# TECHNOLOGICAL TOOLS UTILISATION ON BUSINESS EDUCATION STUDENTS' ACADEMIC PERFORMANCE IN PUBLIC COLLEGES OF EDUCATION IN KWARA STATE, NIGERIA

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***Abstract***
*As digital literacy becomes central to educational and professional success, integrating tools such as Microsoft Office, internet facilities, and interactive whiteboards is vital for effective teaching and learning. However, despite their availability, inadequate utilisation affects learning outcomes, raising concerns about students' readiness for the modern workplace. This paper examined the influence of technological utilisation on the academic performance of students in business education in public colleges of education in Kwara State, Nigeria. A descriptive survey design was employed; the targeted population comprised 454 lecturers (32) and students (422) in public colleges of education. The sample used was 200 participants (17 lecturers and 183 students). Four research questions and one hypothesis guided the study. Data were collected using a self-developed questionnaire, "Technological Tools Utilisation on Business Education Students" (TTUBESQ), structured on a four-point Likert scale. The instrument was validated by experts and yielded a reliability coefficient of 0.731. Data analysis involved mean scores for research questions and multiple regression for hypothesis testing (due to the three independent sub-variables) at the 0.05 significance level. Findings revealed that combined (Microsoft Office, Internet facility and Interactive whiteboard) use yields the highest predictive accuracy of 91.4%, demonstrating that integrated technological engagement substantially enhances academic performance. Conversely, single adoption for Microsoft Office and the internet was 47.6% and 39.1%, respectively, while that of the interactive whiteboard was very low at 6.8%, remaining underutilised and requiring better pedagogical integration. The study recommends the combined use of Microsoft Office, internet facilities, and an interactive whiteboard for effective instructional delivery and productivity—providing updated facilities, professional development, and improved implementation to achieve educational goals.*

***Keywords:*** Microsoft Office, Internet Facilities, Interactive Whiteboard, Business Education, Academic Performance.

## Introduction

Educational systems worldwide are increasingly adopting technological tools in response to global changes. This is based on the recognition that technological proficiency is now central to academic success and lifelong learning. Technological tools involve connections among electrical multimedia resources, making teaching and learning more interactive, meaningful, and practical. These tools help

teachers present content clearly and enable students to engage more attentively with the learning process. Davis et al. (2022) note that twenty-first-century education is structured around dynamic learning systems that respond to emerging global needs, advances in technology, and changing expectations of learners as well as society at large. As a result, educational institutions are expected to integrate technological tools into their curricula to promote inquiry, enhance student participation, and foster problem-solving. Chengliang et al. (2024) also highlight that advances in technology have revitalised the educational system by supporting interactive learning environments and enabling students to participate actively during instruction. In the same vein, multimedia resources, according to Maryam et al. (2019), improve student motivation by making learning more engaging, interactive, and understandable.

**Business Education**

No doubt, Business education, as a vocational and skill-oriented programme, is deeply affected by these developments. This may have informed why the field of business education aims to prepare learners for effective participation in the business world by developing their competencies in accounting, marketing, office technology management, communication, and entrepreneurship. Nwachokor et al. (2021) describe business education as an innovation-driven field that integrates technology to produce graduates capable of functioning in technology-enhanced workplaces. Because these areas rely heavily on modern technological tools, the effective integration and utilisation of technology becomes essential.

With the rapid technological innovations, the areas targeted in business education have undergone significant transformations. For example, modern accounting relies on software applications such as QuickBooks, Tally, Peachtree, and other digital bookkeeping systems that eliminate the need for manual preparation of journals, ledgers, and balance sheets. E-test Book (2023) notes that these tools facilitate accuracy, speed, and efficiency in financial reporting. In office technology management, traditional secretarial practices such as shorthand writing and manual typing have been replaced by speech-to-text software, word processors, and digital filing systems. Ezeonwurie (2022) observes that the secretarial profession has become highly digital and requires proficiency in using advanced office technologies. Likewise, Ashank and Esha (2017) state that digital marketing has transformed marketing practices by enabling organisations to promote products and services through social media, email campaigns, digital advertisements, and online platforms. Therefore, this growing digitalisation of business processes means that students must be equipped with practical technological skills before graduation. The integration and effective utilisation of technological tools in business education support teaching efficiency, enhance learners' participation, and enable students to develop skills that match global standards.

