UNIAFRICA JOURNAL OF EDUCATION (OCTOBER, 2025), VOLUME 4, ISSUE 3.
ISSN: 2971-6004
https://www.uniafricajournalofeducation.com

AN ASSESSMENT OF THE LEVEL OF ARTIFICIAL INTELLIGENCE (AI) UTILIZATION FOR LEARNING AMONG SENIOR SECONDARY SCHOOL STUDENTS IN OREDO LOCAL GOVERNMENT AREA, EDO STATE

JAMES ODUNAYO AGBOOLA
Department of Education, Benson Idahosa University,
Benin City, Edo State, Nigeria.
jagboola@biu.edu.ng; agboolajames20@yahoo.com
08148444569; 08056736230

Abstract
Given the growing integration of AI technologies in education, understanding students' engagement with AI tools is essential for ensuring effective and ethical use in learning contexts. The study investigated the level of usage of AI among students in Oredo Local Government Area of Edo State. One research question and two hypotheses guided the study. A descriptive survey design was adopted. The sample comprised 260 SSII students selected through proportional sampling. Data were collected using a validated and reliable (r = 0.77) self-developed questionnaire. Data were analyzed using descriptive statistics (frequency and percentage) and independent sampled t-test at 0.05significance level. Findings revealed that AI usage among students was generally high; no significant gender difference was observed, but age significantly influenced the level of AI usage. It was recommended that teachers, parents, and school administrators should collaboratively guide and monitor students' use of Artificial Intelligence (AI) tools to ensure they are applied for educational purposes. Supervision should focus on promoting responsible and ethical use of AI while minimizing distractions and misuse during learning activities.

Keywords: Artificial, Intelligence, Learning, Technology, Utilisation

Introduction

AI, or artificial intelligence, is a field or ability of computer systems to perform tasks that typically require human intelligence, such as problem-solving, learning, and decision-making. AI enables machines to analyze data, understand language, and make predictions. The core capabilities of AI are the fundamental processes that enable systems to learn, reason, perceive, and act in ways that simulate or surpass human intelligence. The origin of AI could be traceable to the ancient myths of artificial beings, however, the modern concept came up in the mid-20th century with Alan Turing's work on machine intelligence and this was formally established by John McCarthy in 1956 at the Dartmouth workshop who coined the term "artificial intelligence". According to Kothari (2025) the aim of AI was to create systems that could exhibit intelligence comparable to that of humans, including the ability to learn from experience, understand natural language, solve problems, and make decisions. One of the central aims of AI is to develop systems that can analyze large datasets, identify patterns, and make data-driven decisions. This ability to solve problems and make decisions efficiently is invaluable across various industries, from healthcare and finance to transportation and manufacturing.

Another aim of AI was in the health sector. AI in healthcare was to improve diagnostics, treatment planning, and patient care. The objective came up so that medical professionals could leverage AI algorithms to analyze medical images, predict disease outcomes and develop personalized treatment plans for patients. Worthy to note here that AI is not limited to practical applications alone; it has the potential to spur creativity and innovation. AI-powered tools could also assist artists, writers, and designers to generate creative new ideas and push the boundaries of human imagination. In some cases,

AI could equally perform tasks that are beyond human capacity, such as processing and analyzing vast amounts of data.

In education, AI could be used to personalize learning, automate administrative tasks for teachers, and provide data-driven insights into student performance. However, while AI offers benefits like adaptive learning platforms and increased efficiency, its challenges include the lack of clear policy frameworks, concerns about academic dishonesty and cheating, and the potential to widen technological divides if not implemented equitably. Students using AI could also face the challenge of over-reliance that could hinder critical thinking, academic dishonesty and plagiarism, data privacy and security risks, algorithmic bias and potential for unfair outcomes, and reduced human interaction leading to less social and emotional development. Other problems could include a lack of understanding of AI's limitations, anxiety and stress, and unforeseen ethical and practical policy challenges which seemed to have discouraged many of the students and have reduced their level of usage of AI, especially those in the secondary schools.

