

IMPACT OF DIGITAL PEDAGOGICAL CURRICULUM DELIVERY ON STUDENTS PERFORMANCE AND ENGAGEMENT IN SOUTH EAST UNIVERSITIES, NIGERIA

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Abstract

The growing advancement of digital technologies has reshaped curriculum delivery methods in higher education institutions worldwide, including Nigerian universities. This study examines impact of digital pedagogical curriculum delivery on students' performance and engagement in South East Universities, Nigeria. The design of the study was descriptive survey research design. The study was carried out in federal universities in South East, Nigeria. Stratified random sampling was used to select three federal universities in South East namely: University of Nigeria, Nsukka, Nnamdi Azikiwe University, Awka and Federal University of Science and Technology, Owerre. The population for this study was 1466 lecturers and students of the Departments of Arts Education in federal universities in South East, Nigeria. This comprises of 462 lecturers and 1004 students. The sample was 150 lecturers and 300 students. This comprises of University of Nigeria, Nsukka (50 lecturers, 100 students), Nnamdi Azikiwe University, Awka (50 lecturers, 100 students) and Federal University of Science and Technology, Owerre (50 lecturers, 100 students). The instrument for data collection for this study was a structured questionnaire titled "Digital Pedagogical Curriculum Impact on Students Performance and Engagement Questionnaire (DPCISPEQ)". The research instrument was face-validated by three experts. The result of the reliability test revealed that the cluster yielded a Cronbach's Alpha coefficient of 0.946, second cluster 0.88 while the cluster yielded a coefficient of 0.92. The data collected from the respondents were analysed using mean, standard deviation and t-test statistics. Findings from this research question showed that lecturers incorporate digital pedagogies such as online discussion forums, providing digital course materials (PDFs, slides, e-books), designing quizzes and assessments using online tools to a low extent. The study recommended among others that the school administration with help of the ministry of education should strengthen ICT infrastructure through provision of fund for the procurement of the facilities

Keywords: Impact, curriculum; curriculum delivery; digital pedagogies; performance;

Introduction

The integration of digital technologies into higher education has transformed curriculum delivery across universities worldwide, shifting instructional practices from conventional teacher-centred approaches to more interactive, learner-centred pedagogies. According to Godsk and Møller (2025), digital pedagogical curriculum delivery refers to the systematic integration of digital technologies, instructional strategies, and pedagogical principles in the planning, implementation, and evaluation of teaching and learning activities. It encompasses the use of learning management systems, virtual classrooms, multimedia resources, mobile learning, artificial intelligence, and collaborative digital platforms to facilitate effective knowledge acquisition and improve learning outcomes. Recent studies indicate that digital pedagogy enhances students' active participation, critical thinking, collaboration, and academic achievement when technology is meaningfully integrated into instruction rather than merely used as a substitute for traditional teaching methods (Nkomo, Daniel, & Butson, 2021). Within this context,

students' academic performance refers to the measurable learning outcomes demonstrated through examinations, continuous assessments, assignments, and the acquisition of knowledge and skills, while students' engagement denotes the behavioural, emotional, and cognitive involvement of learners in academic activities. Student engagement has consistently been identified as a critical predictor of academic success because engaged learners actively participate in learning, interact with peers and instructors, and demonstrate higher levels of motivation and persistence (Bergdahl, Bond, Sjöberg and Dougherty, 2024; Nkomo et al., 2021).

Globally, universities have increasingly adopted digital pedagogical practices following the COVID-19 pandemic, with blended and online learning becoming integral components of higher education. Current literature emphasizes that the effectiveness of digital curriculum delivery depends not merely on the availability of technology but on lecturers' pedagogical competence, instructional design, and students' readiness to utilize digital learning resources. Systematic reviews further reveal that interactive digital learning activities significantly improve student engagement and learning outcomes compared with passive content delivery, highlighting the importance of aligning technology with sound pedagogical practices (Amin & Abdullah, 2025; Godsk & Møller, 2025). In Nigeria, particularly in South-East universities, investments in digital infrastructure and e-learning platforms have increased in response to global educational trends. However, disparities in internet accessibility, digital literacy, electricity supply, institutional support, and lecturers' technological competence continue to influence the effectiveness of digital curriculum delivery. These contextual realities justify examining digital pedagogical curriculum delivery as an important determinant of students' academic performance and engagement within the region.

