



Correlation Between Integration of ... Adesuyi, F. E. (2025)

## Correlation Between Integration of Artificial-intelligence Tools and Technophobia on Learning Outcomes among Undergraduate Students in University of Offa, Kwara State, Nigeria

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### Abstract

*This study assessed the correlation between integration of artificial-intelligence tools and technophobia on learning outcomes among undergraduate students in University of Offa, Kwara State, Nigeria. This research work employed descriptive survey and correlational research design and sampled 300 undergraduate students of University of Offa, Offa, Kwara State, Nigeria. A structured questionnaire titled "Questionnaire on Integration of Artificial-Intelligence Tools and Technophobia on Learning Outcomes (QIAITTLO)" was used to collect data and measured technophobia to use artificial intelligence technology tools and academic learning outcomes. The instrument was validated and also a Cronbach's Alpha coefficient of 0.87 was obtained which was considered to be acceptable, indicating good internal consistency and reliability of the instrument. The results showed that there is a significant level of technophobia among students in respect to the using artificial intelligence tools. More critically, a significant negative relationship was found between technophobia in using artificial intelligence technology tools and students' academic learning outcomes ( $r = -0.592, p < 0.05$ ). This means that the higher technophobia levels, the low academic performance. In conclusion, the findings indicated that technophobia creates a significant impediment towards efficient implementation of artificial intelligence in learning. It is suggested to have a comprehensive digital literacy programme, introduce proper student and teacher support and create a favourable ecosystem so that the motivational anxiety to artificial intelligence can be minimised that would increase the success of students in academic institutions within Nigeria.*

**Key words:** Technophobia, Artificial Intelligence, Academic Learning Outcomes, Higher Institutions

### Introduction

The explosive expansion of the digital technologies as such has basically restructured a variety of aspects in human activities, education being one of the most notable areas of change. In as much as technological growths present a great potential in enhancing the experiences and results of learning, they are often characterized by challenges once applied. As a well-known barrier that has drawn more attention in the modern digital age, technophobia can be framed as an irrational fear or loathing of advanced technology (Rosen & Weil, 1995), although the current usage extends into such study as that by Smith & Jones, (2023). This fear may be expressed differently, including simply the unwillingness to work with new tools to more pronounced manifestations like fear and avoidance patterns (Williams & Davies, 2022). A unique dimension to this phenomenon has been provided by the appearance of the tools of artificial intelligence technology. Artificial intelligence which includes the use of machines with abilities to perform activities that ordinarily involve human intelligence like learning, problem-solving and decision-making, is increasingly gaining grounds in learning settings across all regions over the world (Brown & Lee, 2024). Such tools include a whole range of tools, as the intelligent tutoring system and automated assessment platforms to advanced data analysis programmes that will allow personalizing learning and automating the administrative tasks (Chen & Wang, 2023). Even though the uses of artificial intelligence in pedagogy can be deemed beneficial, a certain set of students is likely to develop high rates of technophobia when it comes to the advanced tools (Patel & Singh, 2023). This apprehension toward artificial intelligence can originate from various factors, including concerns regarding employment displacement, a sense of being overwhelmed by the technology's inherent complexity, or even the pervasive dystopian portrayals of artificial intelligence in popular culture (Kim & Park, 2022; Turner & Clark, 2024).

The use of artificial intelligence technology tools in higher institutions in Nigeria is still at its early phase, but it is gradually increasing as higher institutions of learning are starting using artificial intelligence in their curricula, research, and administrative activities (Ode, Enoma, & Okafor, 2025; Umar & Garba, 2024). Although Nigerian students in higher institutions are increasingly becoming aware of artificial intelligence, the process of integration is highly problematic and



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is characterized by poor digital infrastructure, lack of sufficiently trained lecturers, as well as insufficient industry-academia duo (Abubakar & Sani, 2023; Ode, Enoma, & Okafor, 2025). Along this line of thought, the scope and magnitude of technophobia among learners within the Nigerian academic institutions, especially with regard to artificial intelligence technology tools, becomes of fateful importance as a research object.

