DIGITAL PEDAGOGY AND ACADEMIC ACCOUNTABILITY AMONG UNDERGRADUATE BUSINESS EDUCATION STUDENTS IN RIVERS STATE-OWNED UNIVERSITIES.

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Abstract

This study investigated the relationship between digital pedagogy and academic accountability among undergraduate Business Education students in Rivers State-owned universities in the Niger Delta. Guided by two research questions and two hypotheses, the study adopted a correlational research design. The population comprised 1,727 students from Rivers State University and Ignatius Ajuru University of Education. The sample size of the is 325 students gotten through Taro Yamen formula for sample size determination. The instruments for data collection was a 4-point rating scale structured questionnaire titled, 'Digital Pedagogy' (DIGPEDQ) and Academic Accountability (ACADAQ) Questionnaire. The data collected were analyzed using Pearson Product Moment Correlation to answer the research questions and test the null hypotheses at 0.05 level of significance. Results showed that digital pedagogy (learning objectives and teaching methods significantly enhanced students' academic accountability, particularly in assignment completion, participation, and ethical use of digital tools. A strong positive relationship was found between digital pedagogy and overall accountability. The study recommends among other that Business Educators should focus on attaining the learning objectives while teaching and Business Education curriculum should be enriched with more technology-driven instructional activities that promote academic accountability.

Keywords: Digital pedagogy, Academic accountability, learning objectives, academic accountability

Introduction

Education in the 21st century is experiencing an unprecedented transformation through the integration of technology into teaching and learning processes. The shift from traditional pedagogical methods to digital pedagogy has redefined how knowledge is disseminated, accessed, and evaluated in higher institutions globally. Digital pedagogy, which involves the use of digital tools, platforms, and technology-enhanced strategies in teaching, not only facilitates flexible learning but also fosters transparency and accountability in academic practices (Beetham & Sharpe, 2019 Unlike traditional pedagogy, which relies heavily on face-to-face interaction, digital pedagogy integrates online platforms, virtual classrooms, and digital resources to improve learning outcomes (Beetham & Sharpe, 2019). It includes tools such as Learning Management Systems (Moodle, Canvas, Google Classroom), collaborative platforms (Zoom, Microsoft Teams), and academic integrity software. In an era where integrity and excellence are core values in education, the indices of digital pedagogy such as learning objectives, teaching approach and assessment strategies emerges as a critical tool for ensuring that students uphold academic responsibility and ethical standards.

Learning objectives are a critical index of digital pedagogy because they define the intended learning outcomes and guide the design, implementation, and assessment of technology-mediated instruction. In digital pedagogy, well-articulated learning objectives ensure that the use of technology aligns with educational goals rather than merely serving as a tool for novelty (Anderson & Krathwohl, 2001). They act as a road-map, helping instructors select appropriate digital resources, platforms, and strategies that support active and meaningful learning. According to Bloom's revised taxonomy, learning objectives span cognitive, affective, and psychomotor domains, which digital tools can enhance through interactive simulations, multimedia, and adaptive learning systems (Anderson & Krathwohl, 2001). For instance, cognitive objectives such as analysis and evaluation can be achieved through online discussions and collaborative problem-solving environments, while affective objectives such as developing motivation or attitudes can be fostered via gamified learning platforms and social learning communities (Garrison & Vaughan, 2008). Moreover, digital pedagogy emphasizes constructive alignment ensuring that learning activities and assessments correspond directly with learning objectives (Biggs & Tang, 2011). When objectives are clear, educators can integrate technologies such as learning management systems (LMS), analytics dashboards, and e-assessment tools to track learner progress and provide feedback aligned with expected outcomes. This alignment enhances transparency, learner autonomy, and accountability in digital learning environments (Siemens, 2014). Learning objectives are not just instructional tools but foundational indices that determine the effectiveness and coherence of digital pedagogy. They ensure that digital technologies are purposefully integrated to support learning outcomes, encourage engagement, and measure achievement within a structured pedagogical framework.

