

A Study on Students' Perception towards Personalized Experience in AI Powered Tutoring System with special reference to Coimbatore city

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ABSTRACT

The integration of Artificial Intelligence (AI) in education has transformed the learning landscape, offering personalized experiences for students. This study examines the impact of AI powered tutoring systems on students' learning outcome, engagement, motivation and to identify the key factors influencing students' acceptance and adoption of AI powered tutoring system focusing on Coimbatore city. This study involves collecting data from 148 students. The results indicate a significant positive correlation between frequency of learning, age group, preference towards AI and monthly income. The findings have implications for educators, policymakers, and AI developers seeking to create more effective and student-centric learning environments.

Key words: Artificial Intelligence (AI), AI powered tutoring systems, students acceptance and adoption, students' perceptions, personalized learning experiences.

INTRODUCTION:

Artificial Intelligence (AI) has rapidly transformed various sectors, and education is no exception. AI-powered tutoring systems have emerged as innovative tools that offer personalized learning experiences. These systems can adapt to individual student needs, provide immediate feedback, and offer supplementary learning materials. This study aims to delve into students' perceptions of AI tutoring systems, exploring their attitudes, beliefs, and experiences with this emerging technology. AI tutors also make learning more accessible. Students can access these systems anytime, anywhere, as long as they have an internet connection. This level of flexibility is especially valuable for learners in remote areas, those with special needs, or students with busy schedules. AI tutors are available 24/7, allowing students to review materials, practice skills, or seek assistance outside of traditional classroom hours. The adaptive learning engine then adjusts the difficulty level, content, and learning path to suit individual student requirements. These systems offer numerous benefits, including enhanced student engagement, improved academic outcomes, and increased accessibility.

MATERIALS AND METHODS:

Research Methodology

The quantitative research approach is employed in this study to collect and analyse numerical data to understand the student's perception towards AI powered tutoring system. Surveys with structured questionnaires will be used to gather responses from a sample population in Coimbatore, focusing on their interaction with AI powered tutoring system. Statistical tools will be utilized to identify patterns, correlations, and trends in the collected data.

SOURCES OF DATA

Primary data

Primary data will be collected through structured questionnaires distributed to students in Coimbatore to understand their usage of AI powered tutoring system.

Secondary Data

The secondary data for the study have been collected from Books, Magazines, Journals, Articles, old reports and required websites.

Sample size

The sample size for this survey is 148.

Sampling Technique

In this study, Convenient Sampling Technique is used.

Tools used for Analysis

- Independent Sample T-Test
- ANOVA

PREPARATION OF TABLES:

Independent sample T-test Analysis

Table 1.1

Gender	N	Mean	Std deviation	Std error mean
Hours spent in learning in AI :				
Male	77	1.73	.883	.101
Female	71	1.45	.733	.087

Table 1.2

Hours spent in learning in AI:	Levene's test for equality of variance	T-test for equality means								
		F	Sig.	t	df	Sig(2tailed)	Mean difference	ST difference	95% confidence interval of difference	
									Upper	Lower
Equal variance assumed	3.783	0.054	2.064	147	.041	.277	134		.012	.541
Equal variance not assumed			2.079	144.43	.039	.277	133		.014	.539

INTERPRETATION:

The above tables (1.1.&1.2) indicates that the demographic factor that out of 148 respondents have been taken for the study, 77 (1.73) of the respondents were male, 71(1.45) of the respondents were female. The mean difference of equal variance assumed are .277 and ST difference are 134.The mean difference of equal variance not assumed are .277 and ST difference are 133. 95% confidence interval of difference of equal variance assumed are .012-upper and .541-lower and equal variance not assumed .014-upper and .539-lower. Hence the null hypothesis is accepted.

ANOVA

Table 2.1

	Sum of square	df	Mean square	f	sig
Between the groups	1.1417	3	.472	.587	.625
Within the groups	115.900	144	.508		
Total	117.318	147			

INTERPRETATION:

The above table (2.1) indicates that the demographic factor that out of 148 respondents have been taken for the study, 1.1417 sum of square at between the groups, 115.900 sum of square at between the groups. The mean square of between the groups are .472 and df difference are 3. The mean square of within the groups are .508 and df differences. Hence the null hypothesis is accepted.

RESULTS AND DISCUSSION:

Results and Discussion:

Results:

Independent T-Test Analysis:

- Levene's test checks if the variances between groups are equal. The test's F-value is 3.783, with a significance (p-value) of 0.054, which is slightly above the common threshold of 0.05. This indicates that the assumption of equal variances is borderline but acceptable for the t-test.
- The t-test was performed under two scenarios: assuming equal variances and not assuming equal variances. In both cases, the t-values (2.064 and 2.079) are significant, with p-values of 0.041 and 0.039, respectively (both below 0.05). This suggests a statistically significant difference in the means of hours spent learning AI between the groups. The mean difference is 0.277, and the confidence interval for this difference is approximately between 0.012 and 0.541, indicating that the true mean difference likely falls within this range.

ANOVA:

- The analysis from table (2.1) the differences between groups and within groups. The total variance in the data is 117.318. Of this, a small portion (1.1417) is explained by differences between the groups, while most of the variation (115.900) occurs within the groups. The mean square value for the groups is 0.472, while for within groups, it is 0.508. The F-value, which measures the ratio of variance between groups to variance within groups, is 0.587, with a significance level (p-value) of 0.625. Since the p-value is greater than 0.05, there is no statistically significant difference between the groups.

Discussion:

The study reveals that AI has a positive impact on students' learning, indicating the potential to enhance educational outcomes. However, there is scope for further improvement, and efforts should focus on expanding the role of AI in education. As an emerging technology, AI offers diverse benefits that may evolve with advancements. Future research should prioritize exploring the rapid innovations in AI and their applications in learning environments to maximize its potential and address the dynamic needs of students and educators.

CONCLUSION:

The study concludes that the AI-powered tutoring systems play a pivotal role in students' lives, emerging as a transformative technology with long-term benefits. The study concludes that these systems positively impact students by enhancing their motivation, engagement, and preference for AI-driven learning tools. This indicates that AI-powered tutoring systems not only support academic achievement but also foster a more engaging and personalized learning experience from the students' perspective.

ACKNOWLEDGEMENT:

We Thank the Almighty, with whose abundant grace this research work as made possible.

We would like to express our sincere thanks to **Dr B L Shiva Kumar**, Principal & Secretary, Sri Ramakrishna College of Arts & Science, for his support and encouragements.

We owe our deep sense of gratitude to **Dr G Agila**, Professor and Head, Department of Commerce with Accounting & Finance, Sri Ramakrishna College of Arts & Science for her tremendous and constant motivation.

We record our sincere thanks to the guide **Ms. A JASMINE ANITHA M.com., (Ph.D)** Assistant Professor, Department of Commerce with Accounting & Finance, Sri Ramakrishna College of Arts & Science, for her support and proper guidance.

We would also like to extend our profound gratitude to our family members and friends for their timely help and support for making this research work a successful one.

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