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# ASSESSMENT OF UNDERGRADUATE STUDENTS' DEPENDENCE ON ARTIFICIAL INTELLIGENCE TOOLS IN OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA

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## Abstract

This study examined undergraduate students' dependence on artificial intelligence (AI) tools at Obafemi Awolowo University, Ile-Ife, Nigeria. Using a descriptive survey design, data were collected from 386 students selected through convenience sampling. A research instrument titled "Undergraduate Students' Dependence on Artificial Intelligence Tools" (USDAIT) was validated and found reliable with a Cronbach Alpha Coefficient of 0.76. Descriptive statistics revealed that students often use AI tools for assignments with the highest proportion of 49.00%, 67.90% of the respondents often use AI tools for examinations preparation, 36.30% of the respondents often substitute AI tools in place of dictionary while 20.30% always do, 38.30% of the respondents often use AI tools for tutoring, 36.90% of the respondents often use AI tools for projects, and 36.30% use it for paper presentations, 69.90% of the respondents said that they rarely use AI tools for group discussions. The null hypothesis ($H_0$), which states that there is no significant influence in the use of Artificial Intelligence (AI) tools by Obafemi Awolowo University undergraduate students on academic performance, was accepted ($t = 1.19$, $p>0.05$). The grand mean rose above the criterion mean, indicating a collective agreement on the

reliability of AI tools. The clustered standard deviations further confirmed consistency among respondents. The study concluded that the level of reliance of the students in the study area on Artificial Intelligence is reasonably high despite the fact that they face a number of challenges with the use of these AI tools. This study further recommended that the institution should provide mandatory comprehensive training programmes and training sessions for the students so that they can learn the ethical use of the AI tools.
**Keywords:** Artificial Intelligence, Undergraduate Students, Reliance, Challenges.

## Introduction

Artificial Intelligence is a set of technologies that enables machines to mimic human intelligence. With no doubt, all facets of life have benefited from and been revolutionized by technology; the processes and practices of teaching and learning have undoubtedly been impacted. Artificial Intelligence systems are designed to sense their surroundings, understand natural speech, and behave in ways that adaptively imitate human thought. Artificial Intelligence tools have been integrated by several digital platforms, like Google, Microsoft, Amazon, and Facebook, to enhance human labor and advance knowledge. They grew steadily until the advent of more sophisticated Artificial Intelligence platforms like ChatGPT, ZeroGPT, Gemini, Grammarly, Copilot, Turnitin, Meta AI, and so on.

Artificial Intelligence has been defined by Areej (2023) as an instrument that has become an essential part of contemporary society because it has brought about a lot of development that has made living easier and more pleasant. Artificial intelligence technology emphasizes the process of simulating human intelligence by machines, which enables them to perform human-like tasks. Artificial intelligence is the process of imitating human intellect in robots so that they can think, learn, and make decisions on their own. Artificial Intelligence continues to show promise for improving human lives and advancing economies and communities in a number of areas, including education, health, transportation, security, laws, and other sectors.

Machine learning is described by Goodfellow et al. (2016) as a strong instrument for a broad range of applications, including image and verbal recognition, natural language processing, and predictive analytics. Machine learning is a subset of AI that focuses on the improvement of algorithms and models that can learn from data and make predictions or conclusions based on this learning (Jordan & Mitchell, 2015). Zou and Schiebinger (2018) think that one of the main issues with machine learning is that models for machine learning can unintentionally learn and reinforce data-based biases, producing unfair or biased results. Scholars must understand these problems and take action to lessen them.

The process of creating a machine to think and act like a human is known as Artificial Intelligence (AI), or cognitive tasks, since it refers to the ability of machines to learn automatically from preprogrammed data and information. It is also possible to interpret Artificial Intelligence. One area of computer science called Artificial

Intelligence, or AI, aims to enable computers to perform tasks just as well as humans. Whether we are aware of it or not, Artificial Intelligence is used in our daily lives. The newest technological advancement, Artificial Intelligence (AI), can now carry out activities that previously required human intelligence. Three categories of Artificial Intelligence (AI) capabilities exist: Artificial Super Intelligence (ASI), General Artificial Intelligence (GAI), and Narrow or Weak Artificial Intelligence (N/WAI).

With the use of artificial intelligence (AI), machines are now able to reason and learn much like people. It is claimed that this technology can aid in simplifying the extremely complex human life (Fitria, 2021a). Intelligent algorithms, multiple data sets, and repeated processing are the three main components of artificial intelligence (AI). In this way, patterns or features in the data can be automatically recognized by the software. Another way to describe AI is as a very vast field of study. Artificial Intelligence (AI) encompasses a vast array of ideas, techniques, technologies, and subfields, such as computer vision, machine learning, neural networks, cognitive computing, and scientific language processing.

