

## **ATTITUDE OF IN-SCHOOL ADOLESCENTS TOWARDS THE USE OF ARTIFICIAL INTELLIGENCE TOOLS IN NIGERIAN SECONDARY SCHOOLS**

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### **Abstract**

*This study investigated the attitude of in-school adolescents towards the use of Artificial Intelligence (AI) in Nigerian secondary schools. The research adopted a descriptive survey design. Stratified random sampling technique was used to select from both Private and Public Schools twelve secondary schools in FCT Abuja. Three hundred students were sampled. A structured questionnaire titled Students' Attitude towards Artificial Intelligence Scale (SATAIS) was used for data collection. one Research Question and 3 Hypotheses was formulated for the study. The instrument was subjected to pilot testing of reliability and found to have the reliability coefficient of 0.72. Data were analyzed using frequency counts, percentages, t-test, and ANOVA at a 0.05 level of significance. Findings revealed that 78% of respondents exhibited a positive attitude toward the use of AI tools in learning, indicating strong acceptance of technology-enhanced education. However, significant differences were found in students' attitudes based on gender, school type and parents' socio-economic status. Students from private schools and those from high socio-economic backgrounds demonstrated greater readiness and willingness to adopt AI tools compared to their counterparts in public schools and low-income families. The study concluded that while adolescents generally perceive AI positively, disparities in access to digital resources and technological exposure affect equitable adoption. It was recommended that government and stakeholders should invest in ICT infrastructure, teacher training, and inclusive technology policies to bridge the digital divide and promote AI-driven learning across Nigerian schools.*

**Keywords:** Adolescents, attitude, Artificial Intelligence, students, Nigeria.

### **Introduction**

Education is globally recognized as one of the most vital fields that need to be equipped with sufficient teaching and learning facilities. In recent years, Artificial Intelligence (AI) has emerged as one of the most transformative innovations shaping the future of education globally. Its application in teaching and learning through intelligent tutoring systems, adaptive learning platforms, automated grading, and virtual assistants—has revolutionized how knowledge is delivered and accessed (Holmes et al., 2021). The integration of AI into Nigeria schools is increasingly viewed as a viable means to improve learning outcomes, address teacher shortages, and equip students with the digital competencies necessary for the 21st-century workforce (Okonkwo & Ade-Ibijola, 2021).

However, the success of the use of AI tools in Nigeria schools largely depends on the attitudes and readiness of its users, particularly students and teachers (Teo, 2019). Among these groups, in-school adolescents occupy a critical position, as their perceptions, curiosity, and willingness to engage with AI tools influence the level of adoption and overall effectiveness of the technology. Attitude, as conceptualized by

Ajzen (1991) in the Theory of Planned Behavior, refers to an individual's positive or negative evaluation of performing a specific behavior. Positive attitudes among students are associated with higher motivation, creativity, and self-directed learning, whereas negative perceptions may hinder the acceptance and utilization of AI technologies (Zawacki-Richter et al., 2019).

Gender, school type and parents socio-economic status are considered important variables in this discussion because of their intervening with the adolescents attitude towards the use of AI tools at secondary school level. Researchers such as Arkelin, 2003, Adenaga Owoyele, Jimola, and Adenuga, 2012, found out that majority of the students have positive attitudes towards the use of AI tools regardless of gender, school type and parents socio-economic status. Also, in the study of Okonkwo and Ade-Ibijola (2021), it posited that Nigerian students perceive AI as a tool that enhances engagement, creativity, and personalized learning experiences. Similarly, Adeleke (2023) observed that exposure to AI-based learning platforms increases students' motivation and improves academic performance .It was also found that students have positive attitude towards the use of AI tools and computers such as handset, and acquisition of computer e.g desktop and laptop among others. In contrast, a study showed that majority of students have poor and negative attitude to use of AI tools, practice of computer pursuing a career in ICT, internet browsing for academic tasks among others.

According to Nwachukwu and Chukwuma (2022), private schools in Nigeria often have better access to modern technologies, smart classrooms, and internet facilities compared to public schools. Likewise, Ibrahim and Musa (2021) emphasized that students' exposure to educational technologies significantly predicts their attitude towards digital learning

A plausible justification is found that there is no significant difference in low and high socio-economic background of student's attitude towards the use of AI, this indicates that students' attitude to use of AI tools is not dependent on their parents' socio-economic status (Adenuga, Owoyele Jimola, & Adenuga, 2012).