The study is anchored on the Technological Pedagogical Content Knowledge (TPACK) Theory, developed by Mishra and Koehler (2006), which explains that effective technology integration occurs when educators possess a balanced understanding of technology, pedagogy, and subject content. The framework suggests that meaningful learning is achieved when lecturers integrate appropriate digital technologies with effective instructional strategies and disciplinary knowledge to create engaging learning experiences. Recent empirical studies continue to identify TPACK as one of the most suitable theoretical frameworks for explaining the relationship between digital pedagogy, student engagement, and academic performance in higher education. Despite growing adoption of digital technologies in Nigerian universities, evidence regarding their influence on students' academic performance and engagement remains inconsistent. While some studies report significant improvements in learning outcomes through digital pedagogical practices, others attribute poor academic performance to inadequate digital infrastructure, insufficient pedagogical competence, limited institutional support, and unequal access to technology. Furthermore, few empirical studies have specifically investigated this relationship within universities in South-East Nigeria, where contextual challenges may differ from those in other regions.

This gap creates the need for the present study, which seeks to examine the impact of digital pedagogical curriculum delivery on students' academic performance and engagement in South-East universities, Nigeria. Findings from the study are expected to provide evidence for policymakers, university administrators, and lecturers in designing effective digital teaching strategies that enhance learning quality and improve students' educational outcomes.

Purpose of the Study

The main purpose of the study is to determine the innovative curriculum delivery through digital pedagogies in Nigerian universities. Specifically, study seeks to determine the:

1. extent lecturers in Nigerian universities incorporate digital pedagogies in curriculum delivery
2. impact of digital pedagogy on students' academic performance in South East universities
3. impact of digital pedagogy on students' engagement in South East universities

Research Questions

The following research questions guided the study:

1. To what extent do lecturers in Nigerian universities incorporate digital pedagogies in curriculum delivery?
2. What is the impact of digital pedagogy on students' academic performance in South East Universities
3. What is the impact of digital pedagogy on students' engagement in South East universities?

Hypotheses

The following null hypotheses are formulated for the study at 0.05 level of significance.

- HO₁:** Lecturers in Nigerian universities do not significantly incorporate digital pedagogies in curriculum delivery.
- HO₂:** Digital pedagogy has no significant effect on students' academic performance in South East universities
- HO₃:** Digital pedagogy has no significant effect on students' engagement in South East universities

Methods

The design of the study was descriptive survey research design. This design was considered appropriate for this study because it seeks opinions of respondents on innovative curriculum delivery through digital pedagogies in Nigerian universities. The study was carried out in federal universities in South East, Nigeria. Stratified random sampling was used to select three federal universities in South East namely: University of Nigeria, Nsukka, Nnamdi Azikiwe University, Awka and Federal University of Science and Technology, Owerre. The population for this study was 1466 lecturers and students of the Departments of Arts Education in federal universities in South East, Nigeria. This comprises of 462 lecturers and 1004 students. The sample was 150 lecturers and 300 students. This comprises of University of Nigeria, Nsukka (50 lecturers, 100 students), Nnamdi Azikiwe University, Awka (50 lecturers, 100 students) and Federal University of Science and Technology, Owerre (50 lecturers, 100 students). The instrument for data collection for this study was a structured questionnaire titled "Digital Pedagogical Curriculum Impact on Students Performance and Engagement Questionnaire "(DPCISPEQ)" developed by the researchers. It was divided into two parts (I & II). Part I elicits information on the respondent personal data, while part II was used to collect data for answering the research questions. The part II was further divided into three sections (A, B & C), according to the research questions. The research instrument was face-validated by three experts. The result of the reliability test revealed that the cluster yielded a Cronbach's Alpha coefficient of 0.946, second cluster 0.88 while the cluster yielded a coefficient of 0.92. The data for this study was collected by the researchers with the help of three research assistants. Data collected were analyzed using mean and standard deviation for answering the research questions and t-test for testing the hypothesis.

Results

Research Question 1: To what extent do lecturers in Nigerian universities incorporate digital pedagogies in curriculum delivery?

