



# Exploring the Usage of AI Applications amongst Students of Federal Polytechnic Ede, Osun State

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**Abstract**-This study explores the usage of Artificial Intelligence (AI) applications (apps) among students at Federal Polytechnic Ede, Osun State, aiming to assess frequency, types, awareness, and demographic differences in AI engagement. Key research questions focused on how often students utilize AI applications, the specific tools they employ, their awareness levels, and potential variations in usage based on academic levels and gender. Data collected from 104 students revealed that 59.6% use AI applications daily, primarily leveraging tools like Chat GPT (53.8%). Despite the high frequency of use, over half of the respondents have operated these applications for less than a year, indicating a promising integration into academic practices. Statistical analysis via ANOVA showed no significant differences in AI usage across gender or academic levels, with  $p$ -values of 0.969 and 0.816, respectively. These findings suggest a collective adoption of AI technology among students, regardless of demographics. The implications highlight the necessity for educational institutions to adopt AI literacy, promote effective utilization of these tools, and consider partnerships with AI providers for training and resources. Overall, the study highlights the transformative potential of AI applications in enhancing educational experiences.

**Keywords:** AI applications, student engagement, technology in education, gender differences, AI literacy, Chat GPT.

## 1.0 Introduction

### 1.1 Background of the Study

The rapid advancement of artificial intelligence (AI) technologies has transformed various sectors, including education. In recent years, educational institutions have increasingly adopted AI applications to enhance learning experiences, streamline administrative processes, and provide personalized support to students. The integration of AI in education promises to revolutionize traditional pedagogical approaches, making learning more interactive, efficient, and accessible.

At Federal Polytechnic Ede, the exploration of AI applications among students presents a unique opportunity to understand the local context of AI adoption in higher education. As polytechnic education emphasizes practical and skill-based learning, the incorporation of AI tools can significantly impact student engagement and success. Despite the potential benefits, the effective utilization of these technologies depends on students' awareness, preferences, and the challenges they face in their academic journeys.

Recent studies have highlighted the significant role of AI in enhancing student learning outcomes. For instance, Wang et al. (2023) discussed the impact of generative AI and analytics on international students, indicating that these tools can facilitate academic success and improve overall educational experiences. Similarly, Nguyen (2023) emphasized the need for educational institutions to adapt to the evolving landscape of AI, ensuring that students can leverage these technologies effectively.

However, the adoption of AI applications in education is not without challenges. Kuleto et al. (2021) identify barriers such as technological infrastructure, faculty training, and students' readiness to engage with AI tools. Understanding these challenges is crucial for the successful implementation of AI in educational settings. Additionally, students' preferences for AI-assisted learning environments, as explored by Lai (2021), highlight the importance of tailoring AI applications to meet diverse learning needs and styles.

Given this backdrop, this study aims to explore the usage of AI applications among students at Federal Polytechnic Ede. By examining students' experiences and the impact of these technologies on their learning outcomes, this research

seeks to provide valuable insights that can inform policy decisions and enhance the educational landscape at the institution. The findings contribute to a deeper understanding of how AI can be effectively integrated into the educational framework, ultimately fostering a more conducive learning environment for students.

## **1.2 Statement of the Problem**

Despite the growing interest in artificial intelligence (AI) applications in education, there remains a significant gap in understanding how these technologies are utilized by students at Federal Polytechnic Ede. While AI has the potential to enhance learning experiences and outcomes, the extent to which students are aware of, engaged with, and benefit from these applications is still unclear. Additionally, potential barriers to effective AI usage, such as technological infrastructure, training, and access, may hinder students from fully leveraging these tools. This study seeks to address these gaps by exploring the current landscape of AI application usage among students.

## **1.3 Purpose of the Study**

The purpose of this study is to explore the usage of artificial intelligence (AI) applications among students at Federal Polytechnic Ede. The research aims to assess the level of awareness and engagement with AI technologies, identify and analyze how demographic factors such as academic level and gender influence AI usage. Ultimately, the study seeks to provide insights that can inform strategies for enhancing the integration of AI tools in educational practices, thereby improving learning outcomes.