Teaching approach as an index of digital pedagogy and its link to academic accountability cannot be underestimated or over emphasized. Teaching approach is an important part of digital pedagogy because it shows how teachers plan, deliver, and guide learning using digital tools. It includes the different methods and ideas teachers use to help students learn whether the teacher leads the lesson or the students take an active role (Laurillard, 2012). In digital teaching, the approach used determines how well technology helps students learn, work together, and meet their individual needs (Garrison & Vaughan, 2008). For example, when teachers use approaches like constructivism or connectivism, students learn by exploring online materials, sharing ideas with classmates, and engaging with teachers through platforms such as discussion forums, learning management systems, and multimedia tools (Siemens, 2014). A digital teaching approach that promotes active participation supports academic accountability because it makes teaching and learning more transparent and measurable. Academic accountability means that teachers and schools are responsible for showing that their teaching is effective and ethical (Shulman, 2005). With digital tools, teachers can use data from online assessments and learning analytics to track students' progress and performance. This helps them adjust lessons quickly and give personalized feedback, improving both learning quality and accountability (Selwyn, 2016). When teachers apply flexible and reflective methods like flipped classrooms, blended learning, or problem-based learning they encourage students to think critically and learn independently (Anderson, 2008). These methods not only enhance learning outcomes but also ensure that teaching meets educational goals, standards, and ethical principles. Therefore, teaching approach is both a key indicator of effective digital pedagogy and a measure of academic responsibility, linking innovation with quality and integrity in education.

Business Education is an academic program designed to equip learners with knowledge, skills, attitudes, and values necessary for entrepreneurship, employability, and professional practice. Nwokike, (2020) highlights that it combines theoretical knowledge with practical applications to prepare students for both business careers and self-employment. The adoption of digital pedagogy in Business Education is crucial because the discipline emphasizes ethics, accountability, and technological competence as part of professional readiness. According to Omodara and Olufemi (2021), Business Education graduates are expected to demonstrate accountability, entrepreneurial orientation, and ICT competence to thrive in a digital economy

In Nigeria, the adoption of digital pedagogy has been accelerated by factors such as globalization, the aftermath of the COVID-19 pandemic, and reforms in higher education curricula like the Core Curriculum Minimum Academic Standards (CCMAS). Business Education, which aims to prepare students for both academic and entrepreneurial competencies, places strong emphasis on accountability, ethical practices, and skill acquisition. However, challenges such as academic dishonesty, late submissions, poor participation, and misuse of digital resources continue to undermine accountability among undergraduates (Okoye & Okafor, 2022). This raises concerns

about whether the integration of digital pedagogy genuinely enhances accountability or merely provides new avenues for misconduct.

Academic accountability is the responsibility of students to engage honestly, ethically, and responsibly in their learning processes and comply with institutional standards, (Sharma & Alvi, 2020). It involves punctuality in academic submissions, originality in assignments, adherence to institutional rules, and active participation in learning activities. Accountability is not limited to students alone but extends to lecturers and institutions who are responsible for enforcing standards and ensuring quality learning. Indicators of academic accountability include academic honesty, compliance with deadlines, evidence of self-directed learning, and respect for intellectual property. In higher education, digital tools such as plagiarism detection software and e-portfolios play a significant role in promoting accountability (Okoye & Okafor, 2022).

Pedagogy refers to the art and science of teaching, encompassing the methods, strategies, and principles used by educators to facilitate learning. It is not limited to content delivery but also involves creating environments where learners actively engage, reflect, and construct knowledge. Traditionally, pedagogy was teacher-centered, focusing on transmission of knowledge from the instructor to the learner. However, contemporary approaches emphasize learner-centered methods, collaborative learning, and critical thinking, aligning with the demands of a dynamic 21st-century education system (Alexander, 2020). Pedagogy is therefore dynamic, shaped by cultural, technological, and social changes, and serves as the foundation for innovations such as digital pedagogy, which integrates technology to enhance accountability, inclusivity, and engagement in higher education (Beetham & Sharpe, 2019). Through digital pedagogy, lecturers can track student engagement, monitor submission timelines, and detect plagiarism using technology-enabled platforms. Moreover, digital platforms encourage independent learning, promote collaboration, and provide real-time feedback that reinforces accountability (Henderson, Selwyn & Aston, 2017). For Business Education undergraduates, who are expected to demonstrate both professional ethics and employable skills, accountability cultivated through digital learning is critical for success in today's competitive knowledge economy.