In the study of Oluwatobi and Ajayi (2020) socio-economic factors such as parental income, access to technology, and home digital literacy play crucial roles in shaping students' educational attitudes and digital competence. Similarly, UNESCO (2022) reported that socio-economic disparities remain one of the main barriers to equitable AI adoption in African education systems

In Nigeria, several factors such as limited access to digital resources, inadequate teacher training, poor infrastructure, and socio-economic disparities—continue to shape students' attitudes toward technology adoption (Omodara & Adu, 2020; Yusuf, 2022). Understanding these attitudes is therefore crucial for developing effective strategies that can foster AI literacy, promote digital inclusion, and enhance student engagement in secondary schools. Consequently, this study seeks to examine the attitude of in-school adolescents towards the use of Artificial Intelligence tools in Nigerian Secondary schools, with the goal of identifying determinants of their perception, readiness, and acceptance levels

**.Purpose of the Study**

The main purposes of this study are to:

1. Examine the attitudes of in-school adolescents toward the use of Artificial Intelligence (AI) in Nigerian secondary schools based on gender.

2. Identify the factors influencing students' attitudes toward AI, such as technological exposure, teacher support, and access to digital resources based on School Type (Public & Private).
3. Determine how adolescents' attitudes affect their readiness and willingness to adopt AI-based learning tools in Nigerian Secondary Schools based on parent's socio- economic status

### **Research Question**

1. What are the attitudes of in-school adolescents towards the use of Artificial Intelligence (AI) in Nigerian secondary schools?

### **Research Hypotheses**

- H<sub>01</sub>: There is no significant difference in the attitude of in- school adolescents towards the use of Artificial Intelligence tools in Nigerian secondary schools based on gender.
- H<sub>02</sub>: There is no significant difference in factors influencing in-school adolescents' attitudes toward use of AI tools, such as technological exposure, teacher support, and access to digital resources based on school type (public or private).
- H<sub>03</sub>: There is no significant influence of readiness and willingness towards the attitudes of in-school adolescents towards adopting AI learning based tools in Nigerian secondary schools based on parents Socio- economic factors.

### **Methodology**

This study adopted a descriptive survey research design, which is suitable for assessing opinions, attitudes, and perceptions of a population. The sample for the study comprised (300) three hundred in-school adolescents selected from twelve schools across public and private secondary schools in FCT Abuja. Stratified random sampling technique was used in the selection of the selected schools to ensure representation based on gender, school type and parents socio economic factors. The instrument for this study is a structured questionnaire designed by the researcher titled "Attitude toward Artificial Intelligence Questionnaire (AAIQ)". The instrument contain four sections covering demographic information as gender, parents socio-economic status and school type, while the three sections contains the students attitude, factors influencing attitude, and students' readiness towards the use of AI. The instrument was scored on four point likert scale of Strongly Agree 4. Agree, disagree 2, and Strongly Disagree 1. The instrument was validated by experts in Educational psychology and Measurement and Evaluation. A pilot test was conducted using Cronbach's Alpha, the reliability coefficient was 0.72 significant value. Questionnaire was administered personally with the permission of the necessary authorities. Data collected was analyzed using descriptive statistics of mean, standard deviation, frequency, and percentage to answer the research question, while t-test and ANOVA statistical tools were used to test the null hypotheses at a 0.05 level of significance.

### **Research Question 1:**

What is the attitude of in-school adolescents towards the use of Artificial Intelligence (AI) in Nigerian secondary schools?

**Table 1: Attitude of in-school Adolescents towards the Use of AI in Nigerian Secondary Schools**

| Attitude Category                                | Frequency | Percentage |
|--------------------------------------------------|-----------|------------|
| Positive Attitude (Agree / Strongly Agree)       | 234       | 78.0%      |
| Neutral Attitude (Undecided)                     | 30        | 10.0%      |
| Negative Attitude (Disagree / Strongly Disagree) | 36        | 12.0%      |
| Total                                            | 300       | 100%       |

Table 1 shows that 300 respondents participated in the study out of which 234 (78.0%) of the adolescents have a high and positive attitude towards the use of ICT in Nigerian Secondary Schools, while 30 (10%) of the adolescents remained neutral, indicating uncertainty or limited exposure to AI tools. Only 36 (12%) demonstrated a negative attitude, expressing concerns such as overdependence on technology or fear of replacing teachers.

### Hypotheses Testing

**Hypothesis One:** There is no significant difference between male and female in-school adolescents' attitudes toward the use of Artificial Intelligence in Nigerian secondary schools.