## **2.0 Literature Review**

Artificial Intelligence (AI) is a rapidly advancing technology that has the potential to revolutionize various industries, including education. AI refers to the simulation of human intelligence processes by machines, such as learning, reasoning, and self-correction. In the field of education, AI applications are being increasingly utilized to enhance teaching and learning experiences, automate administrative tasks, and provide personalized support to students. The importance and relevance of AI in education are evident in its ability to adapt to individual learning needs, improve educational outcomes, and streamline educational processes.

### **2.1 The Role of AI in Education**

AI has improved efficiency in the performance of administrative tasks, such as reviewing students' work, grading, and providing feedback on assignments through automation using web-based platforms or computer programs. Other areas in which AI has been applied in the education sector include curriculum and content development, and instructions leveraging technologies such as virtual reality, web-based platforms, robotics, video conferencing, audiovisual files, and 3-D technology, which have made it possible for students to learn better.

Artificial intelligence (AI) is increasingly recognized as a transformative force in education, offering innovative solutions to enhance learning experiences. AI applications can personalize education by adapting content and learning paths to individual student needs, thereby fostering engagement and improving academic outcomes. Nguyen (2024) emphasizes that AI technologies facilitate adaptive learning environments, allowing students to learn at their own pace and style. Furthermore, Wang et al. (2023) highlight the use of generative AI and chatbots, which provide tailored support and resources, particularly beneficial for students from diverse backgrounds. These tools not only assist in academic tasks but also promote self-directed learning, empowering students to take charge of their educational journeys.

### **2.2 Impact of AI on Education Administration**

AI's integration into educational administration has the potential to streamline processes and enhance institutional efficiency. AI has enabled instructors/teachers to perform administrative functions, such as grading and providing feedback to students, more effectively. AI has made administrative tasks easier and improved teacher/instructor efficiency and effectiveness in providing instructions and guidance to students.

Intelligent tutoring systems and other AI-powered programs (e.g., Grammarly, Quilbot, PaperRater, TurnItIn) have provided instructors with functionalities to perform various administrative tasks like plagiarism checking, rating/grading, and providing feedback. AI has significantly reduced the paperwork and workload on instructors, allowing them to focus more on instruction, content dissemination, and curriculum implementation. Kuleto et al. (2021) explored how machine learning algorithms can analyze vast amounts of data to improve decision-making in resource allocation, student performance tracking, and curriculum development. AI applications can also facilitate

administrative tasks such as admissions, scheduling, and student support services, allowing educators to focus more on teaching rather than bureaucratic responsibilities. Chen et al. (2023) discussed the role of AI student assistants in classrooms, which not only support educators but also provide real-time analytics on student engagement, enabling timely interventions. This data-driven approach assists institutions in identifying at-risk students and implementing effective support strategies.

### **2.3 Technical Aspects of AI in Education**

The successful implementation of AI in education relies on robust technical frameworks and tools. AI-aided education includes intelligent education, innovative virtual learning, and data analysis and prediction. Note that AI-enabled education is playing a more important role as learning requirements promotes. Intelligent education systems provide timely and personalized instruction and feedback for both instructors and learners. Adıgüzel et al. (2023) highlights the transformative potential of applications like ChatGPT, which can facilitate interactive learning experiences by providing instant feedback and personalized assistance. However, technical challenges must be addressed to ensure the effective integration of AI tools. Fazil et al. (2024) points out that a well-established technological foundation is crucial for maximizing the benefits of AI in educational settings.

### **2.4 Related works**

The integration of artificial intelligence (AI) in educational settings has sparked considerable research interest, particularly regarding its applications, effectiveness, and the perceptions of students. This section reviews relevant literature that informs the exploration of AI applications among students at Federal Polytechnic Ede.