Educational ethics refers to the principles and values that guide academic conduct, while academic integrity is the commitment to honesty, trust, fairness, respect, and responsibility in education (Fishman, 2016). In higher education, ethical practices demand that students avoid plagiarism, cheating, fabrication, and other forms of academic dishonesty. Digital pedagogy has a dual role in ethics: on the one hand, it provides tools to monitor integrity (e.g., plagiarism detection software). Hendy, (2022), on the other, is of the opinion that it can be misused for unethical purposes such as online cheating or contract writing Therefore, accountability becomes a central measure of whether digital pedagogy strengthens or undermines ethics in education.

Despite these potentials, according to Adebayo and Soyebo, (2021) there are concerns regarding the accessibility, effectiveness, and ethical implications of digital pedagogy in Nigerian universities. Inconsistent internet connectivity, inadequate digital infrastructure, low digital literacy among both lecturers and students, and resistance to pedagogical change have been identified as barriers These challenges often hinder the realization of accountability goals and call for empirical studies to establish the true impact of digital pedagogy on student responsibility.

It is against this backdrop that this study investigates the effect of digital pedagogy on enhancing academic accountability among Business Education undergraduates in universities in the Niger Delta using Rivers State – owned universities as case study. The study seeks to contribute to the discourse on ethics, excellence, and accountability in education by providing empirical evidence on how technology-driven teaching methods influence academic behavior and outcomes.

The demand for effective pedagogical practices in higher education has intensified due to the increasing integration of digital technologies in teaching and learning. Business Education, in particular, requires innovative instructional approaches that not only equip students with relevant technical and professional competencies but also foster academic accountability, integrity, and responsibility. However, despite national reforms such as the Core Curriculum Minimum Academic Standards (CCMAS), evidence suggests that many Nigerian universities still struggle to embed digital pedagogy effectively into their instructional processes (Egielewa, 2022). Studies reveal that while online learning gained prominence during the COVID-19 pandemic, infrastructural gaps, limited digital literacy, and inconsistent pedagogical practices have continued to hinder its effectiveness in Nigerian higher institutions (Ogolodom et al., 2022; Digital learning modalities in Nigerian higher education, 2024). These challenges are particularly critical in professional disciplines such as Business Education, where practical exposure and accountability mechanisms are essential for producing employable graduates. Furthermore, the rise of artificial intelligence tools, such as ChatGPT, has introduced new complexities to academic accountability. While such tools can support teaching and learning, their misuse has been linked to increased risks of plagiarism and reduced originality among undergraduates in Nigerian universities (Adam, 2024). This development raises concerns about how well institutions can monitor and enforce accountability in digital learning environments. Rivers State, a major educational hub in the Niger Delta, provides a unique context for examining these challenges. Reports suggest that undergraduates in state-owned universities often face limited access to digital instructional tools, weak monitoring systems, and inadequate pedagogical support for fostering accountability (Inaja, Onabe, Idika, & Orji, 2024). These issues not only hinder effective learning outcomes but also threaten the employability and global competitiveness of graduates. Therefore, there is a pressing need to investigate how digital pedagogy can enhance academic accountability among Business Education undergraduates in Rivers State-owned universities, with implications for broader policy and practice in Nigerian higher education.

The main purpose of the study is to ascertain how digital pedagogy relates to academic accountability of undergraduate Business Education Students in Rivers State-owned universities. Specifically, it sought to ascertain:

13. How learning objectives relates to academic accountability of undergraduate Business Education students in Rivers State owned universities.

