncorrelated with the findings of Muhammad and Kainat (2020) which investigated Pakistani undergraduate students' attitudes towards distance learning in university courses amid COVID-19 pandemic. The findings of their research showed that online learning cannot achieve desirable results in developing countries. The reason lies in the fact that a vast majority of students cannot access the internet because of technical as well as financial matters, lack of face-to-face interaction with the instructor, response time, and the absence of classroom socialization.

Also it was revealed from this study that there is significant effects of virtual learning on undergraduates' academic performance in research methods based on department, such that Undergraduates from Science Education, Educational Technology, Adult and Primary Education and Social Sciences Education significantly performed better than their counterparts in other departments. It is unsurprising that undergraduates

from the Educational Technology department performed well, as these students are likely more accustomed to and comfortable with technology. The adaptability of virtual learning to diverse learning styles and preferences may be particularly beneficial in Adult and Primary Education, leading to improved academic performance. The positive performance in Social Sciences Education may be associated with virtual learning's capacity to facilitate engaging discussions, and the exploration of diverse perspectives, fostering higher levels of student engagement and motivation.

Conclusion

It was concluded from the study that the undergraduates have positive attitude to virtual learning of EDU 316 and this in turn brings about good performance in the course. Also, importance of discipline-specific nuances in the effectiveness of virtual learning was revealed.

Recommendations

Based on the discussion of the effects of virtual learning on undergraduates' academic performance in research methods the following recommendations are advanced:

- a. Effort should be made to provide enabling environment for online learning through establishment of online learning facilities in all schools.
- b. There is need for ongoing research and assessment on how virtual learning can be optimized for diverse academic contexts, ensuring that it aligns with the unique needs of each department.

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