Given the centrality of technology in modern business systems, this study focuses on three primary technological tools considered relevant in Business education in colleges of education. These include Microsoft Office educational software, internet accessibility, and the interactive whiteboard. These tools were selected because they are commonly available at higher institutions and are all essential for teaching Business education courses. Their effective utilisation fosters digital literacy, supports practical learning, and helps students apply skills in real business contexts. This is in line with Adedoyin and Soykan (2020), who argue that multimedia presentations and simulated business environments enhance students' comprehension of complex concepts.

**Microsoft Office**

Microsoft Office (Word) utilisation enabled the foundation of digital literacy in Business education students. Oladunjoye and Ojelabi (2017) state that Business education graduates proficient in Microsoft Word are better equipped to handle office functions that require documentation, proofing, and official correspondence. Additionally, the use of Microsoft PowerPoint enables students to learn how to prepare and deliver business presentations, case study reports, and group project demonstrations, gradually fostering soft skills such as public speaking and storytelling. Research by Ezeani and Eze (2018) views Microsoft Excel as a tool that enhances practical application and builds data-handling competency, which is critical for careers in finance, marketing, and business analysis. It is commonly used in teaching accounting, finance, data analysis, and business mathematics. Adedoyin and Soykan (2020) describe how multimedia presentations and simulated business environments enhance student comprehension of complex concepts. These tools provide engaging, interactive scenarios that present real-life business situations, bridging the gap between theory and practice. Students who engage with Microsoft Office through coursework possess professional qualifications.

**Internet**

Laudon and Laudon (2022) assert that the internet is a global network of millions of computers that communicate and share information through standardised protocols. As a digital infrastructure, it provides continuous access to a vast repository of real-time business information, scholarly resources, and global market trends, moving beyond the limitations of traditional textbooks. The integration of the internet into the pedagogical landscape of business education within colleges of education has fundamentally reshaped content delivery, student engagement, and skill acquisition.

**Interactive whiteboard**

Utilising technological tools in teaching and maintaining constant engagement with students builds proficiency. The uniqueness of the Interactive Whiteboard significantly fosters technological advancement within the physical classroom. Qader (2021) emphasises that the interactive whiteboard's capabilities are particularly valuable for visually illustrating complex concepts, making abstract ideas more concrete and accessible. Interestingly, this large touch-sensitive device transforms traditional lectures into dynamic, multimodal experiences when connected to a computer. Lecturers can seamlessly integrate diverse media, including text, images, videos, websites, and software applications, moving beyond teacher-centred instructional delivery.

**Academic Performance**

Duarte et al. (2023) observe that academic performance in business education is a multifaceted construct that extends beyond conventional metrics such as examination scores and course grades. It includes developing critical competencies essential for professional success, such as analytical reasoning, strategic decision-making, problem-solving agility, collaboration, and the practical application of theoretical knowledge. Technological tools are posited to influence these dimensions by facilitating active learning, providing immediate feedback, enabling complex scenario modelling through simulations, and fostering collaborative tasks that define workplace dynamics.

However, observations indicate that these technological tools are not always used effectively. Some teachers do not fully integrate them into lessons, and some students may lack the opportunity to practice with them consistently. These limitations contribute to skill development gaps and may affect students' academic performance.

**Statement of the Problem**

Although technological tools are increasingly recognised as essential components of instructional delivery in business education, their utilisation remains uneven. As noted by Ezeonwurie (2022), the modern workplace is increasingly driven by technology and requires highly skilled professionals. When Business Education students graduate without sufficient technological competence, they struggle to meet workplace demands, thereby weakening the programme's relevance and effectiveness.

