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Original Article

A Study on the Impact of Artificial Intelligence Tools on Egs Pillay Students' Learning Behaviour

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Abstract - *This study examines how artificial intelligence (AI) tools affect the learning behavior of students at EGS Pillay institutions. The findings show that age plays an important role in shaping preferences, with younger learners showing a stronger interest in using ChatGPT compared to other platforms. In contrast, gender and academic qualifications were found to have little or no influence, meaning that students' educational progress is independent of these factors. Regression analysis further revealed that the type of AI tools used, frequency of use, and time spent with them do not significantly predict age, as the model explained less than 1% of the variation. In simple terms, while age influences which AI tools students prefer, overall usage patterns remain consistent across different groups. These results suggest that demographic factors such as age may affect tool choice, but engagement with AI technologies is broadly similar among students. The study highlights how AI tools are becoming an integral part of student learning behavior, offering insights for educators on integrating technology effectively in academic settings.*

Keywords - *AI Tools, Student Learning Behavior, ChatGPT, Education Technology, Gender And Qualification, Age And Demographics, Engagement With AI, Learning Performance.*

I. INTRODUCTION

Artificial Intelligence tools are changing the way students learn by making studying faster, easier, and more personalized. At EGS Pillay College, students use platforms like ChatGPT, Grammarly, and Gemini to complete assignments, understand difficult topics, and improve their writing. These tools give instant feedback and save time, but they also raise concerns about over-dependence, reduced creativity, and issues like plagiarism. This study is important because it looks at both the positive and negative effects of AI on student learning behavior. It helps us understand whether AI is truly supporting education or if it is weakening critical thinking and originality, and guides teachers and students in using AI wisely for better learning outcomes.

II. NEED OF THE STUDY

- Students today are learning in new ways. AI tools like chatbots, online tutors, and smart apps are becoming part of classrooms. We need to study how these tools affect students at EGS Pillay College.
- AI may change how students think, study, and interact. Some may become more independent learners, while others may rely too much on technology. This study helps us see those changes clearly.
- By knowing the impact of AI, teachers can decide how to use these tools to make learning easier, faster, and more effective.
- AI tools can also bring problems, like distraction, reduced creativity, or over-dependence. The study is needed to find these issues.
- The results will help the college design better teaching methods, combining traditional learning with modern AI support.

III. RESEARCH GAP

Most studies on AI in education talk about general benefits like faster learning and personalized feedback. But there is little research on how AI tools affect the learning behavior of EGS Pillay students. Past studies focus more on academic scores and less on habits, creativity, independence, and critical thinking. There is also a limited

understanding of how students balance traditional study with AI tools, and how they handle issues like plagiarism or over-dependence. This gap makes it important to study the unique experiences of EGS Pillay students to guide them in using AI effectively while protecting originality and problem-solving skills.

IV. OBJECTIVES OF THE STUDY

1. To study the usage of Artificial Intelligence tools among students for various purposes.
2. To analyze how Artificial Intelligence tools influence students' learning behavior and study habits.
3. To examine the impact of Artificial Intelligence tools on students' performance.
4. To identify the advantages and challenges faced by students while using Artificial Intelligence tools.
5. To evaluate the level of dependency of students on Artificial Intelligence tools for learning.

V. SCOPE OF THE STUDY

- To examine the level of dependency of students on Artificial intelligence tools for learning.
- To understand how Artificial Intelligence tools influence students' learning behavior and study habits.
- To analyze the impact of Artificial Intelligence tools on students' performance.
- To identify the advantages and challenges faced while using AI tools.
- To evaluate changes in students' learning ability due to Artificial Intelligence usage.

VI. REVIEW OF LITERATURE

Ayesha Subhash & Sudhakar Iyer (2026) say that Artificial Intelligence-based smart learning tools improve student engagement and academic performance. There are concerns about over-reliance on technology and risks to academic integrity.

Likhitha S. L and Dr. Susheela Devi (2025) AI tools improve writing, problem-solving, and study efficiency, but overuse can reduce originality and create dependence. They are most effective when used wisely as support, not a replacement for learning.

Dr. Jayshri Patil and Mr. Kamlesh (2025) find that Artificial Intelligence-based learning tools improve student performance and engagement. There are challenges like technology dependence and limited teacher readiness.

Valeria Lozano & Christian Fernando (2025) say that students use ChatGPT for generating ideas and supporting research. It can boost creativity. Improve academic performance. Depending on it for research may lower outcomes.

Dr. K. Ravishankar (2023) AI in education can improve learning and career opportunities. Its effectiveness depends on social, technological, and institutional factors, and it works best when used fairly, inclusively, and with proper planning and equal access.