In assessing the level of students' usage of AI, Bieńkowska et al. (2025) examined the prevalence of AI use and the types of tools employed by adopting a quantitative approach, with the primary method of data collection being a diagnostic survey and found that students' interactions with AI tools in the context of learning, as well as the factors influencing the decisions of these students to adopt these technologies was high that the students had adopted AI as a solution giver in all they do. In the same vein, Loan et al. (2024) analyzed survey results on the use of artificial intelligence tools in students' learning activities at Vietnam - Hung University of Technology and results showed that the majority of students use artificial intelligence tools in their studies periodically, with 56.28% using them several times a week and 13.09% using them daily which implied that AI has become an essential part of the learning process for many students.

Notwithstanding, there are some factors that could influence the use of AI among secondary school students. One of them could be gender. It could be believable that male students could use AI more extensively and hold more positive attitudes toward it than female students, who tend to be less frequent users and express more reluctance and concerns about AI. These gender disparities in AI adoption and perception could often be attributed to factors like the broader gender digital gap, socio-cultural influences on technology engagement, and varying confidence levels in using technology for learning. Based on this, Iddrisu et al. (2025) investigated gender differences in the adoption, use patterns and perceived effectiveness of AI writing tools by undergraduate students at the University for Development Studies (UDS) and study revealed that no significant differences were found between male and female students on the use, perceived effectiveness, and both male and female students perceived AI tools as being effective. Results also demonstrated the frequent use of artificial intelligence in the academic writing context and imply that any gender differences in AI output are mitigated by the supportive capabilities of AI tools. In the same vein, the work of Enebechi et al. (2025) on undergraduate students' use of AI in their learning and how gender and primary place of residence influence their adoption of AI in their learning confirmed that gender was not a significant influence on AI use for learning, students' primary place of residence was a significant factor in determining undergraduate students' use of AI in their learning.

Another factor that could influence the use of AI among students is age. Observation could show that students are using AI tools across all age groups, from early childhood to higher education, however, adoption and familiarity could vary by age. Younger children could be increasingly use AI for learning, with some studies showing potential benefits for development, while older students, particularly those in high school and college, could be using generative AI for homework and other academic tasks. In looking at this concept, Cho and Ofosu-Anim (2024) investigated how the ages of Yemyung Graduate University (YGU) students influence their perceptions and usage of generative AI tools, examining factors such as frequency of use, ease of use, and anticipated future interactions with these technologies

and results confirmed significant differences in perceptions and usage based on age. Findings indicate that younger students tend to view generative AI tools as essential for academic success, whereas older students often perceive them as less critical.

Given that AI could be helpful especially in the educational settings and studies have shown that students have access to this searching machine however, most studies focus on undergraduates or foreign contexts which had created limited evidence existing on AI usage levels among secondary school students in Edo State and with the fact that there is insufficient empirical data on gender and age differences in this context, the statement of the problem of the study therefore is: what is the level of utilisation of AI and what are the differences in the usage of AI based on gender and age among students in Oredo Local Government Area of Edo State?

Research Questions

The following research questions guided the study:

1. What is the level of utilization of Artificial Intelligence (AI) tools for academic purposes among secondary school students in Oredo Local Government Area of Edo State?
2. Is there difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo State?
3. Is there difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age?

Hypotheses

The following hypotheses were tested at 0.05 significant level:

1. There is no significant difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo State.
2. There is no significant difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age.

Methodology

The descriptive survey design was used for the study. The design was chosen because it was appropriate for his study in describing phenomena as they are without manipulation of any variables under study. The population of the study comprised all SS II students in Oredo Local Government Area of Edo State. This set of students were used for the study because they are at the age range to developing key skills like critical thinking and have the cognitive ability to grasp AI concepts, making them receptive to structured learning on AI literacy and ethical use. As the time of this study, there about 4, 176 SSII students in the 13 public secondary schools in the Local Government Area (Ministry of Education, Iyaro, Benin City). The sample for the study comprised 260 SSII students drawn from the population of the study. The equal proportion sampling technique was used in selecting 20 SSII students from each of the secondary schools in the Local Government thereby giving a total of 260 students. The students were selected using the simple random sampling technique through balloting. This was done to give every selected student an equal chance of being selected.