Oluwaseun (2021) stresses the challenge of technological competence for both students and lecturers. Some educators struggle with adapting to digital platforms, which hampers the effective delivery of content. Many teachers lack adequate training, confidence, or experience in using combined digital technologies, which restricts students' opportunities for hands-on learning, and academic performance remains inconsistent or low. This indicates a gap between expected technological proficiency and actual skill development. Persistent reports of technological incompetence raise concerns about the adequacy of training. This situation is worrisome as it undermines the objectives of Business Education and contributes to the widening gap between educational outputs and labour market expectations.

Ward et al. (2024) stress that equity and access disparities in device availability, internet connectivity, and technical support disproportionately affect marginalised student populations, potentially widening existing achievement gaps. Institutions often face challenges such as poorly equipped laboratories, outdated systems, malfunctioning projectors, and unreliable internet access, all of which hinder effective teaching and learning. Although previous studies by scholars such as Okonkwo (2023) and Obidike (2024) examined technology use in Business Education, also in an international journal, Abdulkadir et al. (2024) investigated the use of Microsoft Office, none specifically focused on the utilisation of technological tools on the academic performance of Business Education students in public colleges of education in Kwara State. This gap necessitates the present study, which seeks to determine whether the combined utilisation of technological tools such as Microsoft Office software, internet access, and interactive whiteboards influences students' academic performance and learning outcomes in public colleges of education in Kwara State.

**Purpose of the Study**

The study investigated the utilisation of technological tools and their impact on Business education students' academic performance in colleges of education in Kwara State, Nigeria. Specifically, the study sought to:

1. ascertain the level of utilisation of Microsoft Office in Business education.
2. examine the level of integration of internet facilities in Business education.
3. determine the level of utilisation of interactive whiteboards in Business education.
4. determine the level of academic performance of Business education students.

**Research Questions**

1. What is the level of utilisation of Microsoft Office in Business education in colleges of education?
2. What is the level of integration of internet facilities in Business education in colleges of education?
3. What is the level of utilisation of interactive whiteboards in Business education in colleges of education?

4. What is the level of academic performance of Business education students in colleges of education?

**Research Hypothesis**

**$Ho_1$** Technological tools utilisation does not significantly influence the academic performance of Business education students in colleges of education.

**Literature Reviewed**

**Theoretical Framework**

Three theories anchor this study: the Technology Acceptance Model (TAM), developed by Davis (1989), which posits that perceived usefulness and ease of use determine technology adoption. Constructivist Learning Theory: Piaget (1972) emphasises that learners actively construct knowledge through experience, making interactive tools such as simulations essential. TPACK Framework: Suggested by Koehler and Mishra (2009), it highlights the synergy between Technological, Pedagogical, and Content Knowledge required for effective instruction.

**Technological Tools Integration and Utilisation in Business Education**

Recent research highlights the centrality of technological tools in shaping instructional quality and student performance in Business education. Evidence from multiple scholars underscores that the integration of ICT facilities is now indispensable for developing competent graduates. However, studies focusing on ICT availability and utilisation, such as Idogho (2020), show that exposure to digital tools promotes clarity, enhances the demonstration of abstract concepts, and strengthens practical competencies. By 2024, studies from Okonkwo (2023) and Obidike (2024) emphasise that the integration and utilisation of technological tools directly influence teaching effectiveness and students' academic achievement. Dikeocha et al. (2023) emphasise that integrating technological tools into business education promotes classroom instruction by using computers for learning and assignments, thereby reducing manual writing in instructional delivery. Since Business education demands both theoretical knowledge and practical skills, the role of technology cannot be overemphasised.

These findings collectively demonstrate a consistent shift towards digital transformation in the delivery of business education content. In Nigeria, the integration of technological tools in tertiary education is gradually evolving. Government initiatives, as outlined in the National Policy on ICT in Education, encourage the use of technology to improve access, equity, and the quality of education. These technologies empower students to acquire hands-on experience in managing business operations, analysing financial data, and making informed decisions - skills that are indispensable in today's technology-driven economy.

