Undergraduates' Attitude towards Artificial Intelligence in the Faculty of Education, Abia State University, Nigeria

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Abstract:- This study examines the attitudes of undergraduates in the Faculty of Education at Abia State University (ABSU), Nigeria, toward Artificial Intelligence (AI) technologies in education. Using a descriptive survey design, data were collected from one hundred and twenty-five fourth year students across five departments. Statistical analyses, including independent sample t-tests and Multivariate Analysis of Variance (MANOVA), were employed to analyse the hypotheses. The findings revealed that the majority of students exhibit positive attitudes toward AI, particularly recognizing its potential to enhance learning and streamline academic tasks. Minimal gender differences were observed, with female students showing slightly more favourable attitudes compared to males, though the differences were not statistically significant. Departmental variations in attitudes were also minimal, suggesting consistent perceptions of AI across disciplines. Challenges such as limited exposure to advanced AI tools and concerns about ethical issues like data privacy were identified as barriers to adoption. These findings underscore the importance of targeted interventions, such as AI literacy programs and equitable access to AI tools, to foster informed and inclusive attitudes toward AI in education.

Keywords:- *Artificial Intelligence (AI), Undergraduate Attitudes, Education Technology, Gender Influence.*

I. INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative technology across diverse sectors, including education, offering innovative opportunities for learning, teaching and research. AI refers to the simulation of human intelligence in machines that are designed to think, learn, and adapt independently (Russell & Norvig, 2020). In education, AI technologies offer immense potential to enhance teaching, learning, and administrative processes.

From personalized learning systems to AI-powered tutoring and administrative tools, these technologies are reshaping how knowledge is delivered and acquired (Hendricks et al., 2019).

While the technological potential of AI is vast, the successful integration of AI in education depends largely on the attitudes of stakeholders, particularly students. Attitudes are evaluative judgments that encompass cognitive, affective, and behavioural dimensions, influencing how individuals perceive and respond to a given entity (Ajzen, 2005). In this context, undergraduate students' attitudes toward AI are pivotal in determining their acceptance and use of AI tools for academic purposes. A positive attitude can encourage adoption and meaningful engagement, while a negative attitude may hinder utilization, irrespective of the benefits (Choudhury & Choudhury, 2020).

Despite the increasing relevance of AI in education, limited research has explored the attitudes of undergraduate students, especially in developing countries like Nigeria. Most studies on AI adoption have focused on specific industries or professional groups (e.g., healthcare IT professionals), leaving a gap in understanding how young learners perceive AI technologies (Chao et al., 2020; Unigwe et al., 2023). Given that undergraduates represent the future workforce, their attitudes toward AI can provide valuable insights into the broader societal acceptance of these technologies.

However, the successful integration of AI into educational practices depends significantly on the attitudes of students, who are among the primary users of these technologies. Existing studies have largely emphasized AI's technical aspects, overlooking users' perceptions, emotions, and behavioural inclinations, particularly students. In contexts such as Nigeria, cultural differences, limited exposure to technology, and financial constraints may shape unique attitudes toward AI that differ from global trends.

II. ATTITUDES TOWARD ARTIFICIAL INTELLIGENCE

Attitude can be defined as the combination of feelings, opinions, and emotional dispositions that undergraduates hold towards AI within an educational setting. This attitude is shaped by multiple factors, such as cultural perceptions, prior experiences, and the perceived impact of AI on education.

Attitudes toward AI are evaluative judgments that influence how individuals perceive, react to, and engage with AI technologies. Ajzen (2005) defines attitudes as cognitive, affective, and behavioural dispositions toward a particular entity. In the context of education, attitudes toward AI significantly impact its acceptance and utilization. Students with positive attitudes often see AI as an enabler of academic success, while those with negative attitudes may associate it with risks such as job displacement or ethical concerns (Choudhury & Choudhury, 2020).

The Technology Acceptance Model (TAM) underscores the relationship between attitude and technology adoption, this theory highlights that positive perceptions of usefulness and ease of use significantly impact behavioural intentions (Davis, 1989). Similarly, the Innovation Diffusion Theory (IDT) emphasizes the role of attitude in driving innovation adoption, particularly among early adopters who influence the broader population (Roger, 1962).