Artificial Intelligence (AI) technology is becoming more and more prevalent in many industries, including education. The introduction of AI technology has changed the curriculum, particularly in the areas of science, technology, engineering, and mathematics. However, Artificial Intelligence will also alter the nature of education as a whole. Artificial Intelligence is one technology that has gained prominence lately (AI). This technology plays a significant part in helping with a variety of work responsibilities, including teaching. AI has applications in the field of education as well; instructors and lecturers are better able to comprehend the needs of their students (Fitria, 2021b). Additionally, the students can easily adapt their learning to meet their needs.

Education is not an exception to the way AI has been gradually developing and infiltrating all facets of our existence (Aqual, 2023). The reality that our society is now dependent on electronic information services for both production and educational services is highlighted by the multiplying effect of Artificial Intelligence in Education (Zainab et al., 2021). Technology has brought about a revolution in education. Access to education outside of traditional classrooms has been made possible via learning platforms, online courses, and educational apps, which have democratized education. AI's contribution to education is evident in how it streamlines instructional and administrative duties. The teaching and grading processes are now automated and quicker thanks to AI; therefore, teachers will be able to spend more time with their students. "Smart content" is the aspect of AI that has increased the reliance of students, particularly those pursuing undergraduate degrees. The authors refer to this as customized content, which automatically changes based on behavioural data and demographic context. Given that textbooks are already being digitalized, intelligent material is a bad decision. This type of system can guide pupils and provide them with more relevant information.

Studies highlight ethical issues surrounding AI dialogue systems in research and education, with concerns over AI’s ability to produce credible references, the risks of hallucination in various contexts, and limited mechanistic reasoning capabilities (Lee et al., 2023). AI is a source of both advantages and disadvantages in different perspectives;

however, we need to overcome certain challenges before we can realize the true potential and immense transformational capabilities of this emerging technology. Some of the challenges are AI human interface, phone addiction, over-reliance on AI feedback, technical issues, and the like (Dinesh et al., 2019).

However, using AI in education carries some dangers when it comes to ethical considerations. In their term papers and final year projects, several undergraduates have exploited the usage of artificial intelligence. More so, this study's goal is to look into artificial intelligence (AI) in education, particularly, it is necessary to investigate how Obafemi Awolowo University undergraduate students depend on artificial intelligence (AI) tools.

**Research Questions**

a. Does the use of Artificial Intelligence (AI) tools by Obafemi Awolowo University undergraduate students in Osun State have a significant impact on their academic performance?
b. What are the challenges of the Artificial Intelligence (AI) tools among Obafemi Awolowo University undergraduate students?

**Hypothesis**

There is no significant influence of the use of Artificial Intelligence (AI) tools by Obafemi Awolowo University undergraduate students, Osun State, on academic performance.

**Methodology**

The study adopted the descriptive survey design as the base of the methodological design for the research. The study area for this research is Obafemi Awolowo University, Ile-Ife, Nigeria. The students of the institution form the sample population for the research. A convenient sampling technique was employed for the sample selection; the study sample size of 386 students was chosen to meet the research objectives. To collect relevant data for this research, a structured questionnaire was used after it had undergone content validity, and a Cronbach Alpha Coefficient reliability was used to establish the reliability coefficient of the instrument, which yielded a reliability coefficient of 0.76, which is considered reliable. Both descriptive and inferential statistics were employed for the analysis of the collected data. The descriptive statistical tool used included Frequency count, percentages, mean and standard deviations, while the inferential statistical tool used included a T-test to test the significant difference between the gender of the respondents and their perceived challenge in the use of AI.

**Results**

**Table 1:** Demographic Characteristics of the Participants

| **Age** | **F** | **%** | **M** | $\sigma$ |
|---|---|---|---|---|
| 21-25years | 322 | 90.7 | | |
| 26-30years | 31 | 8.7 | | |
| 31-35years | 1 | .3 | | |

| | | | | |
|---|---|---|---|---|
| 36-40years | 1 | .3 | | |
| Total | 355 | 100.0 | 23.5 | 0.951 |
| **Gender** | | | | |
| Female | 237 | 66.8 | | |
| Male | 118 | 33.2 | | |
| Total | 355 | 100.0 | | |

**Key: F = Frequency; % = Percentage; M = Mean; $\sigma$ = Standard deviation**

Table 1 displays the frequency counts, percentages, mean and standard deviation of the demographic characteristics of the participants for the study. By Age, it was discovered that 90.70% of the students are between the ages of 20 and 25 years. 8.70% are between 26 and 30 years. Only 0.30% each fell within the ages 31-35 years and ages 36-40 years. This indicates that the study mainly involved young adults within the typical undergraduate age range, with a mean age of 23.50 years. By Gender distribution, 66.80% of the respondents were female, while 33,20% were male. This suggests that female students participated more actively in the study and have higher engagement with the AI tools at the undergraduate level.