Table 1: Mean and Standard Deviation of Respondents on the Extent do Lecturers in Nigerian Universities Incorporate Digital Pedagogies in Curriculum Delivery

S/N	Item Statement	N	Mean	SD	Remark
1	I regularly use Learning Management Systems (LMS) for my courses.	50	2.28	0.99	LE
2	I incorporate multimedia (videos, simulations, animations) into my lectures.	50	2.31	0.86	LE
3	I use online discussion forums to engage students.	50	2.54	0.98	HE
4	I provide digital course materials (PDFs, slides, e-books) to students.	50	2.75	1.16	HE
5	I design quizzes and assessments using online tools.	50	2.50	0.75	HE
6	I encourage students to submit assignments electronically.	50	2.86	0.70	HE
7	I use interactive platforms (like Kahoot, Mentimeter) to enhance engagement.	50	1.25	0.70	VLE
8	I integrate collaborative tools (Google Docs, Microsoft Teams) for group work.	50	1.31	0.71	VLE
9	I use virtual classrooms for lectures or tutorials.	50	2.34	0.87	LE
10	I explore new digital tools to improve curriculum delivery.	50	2.70	0.86	HE
11	I adjust my teaching methods based on feedback from online platforms.	50	2.78	0.83	HE
12	I use email or LMS messaging to communicate regularly with students.	50	2.46	0.81	LE
13	I provide online supplementary resources for students needing extra help.	50	2.50	0.73	HE
14	I track student participation using digital platforms.	50	2.44	0.90	LE
15	I adapt curriculum content to suit online delivery methods.	50	2.58	1.01	HE
Cluster Mean		50	2.42	0.65	LE

KEY: VHE = Very High Extent (3.50 -4.00); HE-High Extent (2.50 -3.49); LE-Low, Extent (1.50 -2.49); VLE- Very Low Extent (0. 50 -1.49)

Results in Table 1 showed that items 1, 2, 9, 12 and 14 had their mean rating between 1.50-2.49. Hence, the extent lecturers in Nigerian universities incorporate digital pedagogies in curriculum delivery were to a Low Extent (LE). Items 3, 4, 5, 6, 10, 11, 13 and 14 had their mean rating between 2.50 – 3.49, hence, the extent lecturers incorporate these digital pedagogies in curriculum delivery was to a High Extent (HE). While items 7 and 8 had mean rating between 0.50-1.49, hence the incorporation of these digital pedagogies in curriculum delivery by lecturers was to a Very Low Extent (VLE). A cluster mean of 2.42 showed overall that the incorporation of these digital pedagogies in curriculum delivery by lecturers was to a low extent. The standard deviation of 0. 65 means that the respondents' responses were not far from each other.

Research Question 2: What is the impact of digital pedagogy on students' academic performance in South East Universities

Table 2: Mean and Standard Deviation of Respondents on the Impact of Digital Pedagogy on Students' Academic Performance in South East Universities

S/N	ITEM STATEMENT	N	MEAN	SD	REMARK
16	The use of digital learning platforms has improved my academic performance.	50	2.84	0.50	HE
17	Digital teaching methods make it easier for me to understand course content.	50	2.86	0.57	HE
18	My lecturers effectively use digital technologies during teaching and learning.	50	2.00	0.78	LE
19	Access to online learning materials has enhanced my academic achievement.	50	2.90	0.50	HE
20	Digital pedagogy has increased my interest in learning.	50	2.80	0.63	HE
21	I participate more actively in classes that use digital teaching tools.	50	2.90	0.58	HE
22	The use of digital technologies has improved my critical thinking and problem-solving skills.	50	2.94	0.61	HE
23	Poor internet connectivity negatively affects my academic performance during digital learning.	50	2.92	0.60	HE
24	I am confident in using digital learning tools for academic purposes.	50	1.56	0.61	LE
25	Digital pedagogy has improved communication between lecturers and students.	50	3.14	0.63	HE
Cluster Mean		50	2.70	0.26	HE

KEY: VHE = Very High Extent (3.50 -4.00); HE-High Extent (2.50 -3.49); LE-Low Extent (1.50 -2.49); VLE- Very Low Extent (0.50 -1.49)

In Table 2, the results showed that items 16, 17, 19, 20, 21, 22, 23 and 25 had their mean rating between 2.50 -3.49. Hence, the impact of digital pedagogy on students' academic performance was to a High Extent (HE). Items 18 and 24 had their mean rating between 1.50-2.49, hence, the impact of these digital pedagogies on students' academic performance was to a Low Extent (LE). A cluster mean of 2.70 showed overall that the impact of digital pedagogy on students' academic performance was to a high extent. The standard deviation of 0.26 means that the respondents' responses were not far from each other.