Recent studies have emphasized the significant role of AI in enhancing educational experiences. Nguyen (2023) discusses how AI facilitates personalized learning, allowing students to engage with content that is tailored to their individual needs and learning styles. This personalization is critical in polytechnic education, where practical and hands-on learning is essential. Similarly, Wang et al. (2023) explore the impact of generative AI and Chatbots on student success, highlighting their ability to provide immediate academic support and resources, particularly for diverse student populations.

The effectiveness of AI applications in fostering student engagement and improving learning outcomes is a recurring theme in the literature. Chen et al. (2023) investigated the use of AI student assistants in classrooms, revealing that these tools significantly enhance interaction between students and instructors. Their findings suggest that AI can help identify students who may be struggling, facilitating timely interventions. In a similar vein, Fazil et al. (2024) examined how AI technologies influence student engagement and academic performance, concluding that well-integrated AI tools can lead to higher levels of participation and achievement among students.

Despite the potential benefits, several studies identify challenges associated with the adoption of AI in education. Kuleto et al. (2021) discuss barriers such as inadequate technological infrastructure and the need for faculty training to effectively utilize AI tools. Ayanwale et al. (2022) further emphasize the importance of teacher readiness and institutional support in the successful integration of AI into curricula. These challenges are particularly relevant in the context of Federal Polytechnic Ede, where resource availability and training may impact the effective use of AI applications.

## **3.0 Methodology**

### **3.1 Research Design**

This study employs a quantitative research design to investigate the usage of AI applications among students at Federal Polytechnic Ede, Osun State (Computer science Department in particular). A structured questionnaire was developed to collect data on the frequency, types, awareness, and demographic differences in AI application usage.

#### **Sample Selection**

A total of 104 Computer Science students from different academic levels participated in the study. Participants were selected using a stratified random sampling method to ensure representation across various Academic levels and gender. The sample size was determined based on the population of students enrolled at the Computer Science Department, aiming for a confidence level of 95% and a margin of error of 5%.

## Data Collection

Data were collected using a self-administered questionnaire using google form, which included the following sections:

1. **Demographic Information:** Gender, age, and academic level.
2. **AI Application Usage:** Questions regarding the frequency of AI application usage (daily, weekly, monthly), specific applications used, the duration of usage and more.
3. **Awareness Level:** Questions designed to assess the level of awareness regarding AI applications and their functionalities.

The questionnaire was distributed online through the students' WhatsApp groups giving a period of three (3) weeks to accommodate all students. Participation in the study was voluntary, and informed consent was obtained from all respondents.

### 3.2 Data Analysis

Quantitative data from the questionnaires were analyzed using Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics, including frequencies and percentages, were calculated to summarize the data.

To test the hypotheses regarding differences in AI usage based on gender and academic level, ANOVA (Analysis of Variance) was conducted. The null hypotheses stated that there is no significant differences in AI usage across different academic levels and between male and female students. A significance level of  $p < 0.05$  was set for all statistical tests.

### Research Questions

1. How frequently do students at Federal Polytechnic, Ede use AI applications?
2. What are the specific AI applications that students use?
3. What is the level of awareness and usage of AI applications among students?
4. Are there differences in AI usage among students at different levels of study?
5. Are there differences in AI usage between male and female students?

### Hypothesis Testing

#### Null Hypotheses

1.  $H_{01}$ : There is no significant difference in AI usage among students in different levels of study.
2.  $H_{02}$ : There is no significant difference in AI usage among male and female students.

#### Alternative Hypotheses

1.  $H_{01}$ : There is a significant difference in AI usage among students in different levels of study.
2.  $H_{02}$ : There is a significant difference in AI usage among male and female students.

### Research Questions 1

How frequently do students at Federal Polytechnic, Ede use AI applications?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Daily	62	59.6	59.6
	Weekly	36	34.6	94.2
	Monthly	6	5.8	100.0
	Total	104	100.0	100.0

**Research Questions 2**

What are the specific AI applications that students at Federal Polytechnic, Ede use?