**Table 2:** Frequencies and Percentages Analysis of Artificial Intelligence Challenges

| S/N | Item | SD | D | A | SA |
|---|---|---|---|---|---|
| 1 | I require training before using the AI tools | 73 | 212 | 58 | 12 |
| | | 20.60% | 59.70% | 16.30% | 3.40% |
| 2 | AI tools are costly in using | 65 | 242 | 44 | 4 |
| | | 18.30% | 68.20% | 12.40% | 1.10% |
| 3 | AI tools assisted work has low acceptability by my lecturers | 24 | 154 | 157 | 20 |
| | | 6.80% | 43.40% | 44.20% | 5.60% |
| 4 | It doesn't give me exactly what I want | 46 | 220 | 80 | 9 |
| | | 13.00% | 62.00% | 22.50% | 2.50% |
| 5 | Some references are not always accurate | 22 | 116 | 199 | 18 |
| | | 6.20% | 32.70% | 56.10% | 5.10% |
| 6 | Epileptic power supply | 41 | 165 | 134 | 15 |
| | | 11.50% | 46.50% | 37.70% | 4.20% |
| 7 | Internet Failure | 42 | 122 | 172 | 19 |
| | | 11.80% | 34.40% | 48.50% | 5.40% |
| 8 | Work disorganization through similarities test | 36 | 141 | 163 | 15 |
| | | 10.10% | 39.70% | 45.90% | 4.20% |

**Key: SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree**

Table 2 shows frequency counts, percentages, mean, and standard deviation of the challenges faced by students in using artificial intelligence. It was discovered that Internet Failure (48.50%) ranked as the most frequently reported challenge, showing that unstable connectivity limits consistent use of AI platforms, work disorganization through similarities test (45.90%) was also common, meaning that plagiarism detection systems or repeated content affect students' confidence when using AI generated materials, epileptic power supply (37.70%) appeared as another major issue, revealing infrastructural instability as a barrier to effective AI use, also, 56.10% of students agreed that some AI generated references are not always accurate, showing concern about the credibility of AI outputs. More so, 59.70% of the respondents revealed that they did not engage in training before using AI tools, whilst 68.20% of the respondents also disagreed that AI tools are not costly to use, pointing towards a direction that there are low financial barriers in terms of data and subscription costs. Furthermore, 44.20% agreed that AI-assisted work has low acceptability by lecturers, meaning that, some resistance from academic staff. Lastly, 62.00% of the respondents stated that AI tools do give them exactly what they want. With this aforementioned, these findings suggest that while students actively use AI tools, they face a mix of technical, ethical and practical challenges that influence their user experience. Overall, the grand average mean of the items rose above the criterion mean of 2.5. By implication, they all agreed that the items above are challenges they faced using artificial intelligence. The standard deviation of this result appears clustered, which implies a unanimous response towards the items.

**Table 3:** Frequency Counts, Percentages, Mean, and Standard Deviation on Perception of Undergraduates on Reliance in the Use of AI.

| S/N | Item | N | R | O | A |
|---|---|---|---|---|---|
| 1 | I use AI tools regularly for my assignment | 10 | 124 | 174 | 47 |
| | | 2.8% | 34.9% | 49.0% | 13.2% |
| 2 | I use AI tools for my project | 70 | 124 | 131 | 30 |
| | | 19.7% | 34.9% | 36.9% | 8.5% |
| 3 | I use AI tools for tutoring | 66 | 112 | 136 | 41 |
| | | 18.6% | 31.5% | 38.3% | 11.5% |
| 4 | I use AI tools for group discussions | 72 | 248 | 0 | 35 |
| | | 20.3% | 69.9% | 0.0% | 9.9% |
| 5 | I use AI tools to prepare for examinations | 71 | 0 | 241 | 43 |
| | | 20.0% | 0.0% | 67.9% | 12.1% |
| 6 | I use AI tools to prepare paper presentations | 57 | 137 | 129 | 32 |
| | | 16.1% | 38.6% | 36.3% | 9.0% |

| | | | | | |
|---|---|---|---|---|---|
| 7 | I use AI tools in place of my dictionary | 44 | 110 | 129 | 72 |
| | | 12.4% | 31.0% | 36.3% | 20.3% |