**Table 2: t-test on the Attitudes of in-school Adolescents towards the Use of AI in Nigerian Secondary Schools based on gender**

| Gender | N   | Mean | SD   | t-calculated | df  | p-value | Decision     |
|--------|-----|------|------|--------------|-----|---------|--------------|
| Male   | 150 | 4.02 | 0.68 | 1.52         | 298 | 0.129   | Accept $H_0$ |
| Female | 150 | 3.91 | 0.74 |              |     |         |              |

Table 2 shows that the t-calculated value (1.52) is less than the t-critical value (1.96) at 0.05 level of significance, and the p-value (0.129) is greater than 0.05. Therefore, the null hypothesis ( $H_{01}$ ) is accepted. Hence there is no significant difference between male and female students' attitudes toward the use of AI in Nigerian secondary schools. Both gender show similarly positive perceptions of AI use in learning.

**Table 3: Analysis of variance (ANOVA) on Attitude of in- School Adolescents towards use of AI based on gender**

| Source of Variation | SS    | df  | Mean Square | F-cal | F-crit | (0.05) p-value | Decision     |
|---------------------|-------|-----|-------------|-------|--------|----------------|--------------|
| Between Groups      | 0.925 | 1   | 0.925       | 1.51  | 3.84   | 0.132          | Accept $H_0$ |
| Within Groups       | 181.  | 820 | 298         | 0.610 |        |                |              |
| Total               | 182.  | 745 | 299         |       |        |                |              |

Table 3 shows F-calculated value (1.51) is less than the F-critical value (3.84), and the p-value (0.132) is greater than 0.05. Therefore, the null hypothesis is accepted, confirming that gender does not significantly affect students' attitudes toward the use of AI. Both male and female students showed positive attitudes towards the use of AI in learning. Mean = 4.02 for males; 3.91 for females. Statistical tests  $t = 1.52$ ,  $p = 0.129$ ;  $F = 1.51$ ,  $p = 0.132$ , showed no significant gender difference at the 0.05 level of significance. This implies that the positive perception of AI in education is consistent across gender groups among in-school adolescents in Nigeria.

**Hypothesis Two:** There is no significant difference in factors influencing in-school adolescent' attitudes towards AI, such as technological exposure, teacher support, and access to digital resources based on School Type (Public & Private).

Table 4: t-Test on factors influencing in- school adolescent attitude towards the use of AI tools based on School Type

| Gender          | N   | Mean | SD   | t-calculate | df  | p-value | Decision     |
|-----------------|-----|------|------|-------------|-----|---------|--------------|
| Public Schools  | 150 | 3.82 | 0.74 | 3.45        | 298 | 0.001   | Reject $H_0$ |
| Private Schools | 150 | 4.15 | 0.62 |             |     |         |              |

Table 4 reveals that the calculated t-value (3.45) is greater than the critical t-value (1.96) at the 0.05 level of significance, and the p-value (0.001) is less than 0.05. Therefore, the null hypothesis ( $H_{02}$ ) is rejected, while the alternative hypothesis is accepted. This indicated that there is a significant difference in the factors influencing in- school adolescent attitude towards the use of AI tools based on School Type.

Specifically, students in private schools (Mean = 4.15) demonstrated a more positive attitude toward AI compared to their counterparts in public schools (Mean = 3.82). The study concludes. Private school students display more positive attitudes toward AI use than those in public schools, likely due to better access to technological resources and more supportive learning environments.

**Hypothesis Three:** There is no significant difference in the readiness of in-school adolescents to adopt Artificial Intelligence (AI) based on their parents' socio-economic status.

Table 5: Descriptive Statistics of in- school adolescent' Readiness to Adopt AI based on Socio-Economic Status

| Socio-Economic Status | N   | Mean | Std. Deviation (SD) |
|-----------------------|-----|------|---------------------|
| High SES              | 100 | 4.25 | 0.55                |
| Middle SES            | 100 | 3.95 | 0.63                |
| Low SES               | 100 | 3.68 | 0.71                |
| Total                 | 300 | 3.96 | 0.63                |

Table 5 shows the mean scores Students from high socio-economic backgrounds Mean = 4.25 shows the highest readiness to adopt AI tools in learning. Students from middle SES (Mean = 3.95) also display a fairly positive readiness level. While Students from low SES (Mean = 3.68) show lower readiness, possibly due to limited access to technological devices, internet connectivity, and home exposure to digital tools.

Table 6: Analysis of variance (ANOVA) on students' readiness to adopt AI based on socio – economic groups

| Source of Variation | SS      | df  | Mean Square | F-cal | F-crit (0.05) | p-value | Decision     |
|---------------------|---------|-----|-------------|-------|---------------|---------|--------------|
| Between Groups      | 4.832   | 2   | 2.416       | 6.45  | 3.02          | 0.002   | Reject $H_0$ |
| Within Groups       | 110.978 | 297 |             | 0.374 |               |         |              |
| Total               | 115.810 | 299 |             |       |               |         |              |

Table 6 shows that the calculated F-value (6.45) is greater than the critical F-value (3.02) at the 0.05 level of significance, with a p-value (0.002) that is less than 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is accepted. This indicates that there is a significant difference in the readiness of in-school adolescents to adopt Artificial Intelligence based on their parents' socio-economic status.