Research Question 3: What is the impact of digital pedagogy on students' engagement in South East universities?

Table 3: Mean and Standard Deviation of Respondents on the Impact of Digital Pedagogy on Students' Engagement in South East universities

S/N	ITEM STATEMENT	N	MEAN	SD	REMARK
26	The use of digital learning platforms increases my participation during lectures.	50	3.00	0.57	HE

27	Digital teaching methods make learning more interesting and engaging.	50	2.98	0.58	HE
28	I actively participate in online discussions facilitated by my lecturers.	50	2.96	0.57	HE
29	Digital learning tools improve my interaction with lecturers.	50	3.00	0.49	HE
30	The use of multimedia (videos, animations, and simulations) enhances my understanding of course content.	50	3.02	0.62	HE
31	I am more motivated to study when digital technologies are integrated into teaching.	50	2.96	0.63	HE
32	Digital pedagogy encourages me to collaborate with my classmates on academic tasks.	50	2.92	0.63	HE
33	I regularly access online learning resources provided by my lecturers.	50	2.88	0.55	HE
34	The use of digital technologies has improved my attendance and participation in virtual or blended classes.	50	2.88	0.59	HE
35	I find it easier to complete assignments using digital learning platforms.	50	2.84	0.58	HE
Cluster Mean		50	2.94	0.45	HE

KEY: VHE = Very High Extent (3.50 -4.00); HE-High Extent (2.50 -3.49); LE-Low Extent (1.50 -2.49); VLE- Very Low Extent (0.50 -1.49)

In Table 3, the results showed that all the items had their mean rating between 2.50 -3.49. Hence, the impact of digital pedagogy on students' engagement was to a High Extent (HE). A cluster mean of 2.94 showed overall that the impact of these digital pedagogy on students' engagement was to a high extent. The standard deviation of 0.45 means that the respondents' responses were not far from each other.

Hypothesis 1: Lecturers in Nigerian universities do not significantly incorporate digital pedagogies in curriculum delivery.

Table 4: One-Sample t-test on the Extent of Digital Pedagogy Incorporation by Nigerian Universities Lecturers in Curriculum Delivery

Item Statement	N	Mean	SD	T	Df	p-value	Decision
Digital Pedagogy Usage Score	50	2.42	.65	.837	49	.407	Accept

Results on Table 4 showed the extent of digital pedagogy usage among lecturers. It revealed a mean score of 2.42 with a significant value of 0.407 ($p > 0.05$). Since the mean score of 2.42 is below the criterion mean of 2.50, it indicates that the extent of digital pedagogy incorporation among lecturers is relatively low. Furthermore, the p-value of 0.407 is greater than the 0.05 level of significance, which implies that the observed difference is not statistically significant. Therefore, the null hypothesis was not rejected, indicating that lecturers in Nigerian universities do not incorporate digital pedagogies in curriculum delivery.

Hypothesis 2: Digital pedagogy has no significant impact on students' academic performance in South East universities

Table 5: One-Sample t-test on Impact of Digital Pedagogy on Students' Academic Performance in South East Universities

Item Statement	N	Mean	SD	t	df	p-value	Decision
Students' Academic Performance Score	50	2.70	0.26	5.477	49	.000	Reject

Results on Table 5 showed the impact of digital pedagogy on students' academic performance. It revealed a mean score of 2.70 with a significant value of 0.000 ($p > 0.05$). Since the mean score of 2.70 is higher than the criterion mean of 2.50, it indicates that the impact of digital pedagogy on students' academic performance is relatively high. Furthermore, the p-value of 0.000 is lesser than the 0.05 level of significance, which implies that the observed difference is statistically significant. Therefore, the null hypothesis was rejected, indicating that digital pedagogy has a statistically significant impact on students' academic performance

Hypothesis 3: Digital pedagogy has no significant impact on students' engagement in South East universities

Table 6: One-Sample t-test on Impact of Digital Pedagogy on Students' Engagement in South East Universities