A. Factors Shaping Attitudes Toward AI

The formation of attitudes toward AI is influenced by multiple factors, including awareness, personal experiences, and cultural contexts.

➢ *Awareness and Understanding:*
Awareness of AI plays a foundational role in shaping attitudes. Studies have shown that students who are more familiar with AI technologies tend to hold favourable attitudes due to their understanding of AI's capabilities and limitations (Drozdowska, 2022). However, limited exposure often leads to misconceptions, resulting in skepticism or fear (Luria & Richter, 2021).

➢ *Personal Experiences and Interactions with AI:*
Direct interactions with AI tools, such as Grammarly and ChatGPT, influence students' perceptions. Positive experiences, such as the ability to simplify research or generate content, enhance trust and encourage adoption (Vitak et al., 2020). Conversely, challenges like technical glitches or perceived complexity can lead to frustration and hinder acceptance (Islam et al., 2020).

➢ *Media Representations:*
Media portrayals of AI also play a significant role in shaping attitudes. Optimistic narratives often emphasize AI's potential to revolutionise education, while dystopian portrayals focus on ethical dilemmas and job displacement (Sarabjot & Singh, 2018). Balancing these narratives is critical to forming informed and nuanced attitudes among students.

➢ *Cultural and Ethical Considerations:*
Cultural differences impact how students perceive AI. In some regions, ethical concerns, such as data privacy and algorithmic bias, dominate discussions, leading to cautious attitudes (Montiolu et al., 2021). Addressing these concerns is essential to foster trust and broader acceptance.

➢ *Educational Background*
The role of education in shaping attitudes towards AI is paramount. Undergraduates studying fields related to technology may embrace AI more readily, perceiving it as an opportunity for innovation and problem-solving (Choudhury & Choudhury, 2020.).

B. Challenges Affecting Attitudes Toward AI

Despite the potential benefits, several challenges inhibit positive attitudes toward AI:

➢ *Lack of Access to Technology:*
Limited access to AI tools and resources often leads to underutilization and unfavourable perceptions, particularly in resource-constrained settings (Panirselvam & Vasif, 2021).

➢ *Perceived Complexity:*
Many students view AI as a highly technical domain, which can intimidate those without a technical background (Islam et al., 2020).

➢ *Ethical Concerns:*
Issues such as algorithmic bias, data privacy, and the potential misuse of AI technologies contribute to scepticism and reluctance (Dignum, 2018).

When students are aware of the existence and potential benefits of AI tools, they are more inclined to form either a positive or negative attitude towards them. The attitude of students significantly impacts their willingness to adopt and utilize AI tools, as well as their involvement in discussions, development, and regulations pertaining to AI integration in education. Students who develop a positive attitude are more inclined to embrace and extensively utilize AI tools, while those with a negative attitude may be discouraged from using them.

Moreover, factors like gender and the type of department undergraduates belong to may influence these attitudes, affecting how male and female students engage with AI technologies. Gender plays a significant role in shaping attitudes toward technology, including Artificial Intelligence (AI). Research by Luria and Richter (2021) highlights that gendered perceptions of AI can vary based on specific applications. For example, male students are more likely to view AI as a tool for problem-solving and efficiency, while female students may focus on its ethical and human-centered implications. However, studies in academic contexts often reveal minimal differences in actual usage patterns when both genders have equal access to AI

tools (Yasar & Sinanc, 2021). This disparity may stem from greater exposure to and familiarity with technological tools among males, who are traditionally more encouraged to pursue STEM-related interests (Ertl et al., 2017). Without understanding these nuanced perspectives, efforts to integrate AI in education risk being met with resistance or underutilization, hindering its transformative potential.

This study focuses on undergraduates in the Faculty of Education at Abia State University (ABSU), Nigeria, examining their attitudes toward AI. It seeks to understand the factors shaping these attitudes and their implications for integrating AI into educational practices.