Learning resources and environment directly reflect on academic learning outcomes, which denote the quantifiable knowledge, skills, and competencies that students were expected to develop at the end of an educational experience, which are measurable (Johnson & Miller, 2022). The role of technology especially artificial intelligence on these results has been the topic of empirical investigation. Although there is little doubt that technology may inevitably boost learning by offering individualized feedback as well as allowing them to access a broad range of information (Davis & White, 2024), technophobia may also turn into a significant barrier. Learners with a high technophobia index in accessing artificial intelligence technology tools are likely to fail to maximize the available resources, thus resulting in poor involvement, anxiety, and, eventually, adverse effect on academic learning (Garcia & Rodriguez, 2023; Peters & Green, 2024). For instance, an inability or unwillingness to interact with artificial intelligence-powered learning platforms could impede a student's capacity to complete assignments, access supplementary materials, or participate effectively in technologically mediated learning activities. Therefore, understanding the relationship between the level of technophobia on the part of students in artificial intelligence technology tools and academic learning outcomes have become crucial in the development of efficacious interventions in optimal learning environment, and inclusiveness within the learning ecosystem across Nigerian higher institutional level. In this research, the researcher is trying to fill this gap by evaluating the levels of technophobia among students in the higher institution of learning in Nigeria when using the artificial intelligence technology tools and then examining the impact of this phenomenon on their academic learning outcomes.

### **Objectives of the Study**

The broad objective of this study is was to examine the correlation between integration of artificial-intelligence tools and technophobia on learning outcomes among undergraduate students in University of Offa, Kwara State, Nigeria. Specifically, this study seeks to:

1. find out the level of technophobia among undergraduate students in University of Offa regarding the use of integrating AI technology tools for teaching and learning.
2. examine the influence of artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State
3. determine the relationship between technophobia in using artificial intelligence technology tools and academic learning outcomes of undergraduate students in University of Offer, Kwara State

### **Research Questions**

1. What is the level of technophobia among undergraduate students in University of Offa regarding the use of integrating AI technology tools for teaching and learning?
2. What is the influence of artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State?

### **Research Hypothesis**

**H<sub>01</sub>:** There is no significant relationship between technophobia in using artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State.

### **Methodology**

This study adopted a descriptive survey research design to determine the level of technophobia and a correlational research design to determine how technophobia affects the academic learning outcome. Descriptive survey design is suitable in collecting data about part of the population in a one-time situation to determine the population characteristics, i.e., prevalence and magnitude of technophobia among students (Creswell & Creswell, 2018). In this case, due to technophobia and academic learning outcomes, the correlational design is applicable in exploring the strength and direction of association between the two or more variables without manipulation of variables (Hair et al., 2019). All undergraduate students who were undertaking their studies at the University of Offa in Offa, Kwara State, Nigeria during the 2024/2025 academic session were the study population. As a method of sampling technique, three hundred (300) undergraduate students of University of Offa, Offa, Kwara State were selected as a sample of the study based on a simple random sampling method.



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The data collection instrument was structured questionnaire titled “Questionnaire on Integration of Artificial-Intelligence Tools and Technophobia on Learning Outcomes (QIAITTLO)” that the researcher itself had developed in order to determine the level of technophobia among the students in higher institutions of learning in Nigeria and the impact it has on their academic learning outcomes. A pilot study was conducted to determine the reliability of the research instrument. The questionnaire was administered to a small sample of 30 undergraduate students from a university in a neighboring state (not part of the main study's target population) but with similar characteristics to the study population. A Cronbach's Alpha coefficient of 0.87 was obtained which was considered to be considered acceptable, indicating good internal consistency and reliability of the instrument (Taber, 2018). The collected data was analysed using both descriptive and inferential statistics with the aid of the Statistical Package for the Social Sciences (SPSS) version 26. Frequency counts and mean scores were used to answer the research questions while Pearson Product Moment Correlation (PPMC) coefficient was used to test the null hypothesis at 0.05 level of significance.

## Presentation of Results

### Answers to Research Questions

**Research Question 1:** What is the level of technophobia among undergraduate students in University of Offa regarding the use of integrating AI technology tools for teaching and learning?