**Identify the major AI Application that you operate presently.**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ChatGpt	56	53.8	53.8
	MetaAI	17	16.3	70.2
	Siri	22	21.2	91.3
	Facetime	7	6.7	98.1
	Quilbot	2	1.9	100.0
	Total	104	100.0	100.0

**Research Question 3**

What is the level of awareness and usage of AI applications among students at Federal Polytechnic Ede?

**How long have you used or operated AI Application?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than a year	56	53.8	53.8
	1 - 2 years	32	30.8	84.6
	More than 2 years	16	15.4	100.0
	Total	104	100.0	100.0

**Research Question 4 and 5**

Are there differences in AI usage among students at different levels of study?

Are there differences in AI application usage amongst Males and Females (Gender)?

In answering the research question 4 and 5, ANOVA (Analysis of Variance) was used

**ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.024	2	.012	.032	.969 <sup>b</sup>
Residual	37.607	100	.376		
Total	37.631	102			

a. Dependent Variable: How frequently do you use AI applications in your studies?

b. Predictors: (Constant), Gender, Academic Level

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.420	.333		4.269	.000
	Academic Level	.033	.142	.024	.233	.816
	Gender	-.008	.122	-.007	-.066	.948

a. Dependent Variable: How frequently do you use AI applications in your studies?

### 3.3 Discussion

The exploration of AI application usage among students at Federal Polytechnic Ede, particularly within the Computer Science Department reveals significant insights into the frequency, types, and demographic differences in AI engagement. This discussion combines the findings related to the research questions and hypotheses posed in this study.

The data indicates that a substantial majority of students (59.6%) use AI applications daily, with an additional 34.6% utilizing them weekly. This suggests a high level of integration of AI tools into the academic routines of students. The frequent usage aligns with the growing reliance on technology in education, where AI applications serve as essential resources for enhancing learning, facilitating communication, and streamlining academic tasks, aligning with findings from previous studies that highlight the transformative potential of AI in education (Adıgüzel et al., 2023).

Among the various AI applications identified, Chat GPT emerged as the most commonly used tool, with 53.8% of students reporting its usage. Other notable applications include Siri (21.2%) and Meta AI (16.3%). The dominance of Chat GPT can be attributed to its versatility in providing information, assisting with writing, and generating ideas, making it a valuable resource for students across disciplines. This preference for specific applications underscores the need for educational institutions to consider incorporating training on these tools into their curricula. This reflects the trend noted in literature regarding the growing reliance on AI tools for academic support (Chen et al., 2023).

The findings reveal that over half of the respondents (53.8%) have used AI applications for less than a year, while 30.8% have been engaged for 1 to 2 years. This relatively recent adoption indicates that while interest in AI is growing, many students are still in the early stages of integrating these technologies into their academic practices. Increased awareness campaigns and workshops could further enhance understanding and effective utilization of AI tools.

The analysis of differences in AI usage based on gender and academic level reveals no statistically significant disparities. The ANOVA results show a p-value of 0.969 for gender and 0.816 for academic level, suggesting that both male and female students, as well as students across different levels of study, engage with AI applications similarly. This finding is particularly noteworthy as it indicates a collective embrace of technology among students, regardless of demographic factors though it contrasts with some existing literature that points to gender disparities in technology usage (Nguyen, 2023).

### Implications of Findings

The high frequency of AI application usage and the lack of demographic disparities highlight the potential for these tools to bridge gaps in educational accessibility and learning efficiency. Educational policies should therefore focus on promoting AI literacy, ensuring that all students can leverage these technologies effectively.

### 4.0 Conclusion

In conclusion, the findings from this study illustrate that students at Federal Polytechnic Ede are not only aware of AI applications but are also actively using them in their academic endeavors. The lack of significant differences in usage across gender and academic levels suggests a unified approach to technology adoption among the student body. These insights can guide policy and educational strategies aimed at fostering a more tech-savvy and resourceful student population in the face of an increasingly digital academic landscape.

### Further research

Future research could be expanding the sample size (by increasing number of departments) and exploring qualitative methods to gain deeper insights into students' experiences with AI applications.

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