VII. RESEARCH METHODOLOGY

A. Research Design

This study will follow a descriptive research design, aiming to explain how Artificial Intelligence (AI) tools such as ChatGPT, Gemini, and Meta AI influence the learning behavior of students at EGS Pillay College. Data will be collected through questionnaires that ask students about their frequency of AI usage, preferred tools, and the impact these tools have on their study habits. The population of the study consists of 600 students who use AI applications for learning, while a sample of 150 students will be selected using simple random sampling to ensure fairness and avoid bias. To analyze the data, statistical tools such as the Chi-Square Test will be used to examine relationships between AI tools preference and students' age group, Correlation Analysis will measure the strength of association between the relationship among gender and qualification of respondents, and then Regression Analysis will be conducted to determine the effect of AI tools preference, regular use, and spending time on the age of respondents. Together, these methods will provide a clear picture of how AI is reshaping student learning behavior both positively and negatively.

B. Hypotheses

- H1: There is a significant relationship between AI tool preference and students' age groups.
- H2: Gender and qualification show no meaningful correlation with AI tool choice, highlighting minimal demographic influence.
- H3: Frequency and time spent using AI tools do not predict age, indicating consistent usage patterns across generations.

C. Limitations

- The study is limited only to EGS Pillay College students.
- Responses depend on students' honesty in the questionnaire.
- Only selected AI tools are studied, not every available platform.

VIII. DATA ANALYSIS AND INTERPRETATION

Data analysis and interpretation are essential in transforming raw data into meaningful insights. In this study, data were collected from 150 college students in EGS Pillay Engineering College at Nagapattinam using a structured questionnaire measuring the usage of AI tools, spending time, and learning behavior of the students.

The analysis of data gathered from EGS Pillay students shows that artificial intelligence tools are becoming an important part of their academic routines and are reshaping learning behavior in noticeable ways. Most students are aware of AI applications, and a significant portion use them regularly for assignments, exam preparation, programming support, and language improvement. This indicates that AI is not only seen as a convenience but also as a versatile academic resource. The majority of respondents reported that these tools help them grasp complex concepts more easily and improve their productivity, reflecting a positive impact on comprehension and efficiency. At the same time, the findings suggest a behavioral shift, with many students relying less on traditional study methods such as textbooks and lectures, which shows that AI is influencing how knowledge is accessed and processed. However, concerns were also raised about over-reliance, accuracy issues, and ethical challenges such as plagiarism, highlighting the risks of unregulated use. Overall, the interpretation suggests that while AI tools are acting as accelerators of learning and enhancing academic engagement, there is a clear need for structured guidance and institutional policies to ensure responsible usage and to maintain a balance between innovation and independent thinking.

The data were entered and analyzed using statistical tools like chi- square, correlation, and regression. These techniques are used to analyze the relationship between age group and preference of AI, gender, and qualification, spending time, and regular use of AI are identified to analyze these tools.

A. Chi – Square Test

The chi-square test was used to find out whether there is a link between students' age groups and the type of AI tool they prefer. The table shows that younger students, especially those aged 22–23, tend to use ChatGPT more often compared to other tools, while students in the 20–21 age group show a more balanced use of ChatGPT and Gemini. Very few students above 24 years reported using AI tools, which suggests that younger learners are more open to experimenting with these technologies.

Table 1: Age of the respondent * AI tools of the respondent

		AI tools of the respondent			
		ChatGPT	Gemini	Meta AI	Total
Age of the respondent	18 -19	21	9	3	33
	20 -21	28	17	10	55
	22 -23	42	10	7	59
	24 -25	0	0	2	2
	Above 25	1	0	0	1
Total		92	36	22	150

B. Chi – Square Test

Table 2: Chi-Square Analysis of Variable Association

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.146[a]	8	.020
Likelihood Ratio	14.691	8	.065
Linear-by-Linear Association	.006	1	.936
N of Valid Cases	150		

The test revealed a statistically significant association between age group and AI tool usage ($p = 0.020 < 0.05$). Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted. The chi-square value (18.146) with a significance level of 0.020 indicates that the relationship between age and AI tool

preference is statistically meaningful. In simple terms, this means that the choice of AI tools is not random but is influenced by the age of the students. Therefore, the null hypothesis (no relationship) is rejected, and the alternative hypothesis (there is a relationship) is accepted. This finding highlights that age plays an important role in shaping how students adopt and use AI tools for their learning activities.