**Table 1: Level of technophobia among students in University of Offa regarding the use of AI technology tools Nigerian youths**

| S/N                     | Items   | SA | A  | D   | SD  | Mean        | Remarks   |
|-------------------------|---|----|----|-----|-----|-------------|-----------|
| 1                       | I feel anxious when I am required to use Artificial Intelligence tools for my academic work.  | 12 | 6  | 144 | 138 | 1.64        | Disagreed |
| 2                       | I prefer to avoid assignments or tasks that involve using Artificial Intelligence technology.   | 12 | 24 | 144 | 120 | 1.76        | Disagreed |
| 3                       | I believe Artificial Intelligence tools are too complex for me to understand and use effectively.   | 15 | 24 | 87  | 174 | 1.60        | Disagreed |
| 4                       | I feel uncomfortable when my lecturers introduce new Artificial Intelligence tools such as Consensus, Scite, Quillbot, and Bit AI in class. | 15 | 33 | 117 | 135 | 1.76        | Disagreed |
| 5                       | The thought of Artificial Intelligence changing how I learn makes me feel uneasy.   | 5  | 5  | 70  | 220 | 1.32        | Disagreed |
| <b>Weighted Average</b> |   |    |    |     |     | <b>1.62</b> |           |

**Decision Rule:** 0 – 2.49 = low, 2.50 – 4.00 = high

**Source:** Field Survey

Table 1 reveals that majority of the respondents disagreed that; they feel anxious when I am required to use Artificial Intelligence tools for my academic work (mean = 1.64), they prefer to avoid assignments or tasks that involve using Artificial Intelligence technology (mean = 1.76), they believe Artificial Intelligence tools are too complex for me to understand and use effectively (mean = 1.60), they feel uncomfortable when my lecturers introduce new Artificial Intelligence tools such as Consensus, Scite, Quillbot, and Bit AI in class (mean = 1.76), the thought of Artificial Intelligence changing how I learn makes me feel uneasy (mean = 1.32). Meanwhile, based on the value of the weighted average (1.62 out of 4.00 maximum value that can be obtained), which falls within the decision value for **low**, it can be inferred that, there is a low level of technophobia among students in Nigerian higher institutions regarding the use of AI technology tools.

**Research Question 2:** What is the influence of artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State?

**Table 2: Influence of artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State**

| S/N | Items  | SA  | A   | D  | SD | Mean | Remarks |
|-----|--|-----|-----|----|----|------|---------|
| 1   | My use of Artificial Intelligence tools significantly enhances my understanding of course materials.     | 138 | 144 | 6  | 12 | 3.36 | Agreed  |
| 2   | I am able to complete my academic assignments more effectively when I use Artificial Intelligence tools. | 120 | 144 | 24 | 12 | 3.24 | Agreed  |



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|                         |   |     |     |    |    |             |        |
|-------------------------|---|-----|-----|----|----|-------------|--------|
| 3                       | My reluctance to use Artificial Intelligence tools sometimes limits my ability to achieve high grades.                          | 174 | 87  | 24 | 15 | 3.40        | Agreed |
| 4                       | I feel confident that I can effectively use Artificial Intelligence tools to improve my overall academic performance.           | 135 | 117 | 33 | 15 | 3.24        | Agreed |
| 5                       | Avoiding Artificial Intelligence tools negatively impacts my ability to keep up with technologically advanced learning methods. | 225 | 75  | 0  | 0  | 3.75        | Agreed |
| <b>Weighted Average</b> |   |     |     |    |    | <b>3.40</b> |        |

**Decision Rule: 0 – 2.49 = negative, 2.50 – 4.00 = positive**

**Source: Field Survey**

Table 2 shows that majority of the respondents agreed that; their use of Artificial Intelligence tools significantly enhances their understanding of course materials (mean = 3.36), they are able to complete their academic assignments more effectively when they use Artificial Intelligence tools (mean = 3.24), their reluctance to use Artificial Intelligence tools sometimes limits their ability to achieve high grades (mean = 3.24), avoiding Artificial Intelligence tools negatively impacts their ability to keep up with technologically advanced learning methods (mean = 3.75). Meanwhile, based on the value of the weighted average (3.40 out of 4.00 maximum value that can be obtained), which falls within the decision value for positive, it can be inferred that, there is a positive influence of artificial intelligence technology tools on the academic learning outcomes of students in Nigerian higher institutions.