**Source: Author's Analysis, 2024**
**Key: N = Never; R = Rarely; O = Often; A = Always**

Table 3 above shows that students agreed that they use AI tools regularly for their assignments, with the highest proportion,49.00%, while 13.20% said they always use them. This makes assignment writing the most common purpose for AI use. Similarly, 67.90% of the respondents often use AI tools to prepare for examinations, showing high-rate reliance in the course of the study. The result also shows that they substitute AI tools often in place of a dictionary, with the percentage of 36.30%, while 20.30% always do, showing growing dependence on quick explanations and translations. In terms of tutoring, 38.30% often and 11.50% always use AI platforms for self-learning, suggesting that students are beginning to adopt AI as a study partner. Around 36.90% of students often use AI tools for project writing, and 36.30% use them for paper presentations, showing that AI is also used in major academic outputs. However, 69.90% of the respondents said that they rarely use AI tools for group discussions, making it the least common area of application. These findings revealed that AI tools are predominantly used for individual academic tasks (assignments, exams, writing, and research), whilst interactive uses remain low, and this reflects the growing individualization of learning through AI technology among undergraduates. Overall, the average grand mean rose above the criterion mean, which implies agreement with the items. Also, the standard deviation of all the items appeared clustered, which implies that undergraduates agreed collectively that artificial intelligence is reliable.

**Table 4:** T-Test Showing Difference on Perceived Challenges in the Use of AI Based On Gender

| Gender | N | Mean | Std. Deviation | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|
| Male | 118 | 17.62 | 4.15 | 1.19 | 353 | .24 |
| Female | 237 | 17.05 | 4.28 | | | |

Table 4 shows that the mean and standard deviation for male and female undergraduates are (17.62, 4.15) and (17.05, 4.28), respectively. There was no significant difference between male (33.20%) and female (66.80%) undergraduates' perception of challenges of AI to their academics ($t = 1.19$, $p>0.05$). This indicates that students encounter comparable experiences in terms of access, reliability, and challenges related to AI usage.

## Discussion

This study was set out to assess the reliance of the students on the use of Artificial intelligence, including the challenges faced by the students in the study area. The findings show that students rely heavily on AI tools for academic purposes, especially in

assignments and examination preparation, and the most common challenges related to the usage of AI tools among respondents are poor internet connectivity, high data cost, power instability, and limited AI literacy. Gender does not significantly influence students' perception of these challenges, whilst the overall pattern suggests a high but cautious dependence on AI tools among undergraduate students.

The study revealed that there is a reasonable number of challenges which are associated with the use of Artificial Intelligence. These findings are in support of the report of Dinesh et al. (2019), who reported that Artificial Intelligence is a source of both advantages and challenges from different perspectives. These challenges include difficulty in building trust in AI, software technical malfunction, data security, algorithm bias, and data scarcity. The findings of this study are also in conformity with the report of Reagan (2018), who posed that in Nigeria, almost everything is done manually, and the significant setbacks of AI include a shortage of data science skills and complexities in the AI algorithm.

This study also revealed that the undergraduate students in the study area agreed collectively that artificial intelligence is reliable. However, this report was in contrast to that of Lee et al. (2023), who reported concerns over AI's ability to produce credible references, the risks of mirage in various contexts, and limited 'machine-like' reasoning capabilities. Meanwhile, Alrazaq et al. (2023) had highlighted the risks attached to relying on Artificial Intelligence tools, which are the likes of generating convincingly false information, which would eventually result in undue trust in these technologies, thereby impeding the development of critical thinking, problem-solving and effective communication skills in the students. This dependency is problematic as it can discourage students from engaging in thorough research and developing their very own insights.

## Conclusion and Recommendation

The study concluded that the level of reliance of the students in the study area on Artificial Intelligence is reasonably high despite the fact that they face a number of challenges with the use of these AI tools. Also, this study further recommended that the institution should provide mandatory comprehensive training programs and workshops for the students to enable them to learn the ethical use of the AI tools. The study suggests that explicit institutional rules and moral principles be created to govern the permissible application of AI in academic pursuits, especially with regard to referencing, originality, and plagiarism. In order to improve students' and employees' digital literacy, critical thinking, and problem-solving skills and to prevent an excessive reliance on artificial intelligence, universities should also make investments in capacity building.

To further reduce technical issues, sufficient infrastructure support should be offered, including dependable internet access, strong AI platforms, and enhanced ICT facilities.

Academic assignments should also be thoughtfully created to support students' independent inquiry, creativity, and originality. This will assist them in striking a balance between intellectual growth and the efficiency gained by AI tools.

Last but not least, awareness programs should be put in place to educate students about the dangers of bias, false information, and placing too much reliance in content produced by artificial intelligence. They should also encourage the practice of cross-referencing information with reliable academic sources.

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