The study concludes that parents' socio-economic status significantly influences students' readiness to adopt Artificial Intelligence in Nigerian secondary schools.

Students from higher socio-economic backgrounds demonstrate greater readiness and exposure to AI tools, likely due to better access to technology, digital resources, and supportive home environments.

Duncan Multiple Range Test (DMRT) as a post-hoc analysis to determine which specific socio-economic groups differ significantly in their readiness to adopt Artificial Intelligence (AI).

Table 7: Duncan Multiple Range Test Result for Students' Readiness to Adopt AI by Socio-Economic Status

| Socio-Economic Status | Mean ( $\bar{X}$ ) | Subset for $\alpha = 0.05$ |
|-----------------------|--------------------|----------------------------|
| Low SES               | 3.68               | A                          |
| Middle SES            | 3.95               | B                          |
| High SES              | 4.25               | C                          |

Table 6 shows that the High SES group (Mean = 4.25) differs significantly from both Middle (3.95) and Low SES (3.68) groups. The Middle SES group also differs significantly from the Low SES group. Thus, all three groups have statistically distinct mean readiness levels.

The Duncan test confirms that students from higher socio-economic backgrounds exhibit significantly greater readiness to adopt AI technologies compared to those from middle and low socio-economic backgrounds. This finding underscores the digital divide in Nigerian secondary schools, where access to technology, parental education, and financial capability play vital roles in shaping students' engagement with Artificial Intelligence tools.

## Discussion of Findings

Finding of the study revealed that majority of in-school adolescents (78%) demonstrated a positive attitude towards the use of Artificial Intelligence tools in learning. This implies that students are becoming increasingly open to technology-driven education. The result aligns with the findings of Arkelin.(2003), Adenuga: Owoyele, Jimola; and Adenuga, (2012) who posited that that majority of the students have positive attitudes towards the use of ICT regardless of gender and parents socio-

economic status. Also, in the study of Okonkwo and Ade-Ibijola (2021), it posited that Nigerian students perceive AI as a tool that enhances engagement, creativity, and personalized learning experiences. Similarly, Adeleke (2023) observed that exposure to AI-based learning platforms increases students' motivation and improves academic performance. This positive attitude suggests a growing awareness and readiness among adolescents to embrace digital transformation in education. The findings of the study also revealed a significant difference in secondary schools in-school adolescents' attitudes toward use AI between public and private school students, with private school students showing more favorable attitudes. This difference can be attributed to the availability of digital infrastructure and teacher competence in using AI tools in private schools. According to Nwachukwu and Chukwuma (2022), private schools in Nigeria often have better access to modern technologies, smart classrooms, and internet facilities compared to public schools. Likewise, Ibrahim and Musa (2021) emphasized that students' exposure to educational technologies significantly predicts their attitude toward digital learning. This finding highlights the digital inequality that still exists between public and private educational sectors in Nigeria. The findings of the study also showed that Secondary school in-school adolescents from high socio-economic backgrounds exhibited greater readiness to adopt AI than those from middle or low socio-economic backgrounds. This finding aligns with the assertion of Oluwatobi and Ajayi (2020) that socio-economic factors such as parental income, access to technology, and home digital literacy play crucial roles in shaping students' educational attitudes and digital competence. Similarly, UNESCO (2022) reported that socio-economic disparities remain one of the main barriers to equitable AI adoption in African education systems. The implication is that families with higher income levels are better able to provide digital devices, internet access, and conducive environments for AI learning—thus increasing students' confidence and readiness.

### **Conclusion**

In view of the formulated hypotheses, the findings of the study revealed that Nigerian in-school adolescents are positively disposed towards AI tools, but their level of readiness and access is influenced by school type and socio-economic background.

### **Recommendation**

Based on the findings of this study, it was recommended that government and stakeholders in educational sector should motivate and stimulate students to develop positive attitude towards the use of AI in their academic tasks. More importantly, psychologists and counsellors should play vital roles in inculcating and enhancing positive ICT attitude in secondary school students by counselling and mentoring them on its significance in their educational tasks. Also government and stakeholders should invest in ICT infrastructure, teacher training, and inclusive technology policies to bridge the digital divide and promote AI-driven learning across Nigerian schools.

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