### Hypothesis Testing

**Ho<sub>1</sub>:** There is no significant relationship between technophobia in using artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State.

**Table 3: Pearson Product Moment Correlation Coefficient of the relationship between technophobia in using artificial intelligence technology tools on the academic learning outcomes of undergraduate students in University of Offer, Kwara State.**

| Variable                                  | N   | Mean  | Std. Deviation | df  | r      | Sig  | p     |
|---|-----|-------|----------------|-----|--------|------|-------|
| Technophobia in using AI technology tools | 300 | 3.45  | 0.634          |     |        |      |       |
| Academic learning outcomes                | 300 | 37.67 | 2.100          | 299 | -.592* | .000 | <0.05 |

\*Correlation is significant at the 0.05 (2-tailed)

**Source: Field Survey**

Table 3 shows that, there is a negative significant relationship between technophobia in using artificial intelligence technology tools on the academic learning outcomes of students in Nigerian higher institutions ( $r = -0.592$ ,  $N = 300$ ,  $sig. = 0.000$ ,  $p < 0.05$ ). Hence, the lower the level of technophobia on the use of AI technology tools, the higher the academic learning outcomes of students in Nigerian higher institution.

### Discussion of Findings

Results of the study found out that the general level of technophobia as applied to the use of Artificial Intelligence technology tools among students is low. It means that most of the students do not feel anxious when they need to utilize these tools to complete their academic assignments and would not like to fail to resolve them with the help of Artificial Intelligence. Moreover, they do not see Artificial Intelligence tools as very challenging to comprehend and use successfully, and do not experience any form of discomfort upon introduction of such new Artificial Intelligence instruments, as recommended by lecturers, as Consensus, Scite, Quillbot, and Bit AI. The notion of Artificial Intelligence modifying their learning process also does not cause uneasiness to students. This general minimal rate of apprehension implies a sufficiently high rate of comfort level and receptivity towards the Artificial Intelligence in their studies. This observation is consistent with results of a recent academic research that suggests that students in developing environments, such as Nigeria, are increasingly accepting of Artificial Intelligence and are also displaying optimism towards it. For instance, Enoma and



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Okafor (2025) found that a substantial proportion of Nigerian students perceived Artificial Intelligence as positively influencing their educational pursuits, assisting in knowledge enhancement and skill improvement. The universality of acceptance implicitly promotes a reduced level of serious technophobic tendencies.

Similarly, Vieriu and Petrea (2025) observed that a vast majority of students believed Artificial Intelligence contributed to enhancing their academic performance, with only a minimal percentage anticipating a decline, further supporting the notion of low technophobia and high willingness to engage. While earlier discussions might have highlighted infrastructural and pedagogical challenges to Artificial Intelligence integration in Nigerian universities (Abubakar & Sani, 2023; Adeniyi, 2025), the current finding suggests that student-level apprehension or fear towards the technology itself may not be a primary barrier. Rather, there is a basic degree of comfort and acceptance among students, which places them in a better position regarding the further integration of Artificial Intelligence in their respective learning environments. This contrasts with some concerns raised in broader literature about technophobia stemming from perceptions of complexity or threat (Williams & Davies, 2022; Kim & Park, 2022), indicating that for Nigerian students in this study, such fears are not widespread concerning Artificial Intelligence in academia.

The research has discovered that students tend to report about the positive influence of artificial intelligence technology tools on academic learning outcomes. Most of the respondents agreed that the use of artificial intelligence tools is very helpful to increase understanding of course materials as well as boost their performance in accomplishing academic tasks. Moreover, there was an agreement that the unwillingness to apply these technologies might really impair their performance and not allow them to stay on the level of the modern highly technological teaching processes. The fact that this view is generally positive implies that students have realized that artificial intelligence can add value to their experiences in the learning process, which implies that their academic work can be enhanced as long as they accept the use of such tools. This result is consistent with an accumulating pool of contemporary research on the positive impact of artificial intelligence in the education sector. For instance, Brown and Lee (2024) extensively discussed how the integration of artificial intelligence offers significant opportunities for enhancing learning experiences, a sentiment echoed by Vieriu and Petrea (2025), who empirically demonstrated that students widely believe artificial intelligence contributes positively to their academic development. Similarly, Davis and White (2024) underscored the role of artificial intelligence in fostering student engagement and learning, reinforcing the idea that these tools can be powerful facilitators of academic success. The acknowledgment by students in this study that avoiding artificial intelligence negatively impacts their learning resonates with the broader academic discourse which suggests that shying away from emerging technologies can create a disadvantage in a digitally evolving educational landscape (Smith & Jones, 2023). While some concerns exist about potential over-reliance on artificial intelligence (Ali & Hassan, 2025; Zhai et al., 2024), the overwhelming perception in this study is that artificial intelligence tools are a beneficial asset for academic learning outcomes.