Research instrument used for data collection was a self-constructed questionnaire titled “AI usage in secondary schools”. The instrument was divided into two sections. Section A was designed to elicit demographic information of the respondents while section B consisted of items on the level of usage on AI among secondary school students on five Likert scale of Very High (VH), High (H), Moderate (M), Low (L) and Very Low (VL). The initial draft of the instrument was given to three experts in Counselling Psychology and Measurement and Evaluation, Benson Idahosa University for validation. Their inputs and suggestions were incorporated into the final draft of the questionnaire which authenticated its face and content validation. Thirty copies of the instrument were administered to 30 students outside the proposed sample but in the population for the study to test for its reliability. Data collected were analysed using the Cronbach alpha statistics and the instrument yielded a coefficient value of 0.77 which showed that it was dependable. With the help of a research assistant, two hundred

and sixty (260) copies of the instrument were administered on the respondents and were retrieved immediately after completion. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. The research question was analyzed using descriptive statistics (frequency and percentage), while the hypotheses were tested using the independent sampled t-test at the 0.05 level of significance.

Results

Research Question One: What is the level of utilization of Artificial Intelligence (AI) tools for academic purposes among secondary school students in Oredo Local Government Area of Edo State?

Table 1: Descriptive Statistics showing the Level of Utilization of Artificial Intelligence (AI) Tools for Academic Purposes among Secondary School Students in Oredo Local Government Area of Edo State

Levels	Frequency	Percentage (%)	Valid Percentage
Very Low	5	1.9	1.9
Low	21	8.1	8.1
Moderate	36	13.8	13.8
High	91	35.0	35.0
Very High	107	41.2	41.2
Total	**260**	**100**	**100**

The data in the Table above showed the level of utilization of Artificial Intelligence (AI) tools for academic purposes among secondary school students in Oredo Local Government Area of Edo State. it is observed from the Table that out of 260 students used for the study, 5 representing 1.9% were on very low level of AI usage, 21 constituting 8.1% were on low level of usage, 36 representing 13.8% were on moderate level of AI usage, 91 constituting 35.0% were on high level of usage and finally 107 constituting 41.2% were on a very high level of usage of AI among secondary school students in Oredo Local Government Area of Edo State. It can be concluded from the Table therefore that the level of utilization of Artificial Intelligence (AI) tools for academic purposes among secondary school students in Oredo Local Government Area of Edo State is very high.

Hypothesis One: There is no significant difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo State.

Table 2: Student's Independent t-test showing the Difference between Male and Female Secondary School Students in their Level of Use of AI Tools for Learning in Oredo Local Government Area of Edo State

Gender	N	t-cal	Mean	Mean diff.	df	Sig.(2-tailed)	Decision
Male	104		30.81				
		0.69		0.73	258	0.48	Accept Ho
Female	156		31.55				

Table 2 showed the difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo State. The data in the table revealed that the observed difference is not significant at 0.48 (t = 0.69; df=258). Since 0.48 is higher than 0.05, the observed difference between male and female students' level of usage of AI is not significant. With this, the null hypothesis which says there is no significant difference between male and female students' level of usage of AI in Oredo Local Government Area of Edo State is accepted. This showed that there is no significant difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo State.

Hypothesis Two: There is no significant difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age.

Table 2: Student's Independent t-test showing the difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age

Age	N	t-cal	Mean	Mean diff.	df	Sig.(2-tailed)	Decision
Below 17	143		29.95				
		-2.82		2.88	258	0.00	Reject Ho
Above 17	117		32.84				

Table 3 showed the difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age. The data in the table revealed that the observed difference is significant at 0.00 (t = -2.82; df=258). Since 0.00 is less than 0.05, the observed difference in students' level of usage of AI in Oredo Local Government Area of Edo State based on age is significant. With this, the null hypothesis which says there is no significant difference in students' level of usage of AI in Oredo Local Government Area of Edo State based on age is rejected. This implied that there is a significant difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age.in favour of the older ones.

Discussion of findings

The first finding in this study revealed that the level of utilization of Artificial Intelligence (AI) tools for academic purposes among secondary school students in Oredo Local Government Area of Edo State is very high. This could be as a result of their exposure to the machine and have tested its ability in solving their educational problems. As a matter of fact, if one student found that AI is efficient and effective in solving academic tasks, he or she will inform others and this could go round among them in few days. This finding is in agreement with that of Bieńkowska et al. (2025) who examined the prevalence of AI use and the types of tools employed by adopting a quantitative approach, with the primary method of data collection being a diagnostic survey and found that students' interactions with AI tools in the context of learning, as well as the factors influencing the decisions of these students to adopt these technologies is high. In the same vein, the finding corroborated that of Loan et al. (2024) who analyzed survey results on the use of artificial intelligence tools in students' learning activities at Vietnam - Hung University of Technology and results showed that the majority of students use artificial intelligence tools in their studies periodically, with 56.28% using them several times a week.