Challenges in Technological Tools Adoption for Business Education

Despite the promise of technology, its integration into Business education is not without challenges. One of the main issues is unequal access to digital resources. While some colleges are well-equipped, others lack the infrastructure to support advanced technological tools. Yusuf and Onasanya (2020) note that despite government efforts, implementation across Colleges of Education remains inconsistent due to infrastructure, funding, and policy issues. Also, Okogi and Igberaharha (2022) observe that poor internet connectivity, erratic power supply, and insufficient hardware and software resources are significant impediments to the effective integration of Information and Communication Technology (ICT), leading to inconsistent learning experiences among students. Ward et al. (2024)

stress that equity and access disparities in device availability, internet connectivity, and technical support disproportionately affect marginalised student populations, potentially widening existing achievement gaps.

Oluwaseun (2021) stresses the challenge of technological competence for both students and lecturers. Some educators struggle to adapt to digital platforms, which hampers the effective delivery of content, and teacher readiness presents another major problem, as highlighted by Jaiswal (2020). Similarly, students unfamiliar with these tools may face a steep learning curve, leading to frustration or disengagement. Additionally, socioeconomic barriers may prevent many students from affording personal devices or reliable internet access, exacerbating the digital divide and affecting learning outcomes.

**Empirical Evidence**

Afolabi et al. (2019) opined that business education is a programme for developing practical business competencies, managerial abilities, and occupational skills. The discipline, therefore, remains pivotal in developing human capital for economic and industrial development. Scholars such as Abdulkadir et al. (2024) found a strong predictive relationship between self-efficacy in Microsoft Office and productivity. However, Laudon and Laudon (2022) revealed that online resources allow students to bypass instructional and library limitations. Yusuf (2024) noted that while students are proficient in Word, they often lack spreadsheet skills due to limited training. Regarding interactive tools, Agburuga and Ukata (2024) found that lecturers' use of multimedia technologies was very low, potentially hindering students' skill acquisition.

**Methodology**

The study utilised a descriptive survey design. The 454 (32 lecturers and 422 students)- member targeted population comprised all lecturers and 300-level students in the three public colleges of education in Kwara State: Ilorin, Oro, and Lafiagi. A sample of 200 respondents (17 lecturers and 183 students) was selected using simple random sampling (the ballot method) to ensure each participant had an equal chance of selection. Slips labelled "Yes" were used to identify the 200 included participants. Data were gathered using the "Technological Tools Utilisation on Business Education Students' (ITTUBESQ)" questionnaire. The 30-item instrument used a 4-point Likert scale (Strongly Agree to Disagree Strongly). Descriptive statistics (mean) were used to answer the research questions, interpreting scores as "1.00 – 1.49 = very low, 1.50 – 2.49 = low, 2.50- 3.49 = high, 3.50 – 4.00 = very High". Inferential statistics (multiple regression) was used to test the hypothesis (because of the three predictors of independent variables) at a 0.05 significance level. Academic performance was measured using students' Grade Point Average (GPA).

**Research Question One:** What is the level of utilisation of Microsoft Office in Business education?

**Table 1**

*Level of utilisation of Microsoft Office in business education in public colleges of education, Kwara State, Nigeria, n=200*

| S/N | Microsoft Office | X | Remark |
|---|---|---|---|
| 1. | The lecturer uses Microsoft office to teach business education courses | 2.98 | High |
| 2 | The lecturer uses Microsoft Word to teach document formatting in class | 3.03 | High |
| 3 | Microsoft Excel is used to teach financial tasks easily. | 3.04 | High |

| | | | |
|---|---|---|---|
| 4 | The lecturer uses power point to present business education topics | 2.97 | High |
| 5 | The lecturer demonstrated Microsoft office applications during the lesson | 3.02 | High |
| 6 | The use of Microsoft Excel enhances understanding of the Preparation of financial documents in work workplace. | 3.03 | High |
| 7 | Using PowerPoint makes learning more engaging | 3.00 | High |
| 8 | Microsoft Office prepares students for future business or administrative work | 2.92 | High |
| 9 | The school provides enough resources (computer, internet and support the use of Microsoft Office) | 2.96 | High |
| 10 | The students face difficulty when using Microsoft Office due to a lack of training | 3.00 | High |
| | **Grand Total** | **2.99** | **High** |