C. Correlation Analysis

Pearson correlation analysis was carried out to see if there is any relationship between the gender of the respondents and their level of qualification. The results showed a weak positive correlation (r = 0.105), but the p-value was 0.204, which is greater than the standard threshold of 0.05. This means the relationship is not statistically significant. In simple terms, the data suggests that gender does not have any meaningful influence on the qualification levels of the students, and the two variables are largely independent of each other. Since the correlation was weak and not significant, the null hypothesis stating that there is no relationship between gender and qualification is accepted. This indicates that both male and female students pursue qualifications without any noticeable difference linked to gender.

Table 3: Gender* Qualification

		gender of the respondent	Qualification of the respondent
gender of the respondent	Pearson Correlation	1	.105
	Sig. (2-tailed)		.204
	N	150	149
Qualification of the respondent	Pearson Correlation	.105	1
	Sig. (2-tailed)	.204	
	N	149	149

D. Regression Analysis

The regression analysis was carried out to examine whether the type of AI tools used, the frequency of use, and the amount of time spent with these tools could predict the age of the respondents. The results showed that the overall model was not statistically significant, meaning that these factors did not have any meaningful influence on age.

Table 4: Model Summary

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.088[a]	.008	-.013	.83153

Predictors: (Constant), the time spent by the respondent, the AI tools used by the respondent, and the regular use of the respondent.

Table 5: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.791	3	.264	.381	.767[b]
	Residual	100.949	146	.691		
	Total	101.740	149			
Dependent Variable: Age of the respondent.						
Coefficients						
Model					t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.107	.402		5.237	.000
	AI tools of the respondent	-.017	.093	-.015	-.186	.853
	regular use of the respondent	-.038	.098	-.033	-.392	.696
	Spend the time of the respondent	.088	.085	.087	1.036	.302

The regression model explained only 0.8% of the variation in age, which is very low and indicates that age differences among students are not related to their AI usage patterns. Looking at the individual predictors, none of them, AI tools used (p = 0.853), regular use (p = 0.696), or time spent (p = 0.302) were significant

contributors. In simple terms, this means that students of different ages use AI tools in similar ways, and age does not determine how often or how long they engage with these technologies. Since the predictors did not show any significant effect**,** the null hypothesis was accepted, confirming that there is no relationship between age and AI usage behavior in this dataset.

IX. FINDINGS OF THE STUDY

The overall findings from the analysis show that age plays a significant role in shaping students' preferences for AI tools, with younger learners showing a stronger inclination toward using ChatGPT compared to other platforms. However, when examining the relationship between gender and qualification, the results revealed only a weak and non-significant correlation, meaning that academic qualifications are pursued independently of gender differences. Similarly, the regression analysis demonstrated that the type of AI tools used, frequency of use, and time spent with these tools do not significantly predict the age of respondents, as the model explained less than 1% of the variation. In simple terms, while age influences which AI tools students prefer, gender and qualification are unrelated, and AI usage patterns remain consistent across different age groups. This suggests that demographic factors such as age may affect tool choice, but overall engagement with AI technologies is broadly similar among students**.**

X. SUGGESTIONS

Based on the findings of the study conducted among college students at EGS Pillay in Nagapattinam, the following recommendations are proposed:

1. Design age-focused strategies: Since younger students lean toward ChatGPT, educators can create age-specific learning plans that highlight the tools most appealing to each group.
2. Avoid gender-based assumptions: Because gender and qualification don't influence AI use, institutions should treat all students equally when promoting AI learning.
3. Encourage tool diversity: Provide access to multiple AI platforms so students can explore and select the ones that fit their needs.
4. Promote critical thinking: Train students to question and evaluate AI outputs instead of accepting them blindly.
5. Support digital literacy: Offer workshops that teach students how to use AI responsibly and effectively.
6. Ensure accessibility: Make sure AI tools are easy to access for students from different backgrounds, including those with limited resources.
7. Collect feedback regularly: Ask students about their experiences with AI tools to improve teaching strategies and tool selection.
8. Balance innovation with guidance: While encouraging exploration, provide clear rules and ethical guidelines for responsible AI use.

XI. CONCLUSION

The analysis makes it clear that age plays an important role in shaping students' preferences for AI tools, with younger learners showing a stronger interest in using ChatGPT compared to other platforms. At the same time, gender and qualification do not show any meaningful connection to AI use, which means academic progress is independent of these factors. The study also found that the type of AI tools used, how often they are used, and the time spent with them do not vary much with age, as overall engagement remains similar across groups. In simple terms, age influences *which* tools students prefer, but not *how much* they use AI. This suggests that educators and institutions should focus on providing a variety of AI tools and equal opportunities for all learners, rather than designing strategies based on gender or qualification differences.

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