14. How teaching approach relates to academic accountability of undergraduate Business Education students in Rivers State owned universities

The following research questions guided the study:

4. How does learning objectives relates to academic accountability of undergraduate Business Education students in Rivers State owned universities?

5. How does teaching approach relates to academic accountability of undergraduate Business Education students in Rivers State owned universities?

The following null hypothesis were tested at 0.05 level of significance:

13. There is no significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities.

14. There is no significant relationship between teaching approach and academic accountability of Business Education undergraduates in Rivers State-owned universities.

Methodology

Correlational research design was used for the study. The study was conducted in Rivers State, Nigeria, focusing on the two state-owned universities that offer Business Education: Rivers State University (RSU) and Ignatius Ajuru University of Education (IAUE). The population of the study comprises 1,727 undergraduate Business Education students from the two universities under study. The sample size of 325 respondents was determined using Taro Yamane's formula for sample size determination at 95% confidence level. A proportionate stratified random sampling technique was used to ensure fair representation across universities and levels. The instruments for data collection was a 4-point rating scale structured questionnaire titled, 'Digital Pedagogy' (DIGPEDQ) and Academic Accountability (ACADAQ) Questionnaire. The questionnaire was validated by three experts: two in Business Education and one in Measurement and Evaluation from Rivers State University. The reliability of the instrument was established through a pilot test using 30 Business Education students from Niger Delta University (NDU) Wilberforce Island outside the study area.

The data was analyzed using Cronbach's Alpha coefficient, with a reliability coefficient of 0.82. The researchers, with the help of two assistants, personally administered the instruments to the respondents. Out of the 325 copies of the instruments distributed only 296 were retrieved and used for analysis. The data collected were analyzed using Pearson Product Moment Correlation to answer the research questions and test the null hypotheses at 0.05 level of significance. The research questions were answered based on the following values: ± 0.100–0.399 Low relationship, ±-0.-0.699 Moderate relationship, ± 0.700-0.999 Strong relationship, ± 1.000- and above Very strong relationship.

Decision for the acceptance and rejection of each research questions and hypothesis was made as thus: if the calculated "r" value is greater than the table value, the hypothesis was rejected and if otherwise, it is retained.

Research Question 1: How does learning objectives relates to academic accountability of undergraduate Business Education students in Rivers State owned universities?

Table 1: Relationship between learning objectives and academic accountability of undergraduate Business Education students in Rivers State owned universities

(n=296)

∑X Variable	∑X ∑Y	∑Y2	∑X	r
Learning Objectives	845.97	176.10	151.42	0.87
Academic Accountability.	871.40	170.17		

r-critical=0.179

The table above shows that there is a positive relationship between learning objectives and academic accountability of Business Education Students The calculated 'r' value of 0.87 as shown on the table indicates that it is within the third category of ± 0.700 to 0.999 which is strong positive relationship.

Research Question 2: How does teaching approach relates to academic accountability of undergraduate Business Education students in Rivers State owned universities?

Table 2: Relationship between how teaching approach relates to academic accountability of undergraduate Business Education students in Rivers State owned universities?

(n=296)

∑X Variable	∑X ∑Y	∑Y²	∑X	r
Teaching Approach skills	836.03	185.74	144.39	0.81
Academic Accountability	871.40	170.17		

r-critical=0.179

The table above shows that there is a positive relationship between teaching approach and academic accountability of undergraduate Business Education students in Rivers State owned universities. The calculated 'r' value of 0.81 as shown on the table indicates that it is within the third category of ±. 0.700 to 0.999 which is strong positive relationship.

Hypothesis 1: There is no significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities.

Table 3: Relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities.

(n=296)

∑X Variable	∑X	∑Y	∑Y²	∑X	r
Learning Objectives		845.97	176.10	151.42	0.87
Academic Accountability		871.40	170.17		

r-critical=0.179

The above table shows that the calculated r-value of 0.87 is greater than the r-critical value of 0.179 at 0.05 level of significance. Therefore, the null hypothesis which states that there is no significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities is rejected, meaning that There is a significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities.