C. Aim and Objectives of the Study

This study is aimed at investigating undergraduates' attitude towards artificial intelligence in the faculty of education, Abia State University, Nigeria. The specific objectives are to:
- Determine the attitude of undergraduates at ABSU towards AI technology.
- Find out the influence of gender on undergraduates' Attitudes towards AI.
- Determine the difference in the attitude of undergraduates towards AI across the five departments in the Faculty of Education at ABSU.

D. Research Questions

The following research questions will be answered to achieve the study objectives.:
- What is the attitude of undergraduates at ABSU towards AI technology?
- How does gender influence undergraduates' attitudes towards AI?
- How different is the attitude of undergraduates across the five departments in the Faculty of Education at ABSU?

E. Hypotheses
- There is no significant difference in the attitude of undergraduates towards AI technology at ABSU.
- Gender does not significantly influence the attitude of undergraduates towards AI in ABSU.

- There is no significant difference in the attitude of undergraduates towards AI across the five departments in the faculty of education at ABSU.

III. METHODS AND MATERIALS

This study adopted the descriptive survey method, the sample of the study consisted of the entire population of one hundred and twenty-five 400-level students in the five departments in the Faculty of Education, namely, Curriculum and Teacher Education (DCTE), Educational Foundation (DFE), Administration and Planning (APD), Vocational Education (VED), Science Education (DSE), Thus, the study adopted a census.

Data were collected using a questionnaire named "Undergraduates' Attitude Towards Artificial Intelligence in the Faculty of Education, Abia State University, Nigeria." It is divided into two sections; A and B. Section A elicits information on the respondents' personal information, while Section B is structured to elicit responses of undergraduates' attitude towards Artificial Intelligence in Education as well as the influence of gender in undergraduates' attitude towards AI. The questionnaire was structured on a modified 4-point Likert scale, Attitude has Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD). Mean and standard deviation were employed to analyze the data meant to answer the research questions, hypothesis 1and 2 were tested using Independent sample t-test, while hypothesis 3was tested using Multivariate Analysis of variance (MANOVA) at 0.05 levels of significance.

IV. RESULTS AND ANALYSIS

The results from the findings of the study are presented below. All tables will be presented first, followed by the discussion. Research Questions that have corresponding hypotheses will have both tables presented successively, that is, the tables answering the research question will be presented first, by the table analyzing the hypothesis.

A. Research Question 1: What is the Attitude of Undergraduates in ABSU towards AI Technology?

Table 1: Mean and Standard Deviation Analysis of the Attitude towards AI among Undergraduates at ABSU

Attitude	N	Mean	Std. Deviation
Negative	2	8.0000	2.8284
Positive	123	20.130	2.6456

➢ *Hypothesis 1: There is no Significant Difference in the Attitude of Undergraduates towards AI Technology at ABSU*

Table 2: Mean, SD and Independent Samples t-Test Analysis of the Attitude of ABSU Students towards AI

Attitude	N	$\bar{x}$	SD	Df	T	Sig.	P	Decision
Negative	2	8.000	2.828	123	6.428	.000	0.05	Reject Ho$_1$ P<0.05
Positive	123	20.13	2.645					

B. Research Question 2: How does Gender Influence Undergraduates' Attitudes towards AI?

Table 3: Mean and Standard Deviation Analysis of the Influence of Gender on Undergraduates' Attitude towards AI at ABSU

Gender	N	Mean	Std. Deviation
Female	92	17.869	4.3074
Male	33	16.969	4.7330

➤ *Hypothesis 2: Gender does not Significantly Influence the Attitude of Undergraduates towards AI in ABSU*

Table 4: Mean, SD and Independent Samples t-Test Analysis of the influence of Gender on Undergraduates' Attitude towards AI.

Gender	N	$\bar{x}$	SD	Df	T	Sig.	P	Decision
Male	92	17.86	4.307	123	1.003	.318	0.05	Accept Ho$_1$ P>0.05
Female	33	16.96	4.733					

C. Research Question 3: How Different is the Attitude of Undergraduates towards AI Across the Five Departments in the Faculty of Education at ABSU?