The second finding confirmed that there is no significant difference between male and female secondary school students in their level of use of AI tools for learning in Oredo Local Government Area of Edo

State. This could be as a result peer group influence and closeness of the student irrespective of gender differences and also for the fact they are all together sharing same commonness in the same environment. This finding supported that Iddrisu et al. (2025) who investigated on gender differences in the adoption, use patterns and perceived effectiveness of AI writing tools by undergraduate students at the University for Development Studies (UDS) revealed that no significant differences were found between male and female students on the use, perceived effectiveness, and both male and female students perceived AI tools as being effective. In the same vein, the finding confirmed that of Enebechi et al. (2025) who studied undergraduate students' use of AI in their learning and how gender and primary place of residence influence their adoption of AI in their learning and results confirmed that gender was not a significant influence on AI use for learning, students' primary place of residence was a significant factor in determining undergraduate students' use of AI in their learning.

The third finding in this study revealed that there is a significant difference in the level of use of AI tools for learning among secondary school students in Oredo Local Government Area of Edo State based on age in favour of the older ones. This could be as a result of the older ones thinking of the resultant outcomes and challenges like risks of bias and fairness issues, data privacy and security concerns, over-reliance on technology which can reduce critical thinking skills, high implementation and maintenance costs and threats to academic integrity through potential cheating. This finding is in support of Cho and Ofosu-Anim (2024) who investigated how the ages of Yemyung Graduate University (YGU) students influence their perceptions and usage of generative AI tools, examining factors such as frequency of use, ease of use, and anticipated future interactions with these technologies and results confirmed significant differences in perceptions and usage based on age. Findings indicate that younger students tend to view generative AI tools as essential for academic success, whereas older students often perceive them as less critical.

Conclusion

It can be concluded in this study that, the level of usage of AI among secondary school students in Oredo Local Government Area of Edo State is very high regardless of the gender differences and there is no significant difference in students' level of usage of AI in Oredo Local Government Area of Edo State based on age.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Teachers, parents, and school administrators should collaboratively guide and monitor students' use of Artificial Intelligence (AI) tools to ensure they are applied for educational purposes.
2. Supervision should focus on promoting responsible and ethical use of AI while minimizing distractions and misuse during learning activities.
3. Teachers should ensure that the younger students are encouraged to use AI like the older ones so as to help them solve their academic challenges.

References

Bieńkowska, I., Przybysz-Zaremba, M., Konieczny, J., Góźdź, J., Kitlińska-Król, M., Polok, K. & Nadelson, L. S. (2025). Analysis of the use of artificial intelligence (AI) by elementary and secondary school students in the context of completing school assignments. *Journal of Educational Research* . https://DOI.org/10.1080/00220671

Cho, C., & OfosuAnim, D. (2024). Navigating the technology divide: The role of educational leadership in generative AI usage among diverse age groups. *Open Journal of Leadership, 13*, 515-531. DOI: 10.4236/ojl.2024.134027

Enebechi, R., Nwosu, K. C., Amobi, U. V. & Ogbaka, L. C. (2025). Undergraduate students' use of artificial intelligence tools in their learning: do gender and primary place of residence matter. *Journal of Educational Research on Children, Parents & Teachers, 6*(2), 1-10.

Iddrisu, H. M., Iddrisu, S. A. & Aminu, B. (2025). Gender differences in the adoption, usage, and perceived effectiveness of AI writing tools: A Study among University for development studies. *International Journal of Educational Innovation and Research*, *4*(1), 100-111.

Kothari, S. (2025). *Goals of Artificial Intelligence*. www.google.com

Loan, D. T. M., Anh, D. T. & Truong, N. X. (2024). A study on the level of awareness and use of artificial intelligence tools of students at Viet - Hung Industry University. *International Journal of Research Publication and Reviews*, *5*(5), 1872-1878.