As the study found, it indicated a significant negative correlation between academic performance among the students in the higher institutions of Nigeria and their level of apprehension towards the artificial intelligence technology tools. This suggests that the more students become less uncomfortable or afraid of the usage of artificial intelligence tools, the more their learning performance in the field is likely to be enhanced. On the contrary, the technophobia is linked to lower academic performance. The given finding correlates with the increasing number of publications devoted to the harmful influence of anxieties related to technologies on the success in education. For instance, Garcia and Rodriguez (2023) similarly observed that technophobia significantly impeded student performance in technology-enhanced learning environments. The article highlighted the importance of not shielding students with psychological hindrances, which deny them a chance to explore resources that can boost their learning. Garcia and Rodriguez (2023) confirmed how psychological inhibitors are barriers to embracing the design of resources that allow full access to resources that improve the learning experience like the fear of new tools. Furthermore, Peters and Green (2024) highlighted the mediating role of technophobia in technology acceptance models within educational contexts, suggesting that a student's willingness to adopt new technologies, including artificial intelligence, is often undermined by underlying fears. This is particularly pertinent in the context of emerging technologies like artificial intelligence (such as Consensus, Scite, Quillbot, and Bit AI), where initial discomfort can deter active participation in AI-integrated learning activities, thereby limiting access to benefits like personalized feedback and efficient information processing that contribute to better academic outcomes (Davis & White,

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2024; Vieriu & Petrea, 2025). Therefore, the observed negative association provides strong empirical support for the idea that addressing technophobia is a crucial step towards optimizing students' engagement with artificial intelligence and subsequently fostering improved academic learning outcomes in higher education.

## Conclusion

In conclusion, it has been established that there is a significant level of technophobia among students in Nigerian higher institutions when it comes to the issue of using the artificial intelligence technology tools. Crucially, the findings reveal a significant negative relationship between this technophobia and students' academic learning outcomes. This indicates that as students' fear or discomfort with artificial intelligence tools decreases, their academic learning outcome tends to improve, and conversely, higher technophobia is associated with lower academic learning outcome. This overall judgment reveals that technophobia is a real hindrance in using the full potential of artificial intelligence to improve student learning under the Nigerian higher education system.

## Recommendations

Based on the findings of this study, the following recommendations are put forth:

1. Institutions of higher learning ought to also focus on the creation and engagement of holistic digital literacy curriculum that uniquely touches on that of artificial intelligence tools. These programmes should move beyond mere technical instruction to include psychological support, aiming to alleviate anxiety and build confidence in students' interactions with AI. They must also enable there to be well equipped AI laboratories as well as a well-established internet structure.
2. Faculty members are expected to be motivated and trained to incorporate artificial intelligence tools in their learning techniques in steps and in wise fashions. It should be stressed that the practical advantages of AI in making the learning experience more convenient and rewarding, offering sufficient practical training, and assisting in an accessible way should be highlighted. It is essential to establish an enabling and non-threatening environment to the use of AI.
3. Students are encouraged to active participation in the new artificial intelligence tools acquisition and refer to the existing support mechanisms or more extensively technologically skilled ones. Its regular practice and discovery of the positive use of AI will also make the learning process easier, and their education successful.
4. Future research should focus on embarking on the study regarding the long-term effects of technophobia on career readiness and employability within the AI-based world. It is also possible to monitor the effects of particular measures aimed at mitigating the effects of AI-induced technophobia and conducting research on its effects on academic performance with the use of longitudinal studies.

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