Table 5: Mean and Standard Deviation Analysis of the Difference in the Attitude of Undergraduates towards AI Across the Six Departments in the Faculty of Education at ABSU

Variables	Department	Mean	Std. Deviation	N
Attitude	Curriculum and teacher Edu Dept	19.9615	3.11204	52
	Science Edu Dept	19.6897	3.81822	29
	Vocational Dept	19.5600	2.32881	25
	Administration and Planning	21.0000	2.30940	13
	Foundation Dept	20.1667	2.63944	6
	Total	19.9360	3.04733	125

➤ *Hypothesis 3: There is no Significant Difference in the Attitude of Undergraduates towards AI Across the Five Departments in the Faculty of Education at ABSU*

Table 6: One-Way MANOVA Analysis of the no Significant Difference in the Attitude, of Undergraduates towards AI Across the Five Departments in the Faculty of Education at ABSU

Source	Dependent Variables	Type III Sum of Squares	df	Mean Square	Univariate test (f)	Univariate test (sig)	Multivariate Test(f)	Multivariate Test (Sig)
	Attitude	20.365	4	5.091	.540	.707	.927	.520

Table 1 presents the analysis of ABSU student's attitude towards AI. The table shows that 123 students with a mean score of 20.130 and a SD of 2.645 have a positive attitude towards AI while students with negative attitude had an N of 2, a mean score of 8.000 and a standard deviation of 2.828 The analysis shows that the attitude of students towards AI is positive. The majority of students have a positive attitude towards AI, indicating their acceptance and willingness to engage with AI. This shows that ABSU students generally have a positive attitude towards literature review/writing assistant AI tools, image creator/visual content AI tools, grammar, paraphrasing, and plagiarism-checking AI tools, publication portfolio AI tools, data analysis tools and citations AI tools

Table 2 reveals that the computed t (123) = 6.428, P <.05, i.e. p = .000, i.e., p = .000 is less than 0.05, and this is statistically significant at the chosen alpha level of 0.05. Therefore, the null hypothesis of no significant difference in the attitude of undergraduates towards AI technology at ABSU is rejected and the alternate accepted. This implies that there is a difference between the ABSU students with positive attitude towards AI and ABSU students with negative attitude towards AI, and this difference is statistically significant

Table 3 presents the analysis of the influence of gender on ABSU student's attitude towards AI. The table shows that female students had an attitude mean score of 17.86 and a SD of 4.307 while male undergraduate had an attitude

mean score of 16.96 and an SD of 4.733. The data shows that female had a higher positive mean score of 17.86 compared to the male with a lower positive mean score of 16.96. This shows that female undergraduate in ABSU, has a higher positive attitude towards AI in comparison to their male counterparts. That is, female undergraduates have higher positive attitude towards literature review / writing assistant AI tools, image creator/visual content AI tools, grammar, paraphrasing, and plagiarism-checking AI tools, publication portfolio AI tools, data analysis tools and citations AI tools more than their male counterparts.

Table 4 reveals that the computed t (123) = 1.003, P >05, i.e. p = .318, i.e., p = .318 is greater than 0.05, and this is statistically significant at the chosen alpha level of 0.05. Therefore, the null hypothesis of Gender not significantly influencing the attitude of undergraduates in ABSU towards AI is accepted and the alternate rejected. This implies that there is a difference between male and female ABSU students' attitude towards AI, however, this difference is not statistically significant.

Table 5 shows that the attitudes towards AI among undergraduates also differ across departments. The Administration and Planning Department shows the highest mean attitude score at 21.0000, with a low standard deviation of 2.30940, indicating very positive and consistent attitudes among its students. The Foundation Department has the next highest mean attitude score of 20.1667, with a standard deviation of 2.63944, showing generally positive attitudes but with some variability. The Curriculum and Teacher Education Department has a mean attitude score of 19.9615 and a standard deviation of 3.11204, reflecting positive attitudes with moderate consistency. The Science Education Department follows with a mean attitude score of 19.6897 and a standard deviation of 3.81822, indicating positive but somewhat varied attitudes. The Vocational Department has the lowest mean attitude score of 19.5600 with a standard deviation of 2.32881, suggesting relatively positive and consistent attitudes among its students.

Table 6 shows that the attitude towards AI among undergraduates that varies across the five departments Curriculum and Teacher Education, Administration and Planning, Science Education, Vocational and Foundation Department is not statistically significant as the univariate test F (4, 120) = 540, P >05, i.e. p = .707, p is greater than 0.05, and this is statistically significant at the chosen alpha level of 0.05.