Hypothesis 2: There is no significant relationship between teaching approach and academic accountability of Business Education undergraduates in Rivers State-owned universities

Table 4: Relationship between teaching approach and academic accountability of Business Education undergraduates in Rivers State-owned universities

(n=296)

∑X Variable	∑X	∑Y	∑Y²	∑X	r
Teaching Approach skills		836.03	185.74	144.39	0.81
Academic Accountability		871.40	170.17		

r-critical=0.179

The above table shows that the calculated r-value of 0.81 is greater than the r-critical value of 0.179 at 0.05 level of significance. Therefore, the null hypothesis which states that there is no significant relationship between teaching approach and academic accountability of Business Education undergraduates in Rivers State-owned universities is rejected.

Discussion

Table 1: Shows that there is a positive relationship between learning objectives and academic accountability of Business Education Students. The calculated 'r' value of 0.87 as shown on the table indicates that it is within the third category of ± 0.700 to 0.999 which is strong positive relationship. The result reveals that students agreed that lecturers make use of digital tools for instruction, assignments are often submitted online, and feedback is increasingly delivered through digital platforms. This suggests that digital pedagogy as handled in the universities are in agreement with learning objectives to attain academic accountability of students. This result supports Ghavifekr and Rosdy (2015) who observed that ICT integration enhances collaborative learning and promotes engagement among students. Similarly, Afolabi (2020) argued that Nigerian universities are making steady progress in the use of digital pedagogy, though infrastructural gaps remain. The finding confirms that in Rivers State-owned universities, Business Education students are beginning to experience moderate but consistent exposure to digital instructional practices.
Table 2: Shows that the calculated r-value of 0.87 is greater than the r-critical value of 0.179 at 0.05 level of significance. Therefore, the null hypothesis which states that there is no significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities is rejected, meaning that **t**here is a significant relationship between learning objectives and academic accountability of Business Education undergraduates in Rivers State-owned universities. This result is supported by the assertion of Anderson and Krathwohl, (2001) that in digital pedagogy, well-articulated learning objectives ensure that the use of technology aligns with educational goals rather than merely serving as a tool for novelty.

Table 3: Shows that there is a positive relationship between teaching approach and academic accountability of undergraduate Business Education students in Rivers State owned universities. The calculated 'r' value of 0.81 as shown on the table indicates that it is within the third category of ±. 0.700 to 0.999 which is strong positive relationship. The result is supporting the view of Alieto, Abequibel-Encarnacion, Estigoy, Balasa, Eijansantos and Torres-Toukoumidis (2024) that teachers in augmenting their technological competence while simultaneously ensuring equitable access to technology resources. These factors emerge as pivotal catalysts for facilitating the seamless integration of online teaching into contemporary education. In the era of the COVID-19 pandemic, where online instruction has become indispensable, the imperative for ongoing professional development and support has become unmistakably evident. This study calls for a sustained commitment to nurturing and further enhancing teachers' affirmative attitudes toward

online teaching to effectively navigate the ever-evolving landscape of education. Table 4 shows that the calculated r-value of 0.81 is greater than the r-critical value of 0.179 at 0.05 level of significance. Therefore, the null hypothesis which states that there is no significant relationship between teaching approach and academic accountability of Business Education undergraduates in Rivers State-owned universities is rejected. This result is in line with the view of Al-FaAl-Fraihat et al, (2020), Cheung and Slavin (2012) that another significant milestone was the introduction of Learning Management System (LMS) in the late 1990s and early 2000s. LMS platforms such as Blackboard, Moodle and WebCT provide a structures environment for delivery educational content, managing student progress, and facilitating communication between instructors and learners. These systems played a pivotal role in the widespread adoption of digital learning, as they offered a scalable solution for institutions looking to integrate technology into their curricula. (Zou, Kuek, Feng & Cheng (2025).