Item Statement	N	Mean	SD	t	df	p-value	Decision
Students' Engagement Score	50	2.94	0.45	6.97	49	.000	Reject

Results on Table 6 showed the impact of digital pedagogy on students' engagement. It revealed a mean score of 2.94 with a significant value of 0.000 ($p > 0.05$). Since the mean score of 2.94 is higher than the criterion mean of 2.50, it indicates that the impact of digital pedagogy on students' engagement is relatively high. Furthermore, the p-value of 0.000 is lesser than the 0.05 level of significance, which implies that the observed difference is statistically significant. Therefore, the null hypothesis was rejected, indicating that digital pedagogy has a statistically significant impact on students' engagement.

Discussion of Findings

This section discussed the result of the study based on the research questions guiding the study. Results from research question one showed the extent lecturers in Nigerian universities incorporate digital pedagogies in curriculum delivery. Findings from this research question showed that lecturers incorporate digital pedagogies such as online discussion forums, providing digital course materials (PDFs, slides, e-books), designing quizzes and assessments using online tools, encouraging students to submit assignments electronically, providing online supplementary resources and adapting curriculum content to suit online delivery methods to a high extent. This result aligns with research findings by Vaal and Lebelo (2026) who found out that lecturers actively integrate digital tools and teaching strategies in blended-learning environments. Similarly, Ntim (2024) found that the integration of technology into higher education pedagogy was rated very highly among academic staff in Ghana.

Results from research question two showed the impact of digital pedagogy on students' academic performance in South East Universities. Findings from this research question showed that the use of digital learning platforms; digital teaching methods; digital teaching tools' impact on students' academic performance to a high extent. This result agrees with the work of Sindiramutty (2026), who found that students using interactive digital tools significantly outperformed those in traditional learning environments, with higher academic scores levels. Additionally, Osuji and Wokoma (2024) study also revealed that digital learning platforms in Nigerian higher education like LMS and online systems significantly enhance student achievement.

Results from research question two showed the impact of digital pedagogy on students' engagement in South East Universities. Findings from this research question showed that the use of digital pedagogies impact on students' engagement to a high extent. This finding is line with Nkomo, Daniel, and Butson (2021) who found out in their research that digital pedagogies, including collaborative learning platforms, educational videos, and social media-based instruction, significantly enhanced students' behavioral, emotional, and cognitive engagement. The researchers concluded that well-designed digital learning environments encourage active participation, collaboration, and sustained interest in learning, thereby improving overall student engagement. Also in a systematic review on technology integration in mathematics education, Ali, Yasmeen, and Munawar (2023), reported that digital pedagogies significantly improved students' classroom engagement. The study concluded that technology-supported pedagogy creates more engaging learning experiences than traditional teaching methods.

Conclusion

The study concludes that digital pedagogical curriculum delivery has a significant influence on students' academic performance and engagement in universities in South East Nigeria. The integration of digital technologies into teaching and learning has enhanced students' access to educational resources, promoted interactive learning experiences, and improved collaboration between lecturers and students. These benefits have contributed to better academic outcomes, increased participation and higher levels of motivation among students. However, the effectiveness of digital pedagogy depends on the availability of adequate technological infrastructure, reliable internet connectivity, digital literacy among both lecturers and students, and institutional support. Challenges such as inadequate funding, inconsistent power supply and unequal access to digital devices continue to limit the full realization of its benefits. Therefore, while digital pedagogical curriculum delivery presents considerable opportunities for improving higher education in South East Nigerian universities, sustained investment in digital infrastructure, continuous capacity building, and supportive educational policies are essential to maximize its impact on students' performance and engagement.

Recommendation

Based on the findings of the study, the following recommendation were made;

1. The school administration with help of the ministry of education should strengthen ICT infrastructure through provision of fund for the procurement of the facilities
2. Government should increase funding for digital transformation and educational technology in universities.
3. Lecturers should adopt interactive digital teaching methods such as virtual discussions, online quizzes, multimedia resources, and collaborative learning tools to improve students' engagement and academic performance.

4. Students should be provided with digital literacy training to enable them to effectively utilize digital learning platforms and educational technologies.
5. Universities should develop policies for monitoring and evaluating the effectiveness of digital pedagogical curriculum delivery.

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