Mean =1.00 – 1.49 = very low, 1.50 – 2.49 = low, 2.50- 3.49 = high 3.50 – 4.00 = very High

Table 1 demonstrated that Microsoft Office utilisation in public colleges of education in Kwara State, Nigeria, was high with a grand mean score of 2.99. The Grand Mean score indicates that Microsoft Office is not a peripheral tool, but a central pillar of the instructional methodology for teaching Business education courses in Kwara State's public colleges of education. This high grand mean is consistent across almost all individual indicators, suggesting a systemic adoption rather than scattered, fragmented applications. Thus, lecturers use it for teaching document formatting and coursework.

**Research Question Two:** What is the level of integration of internet facilities in Business education?

**Table 2**

*Level of integration of internet facility in business education in public colleges of education, Kwara State, Nigeria n=200*

| S/N | Internet Facility | X | Remark |
|---|---|---|---|
| 1 | Internet service is available for academic purposes | 3.03 | High |
| 2 | Using internet enable delivery of up to date contents | 3.02 | High |
| 3 | The student uses internet to research topics taught | 2.93 | High |
| 4 | The use of internet promote online group discussion | 3.03 | High |
| 5 | The lecturer use internet to demonstrate real-world business concepts | 2.99 | High |
| 6 | The internet is used for online tutorials or YouTube-video to support learning of courses taught | 2.98 | High |
| 7 | Use of internet facilitate completion of assignment and projects effectively | 2.98 | High |
| 8 | The internet makes teaching of business education courses more flexible and interesting | 2.92 | High |
| 9 | Limited internet connectivity affects the use of online materials | 2.91 | High |
| 10 | Regular internet aids spotting credible research source | 2.95 | High |
| | **Grand Total** | **2.97** | **High** |

Mean =1.00 – 1.49 = very low, 1.50 – 2.49 = low, 2.50- 3.49 = high 3.50 – 4.00 = very High

Table 2 reveals a highly connected academic environment, with a Grand Mean of 2.97. Internet use has influenced the teaching and learning process in Business education in Kwara State's public colleges of education. The responses indicate that, the internet is no longer an auxiliary resource but a fundamental utility, similar to electricity, for academic survival.

**Research Question Three:** What is the level of utilisation of the interactive whiteboard in Business education?

**Table 3**

*Level of utilisation of interactive white board in business education in public colleges of education, Kwara State, Nigeria. n=200*

| S/N | Interactive Whiteboard | X | Remark |
|---|---|---|---|
| 1 | Interactive whiteboard are available for teaching business education courses | 2.26 | Low |
| 2 | The lecturer use the interactive whiteboard effectively for teaching | 2.31 | Low |
| 3 | Using the interactive whiteboard makes business education lesson more engaging | 2.28 | Low |
| 4 | Lecturers use interactive whiteboard to present multimedia content | 2.26 | Low |
| 5 | Lecturers use interactive whiteboard to demonstrate practical business task | 2.27 | Low |
| 6 | The use of the interactive whiteboard encourage students participation | 2.25 | Low |
| 7 | The use of the interactive whiteboard makes lessons more visually appealing and easier to follow | 2.26 | Low |
| 8 | Students are more motivated to learn when interactive whiteboard are used in the class | 2.28 | Low |
| 9 | Inadequate training limits effective use of interactive whiteboard | 2.28 | Low |
| 10 | Technical issues disrupt lessons when using interactive whiteboard | 2.23 | Low |
| | **Grand Total** | **2.26** | **Low** |

Mean =1.00 – 1.49 = very low, 1.50 – 2.49 = low, 2.50- 3.49 = high 3.50 – 4.00 = very High

Table 3 stands in sharp contrast to the previous two sections. The Grand Mean of 2.26 falls squarely within the low category (1.50–2.49). This indicates that, unlike Microsoft Office and the Internet, the Interactive Whiteboard has not achieved critical mass in terms of adoption or integration. Not a single indicator in this table reached a high level. Findings suggest that while the tools may be available, they are not integrated into daily teaching as frequently as other technologies.