Conclusion

The study concludes that digital pedagogy plays a vital role in promoting academic accountability among Business Education undergraduates in Rivers State-owned universities. Adhering to the adoption of effective learning objectives and teaching methods into the curricula is moderate, it has a strong positive relationship on students' academic accountability. However, challenges such as poor internet facilities, inadequate infrastructure, and digital skill gaps among lecturers hinder its optimal use. Furthermore, institutional differences in challenges suggest that effective adoption of digital pedagogy in Rivers State-owned universities requires context-specific solutions. Strengthening digital pedagogy will not only improve students' accountability but also enhance the quality and competitiveness of Business Education in Nigeria's evolving knowledge economy.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Business Educators should focus on attaining the learning objectives while teaching in order to strengthen digital pedagogy practices and ensure capacity building.

2. The Business Education curriculum should be enriched with more technology-driven instructional activities that promote accountability, such as online assessments, e-portfolios, and digital collaborative projects.

References

Adebayo, F. A., & Adigun, F. O. (2018). ICT integration in Nigerian universities: Challenges and prospects. *Journal of Education and Practice,* 9(3), 45–52.

Adigun, J. O., Olanrewaju, O. P., & Ojo, A. A. (2021). Digital skills and employability of graduates in Nigeria. *African Journal of Business and Economic Research*, 16(1), 129–146. https://doi.org/10.31920/1750-4562

Ajibade, O. D., & Ndubuisi, F. (2020). Pedagogical innovations and students' academic performance in Nigerian higher education. *Journal of Educational Management*, 14(2), 77–89.

Alieto, E, Abequibel-Encarnacion, B; Estigoy, E., Balasa, K; Eijansantos, A., Torres-Toukoumidis, A. (2024). Teaching inside a digital classroom: A quantitative analysis of attitude, technological competence and access among teachers across subject

disciplines: *National Library of Medicine. National Centre for Biotechnology Information.*

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives.* Longman.

Anderson, T. (2008). *The theory and practice of online learning* (2nd ed.). Athabasca University Press.

Anderson, T., & Rivera-Vargas, P. (2020). A critical look at educational technology from a distance education perspective. Digital Education Review, 37, 208–229. https://doi.org/10.1344/der.2020.37.208-229

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). Open University Press.

Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines.* Jossey-Bass.

Ghavifekr, S., & Rosdy, W. A. W. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science,* 1(2), 175–191. https://doi.org/10.21890/ijres.23596

Igwe, U. A. (2021). Academic accountability and integrity in Nigerian universities: Issues and strategies. *International Journal of Higher Education*, 10(5), 101–110. https://doi.org/10.5430/ijhe.v10n5p101

Kolawole, C. O., & Ilori, O. M. (2022). Digital pedagogy and student learning outcomes in Nigerian universities. *Journal of Educational Technology Systems*, 50(2), 235–252. https://doi.org/10.1177/00472395211054839

Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology.* Routledge.

Nwankwo, C. A., & Okeke, C. I. (2022). Exploring the nexus between digital transformation and quality assurance in Nigerian higher education. *Journal of Contemporary Educational Research,* 6(3), 14–25. https://doi.org/10.26689/jcer.v6i3.1234

Redecker, C., & Punie, Y. (2017). European framework for the digital competence of educators: DigCompEdu. Publications Office of the European Union. https://doi.org/10.2760/159770

Selwyn, N. (2016). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Publishing.

Shulman, L. S. (2005). *Signature pedagogies in the professions.* Daedalus, 134(3), 52–59.

Siemens, G. (2014). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10.

Tayo, O. E., & Adegboye, O. (2019). Digital learning practices and academic accountability of undergraduates in Southwest Nigeria. *African Journal of Educational Research*, 23(2), 55–69.

UNESCO. (2019). ICT competency framework for teachers. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000371024

Yusuf, M. O., & Afolabi, A. O. (2019). Effects of computer-assisted instruction on students' academic achievement and accountability in Nigerian universities. Educational Technology & Society, 22(3), 234–246.

Zou, Y., Kuek, F., Feng, W., and Cheng, X. (2025). *Digital learning in the 21st century:* trends, challenges, and innovations in technology integration.