V. DISCUSSION OF FINDINGS

The result of the analysis (Table 1) shows that undergraduates at ABSU generally hold a positive attitude towards AI. The majority of students, with a mean attitude score of 20.130, exhibit a favorable disposition towards AI technologies. This positive attitude is a crucial factor in the adoption and utilization of AI, as it reflects the students' readiness to embrace these technologies in their academic and personal lives. The data suggests that students are optimistic about its potential to enhance their educational

experiences. Similar support comes from Sani (2024) who demonstrated that, despite varying levels of familiarity, the study found an overall positive attitude among students towards the potentials of AI. This positive attitude likely stems from their understanding of AI's capabilities in improving learning outcomes, streamlining research processes, and providing innovative solutions to academic challenges. However, the presence of a small group with a negative attitude, as indicated by the mean score of 8.000, highlights the importance of addressing any misconceptions or fears related to AI through continued education and engagement.

From the study (Table 3), the results found that gender does not significantly influence undergraduates' attitude towards AI at ABSU. The mean scores for male and female students are closely aligned, with females slightly ahead (17.869) compared to males (16.969). This finding is significant as it challenges the common stereotype that technology, and AI in particular, is a male-dominated field. The results suggest that both male and female students are equally engaged with AI technologies, which is a positive indication of the inclusivity of AI education at ABSU. This finding also underscores the importance of continuing to promote gender equality in technology education. This consistency aligns with the findings by Katsantonis et al, (2024), who noted that there is no significant gender differences in attitudes but observe that students with higher maternal education levels display more positive cognitive and emotional attitudes.

The attitude of undergraduates towards AI varied across different departments within the Faculty of Education, as seen in Table 5. While there are some variations in mean scores across departments, these differences are not statistically significant. This suggests that AI engagement is relatively consistent across different academic disciplines, reflecting a broad-based integration of AI into the educational fabric of ABSU. Departments such as Curriculum and Teacher Education and Administration and Planning show slightly higher levels of AI engagement, which could be due to a more explicit focus on technology integration in their curricula. However, the overall consistency across departments indicates that AI education efforts are being successfully implemented across the board, ensuring that all students, regardless of their department, have the opportunity to engage with AI.

VI. CONCLUSION

This study has highlighted the attitudes of undergraduates at Abia State University (ABSU) toward Artificial Intelligence (AI) technologies in education. The findings reveal that the majority of students possess a positive attitude toward AI, recognizing its potential to enhance learning, research, and academic tasks. However, certain challenges—such as limited exposure, perceived complexity, and ethical concerns—affect the extent of adoption and utilization among students. Interestingly, gender differences in attitudes were minimal, with female students showing slightly more positive attitudes compared

to their male counterparts. Additionally, departmental differences, while present, were not statistically significant, indicating a generally uniform perception of AI across disciplines. These findings underscore the need to focus on fostering positive and informed attitudes by addressing barriers to adoption and equipping students with the skills and knowledge needed to engage confidently with AI tools. As the world transitions into an AI-driven era, these attitudes will play a crucial role in shaping the educational and professional trajectories of future leaders.

RECOMMENDATIONS

Based on the findings, the following recommendations are made to improve the attitude of undergraduates at ABSU towards AI.

- AI Integration in Curricula: Institutions should incorporate AI-related content into their academic programs, including workshops and practical training sessions. This will demystify AI tools and encourage active engagement.
- Affordable and Inclusive Access: To bridge the gap in resource availability, institutions should invest in AI tools and platforms that are accessible to all students, irrespective of gender or financial background.
- Gender-Inclusive Strategies: Promote gender-balanced initiatives, including mentorship programs and role models, to inspire both male and female students to actively explore AI technologies.
- Policy Formulation: Policymakers should create guidelines that support the ethical and responsible use of AI in educational settings, ensuring that student concerns about privacy and bias are addressed.
- Research and Monitoring: Institutions should continuously assess students' attitudes and experiences with AI to identify areas for improvement and track progress over time.

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