**Hypotheses Testing (Combined Model)**

**Hypothesis Four ($H_{O4}$)**

**Null Hypothesis** Technological tools utilisation do not significantly influence academic performance of Business education students in Kwara State's public colleges of education.

**Table 5**

*Model Summary of technological tools utilisation*

| Model | R | R Square | Adjusted R Square | Std. Error of Estimate |
|---|---|---|---|---|
| 1 | .956[a] | .914 | .913 | .126 |

a. Predictors ( Constant), Interactive whiteboard, Internet, Microsoft

Table 5 shows the model summary of the utilisation of technological tools for hypothesis testing (Combined Model). The multiple regression analysis revealed that the combined use of technological tools is a powerful predictor of academic performance ($R = .956$, $R^2 = .914$). This model explains 91.4% of the variance in GPA. While the individual influence of the sub-variables varied. Microsoft office significantly influenced performance with ($R^2 = .476$, $p < .005$); the Internet Facility significantly predicted academic performance ($R^2 = .391$, $p < .005$) and the Interactive whiteboard showed a weak relationship ($R^2 = .068$, $p < .005$). Although significant, it was the weakest predictor. However, the summation of the three variables explained 91.4% of the variance in academic performance.

**Table 5**

*Analysis of Variance of technological tools utilisation*

| Model | | Sum of Squares | Df | Mean Square | F | Sig |
|---|---|---|---|---|---|---|
| 1 | Regression | 33.121 | 2 | 11.040 | 693.871 | .000[b] |
| | Residual | 3.119 | 198 | .016 | | |
| | Total | 36.240 | 200 | | | |

a. Dependent Variable: academic Performance
b. Predictors ( Constant), Interactive whiteboard, Internet, Microsoft Office

The ANOVA regression model in Table 4 is highly significant, $F (3, 196) = 693.871$, $p < .005$, indicating that the combined use of technological tools provides an excellent fit to the data. The null hypothesis is rejected. Their combined use yields the highest predictive accuracy, demonstrating that integrated technological engagement substantially enhances academic performance.

**Discussion of Findings**

The findings provide empirical evidence that the utilisation of technological tools is a necessity rather than an optional enhancement based on the combined result of 91.4% variance in academic performance. The strong correlation between Microsoft Office usage and performance ($R^2 = .476$) aligns with Abdulkadir et al. (2024), who found a strong predictive relationship between Microsoft Office self-efficacy and productivity. A point increase in Microsoft Office usage was linked to a 0.43 GPA gain. Also, the strong influence of the internet ($R^2 = .391$) supports findings by Laudon and Laudon (2022), suggesting that online resources allow students to bypass physical library limitations. However, the bottleneck of poor connectivity must be addressed to maximise these benefits. Lastly, the limited impact of interactive whiteboards ($R^2 = .068$) is consistent with Agburuga and Ukata (2024), who found that lecturers' use of multimedia technologies was very low. Its impact depends on the quality and frequency of use, which were found to be low in this context.

## Conclusion

The study concludes that collective utilisation of technological tools, particularly Microsoft Office, Internet facilities, and interactive whiteboards, is a critical determinant of academic performance in Business education. While individual tools have varying degrees of influence, their combined integration provides an exceptionally high explanatory power (91.4%) for student success. Interactive whiteboards remain underutilised and require better pedagogical integration.

## Recommendations

1. Investment in Technological Tools and Adequate Resource Allocation
   Colleges of education should continue to invest in digital infrastructure by providing updated computers, stable internet access, and functional interactive whiteboards to support instructional activities.
2. Maintain and Enhance Academic Performance
   Since technological tools have significantly improved academic performance, institutions should strengthen continuous engagement initiatives such as digital workshops, hands-on training sessions, and technology-based assignments.
3. Professional Development for Lecturers
   Regular training programmes should be organised to enhance lecturers' digital competencies and ensure effective integration of technological tools into instructional delivery.
4. Monitoring and Evaluation
   Institutions should establish monitoring mechanisms to evaluate the effectiveness of utilising technological tools, ensuring that students actively benefit from available digital resources.

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