

A STUDY ON AI-ASSISTED LEARNING PLATFORM FOR STUDENTS IN THOOTHUKUDI

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ABSTRACT

A Study on AI-Assisted Learning Platform for students in Thoothukudi is the topic taken for research. This study is done to know the AI learning platform App, to study the impact of AI-assisted teaching on students' psychological well-being, to identify an AI-assisted learning platform for students' academic performance, to understand the performance of educational experiences fostering student engagement and to provide recommendations for the effective integration of AI in education. Primary and Secondary data were used in the data collection. The purposive sampling technique is adapted to select 117 respondents who use the AI-assisted learning platform within the Thoothukudi district. This study provides a comprehensive understanding of the effectiveness, challenges, and user perceptions of AI-assisted learning platforms. As education increasingly shifts towards digital modes, AI-powered learning tools play a crucial role in enhancing learning experiences, making education more personalized, flexible, and accessible. The analysis of 117 respondents revealed key trends in AI-assisted learning adoption and highlighted areas for improvement.

KEY WORDS

AI-Academic performance-Virtuality-Personalised learning-Educational-text based materials

INTRODUCTION

Artificial Intelligence (AI) has revolutionized education by enhancing learning processes through intelligent systems, adaptive tools, and automated functionalities. Initially, AI was integrated into education through computers and the internet, leading to the development of web-based and online learning platforms that offer personalized and flexible learning experiences. Over time, AI has expanded to include embedded systems, humanoid robots, and chatbots that assist students and educators by performing various educational tasks independently or in collaboration with instructors.

One of the most significant advantages of AI in education is its ability to automate administrative tasks such as grading assignments, managing student records, and organizing learning materials. This automation allows educators to focus more on personalized instruction and student engagement. Additionally, AI-powered tools facilitate curriculum customization and personalized learning, enabling students to learn at their own pace and receive tailored feedback through intelligent tutoring systems. These advancements contribute to improved learning outcomes and greater accessibility to education.

However, the integration of AI in education also presents ethical challenges and concerns. Data privacy and security are crucial issues, as AI systems collect and process large amounts of student data. Additionally, biases in AI algorithms must be addressed to ensure fair learning opportunities for all students. Furthermore, educators need to acquire the necessary skills to effectively utilize AI tools in teaching, ensuring that technology enhances rather than replaces traditional instructional methods. Despite these challenges, AI continues to reshape education, offering innovative solutions that improve teaching, learning, and administrative efficiency.

REVIEW OF LITERATURE

Artificial intelligence in higher education: the state of the field (Crompton & Burke, 2023)

AI has the potential to make education more accessible, affordable, and effective. AI is being used to personalize learning, provide support to students, and automate administrative tasks. AI is also being used to improve research and create new educational opportunities. Challenges associated with AI in education include the need for data privacy and security, the potential biases, and the need for educators to be trained in how to use AI effectively.

Empirical findings regarding the extent of AI literacy among teachers: (Zhao et al., 2022)

There was a statistically significant and positive relationship between applying AI and the three aspects under investigation. Educators who demonstrated higher levels of competence in utilising AI were also more inclined to possess a deeper comprehension of AI, assess its practical implementations, and contemplate its ethical ramifications. The aforementioned findings indicate that to foster AI literacy among educators, it is crucial to prioritise the development of their capacity to effectively utilise AI within educational environments. The

attainment of this objective can be facilitated using professional development initiatives and training sessions that equip educators with experiential learning opportunities and pragmatic insights into the utilisation of artificial intelligence technologies. By enhancing teachers' application of AI skills, they can gain a deeper comprehension of the prospective applications of AI in the field of education, assess its efficacy, and effectively tackle ethical concerns associated with its implementation.

Assessment and Learning in Knowledge Spaces adaptive system on students' perception and self-regulated in AI (Harati et al., 2021)

The researchers utilised the Adaptive Self-regulated Learning Questionnaire as an instrument to assess the alteration in students' scores about self-regulated learning capabilities before and after their utilisation of the ALEKS system. The findings indicated a statistically significant enhancement in students' self-regulated learning abilities after the implementation of the ALEKS system. The aforementioned discovery implies that the ALEKS adaptive system exerts a beneficial influence on students' capacity to self-regulate their learning. The system facilitates customised learning experiences by tailoring the content to match the unique knowledge spaces of individual students. The findings indicated that the students held a favourable impression of the system, suggesting that they perceived it as valuable and advantageous for their educational progress.

Barriers encountered while integrating the Internet of Things (IOT) into e-learning platforms inside higher education institutions. (J.Ali et al.,2023)

The objective of this study is to present a model for the implementation of IOT in e-learning within the specific context of developing nations. Additionally, this research offers suggestions for improving the acceptance of IOT in Higher Education Institutions. The study's findings validate the significance of perceived utility in the adoption of IOT for e-learning. The perceived utility of a system is subject to various elements, including the quality of its material, the level of assistance provided for learning, the degree of interactivity within the system, the effectiveness of instructional assessment, and the perceived level of convenience in using the system. This study examines the mediating effects of perceived ease of use and perceived utility on the adoption of e-learning systems in higher education. The study additionally underscores the significance of variables such as the quality of education, social impact, and perceived fun in shaping students' attitudes towards the utilization of e-learning systems and their level of satisfaction with them.

Perceptions of students on the utilization of AI in the process of selecting educational films on the YouTube platform. (Farhi et al., 2022)

This research centers on the urban area of Al Ain and examines the inclinations and perspectives of students about AI-related content available on the YouTube platform. The study's findings underscore the growing significance of online platforms, such as YouTube, as educational resources for both educators and learners. The writers acknowledge that social media platforms, such as YouTube, have undergone significant transformations and have had a positive impact on multiple facets of our lives, including the realm of education. This study holds significance as it offers significant insights into the efficacy and influence of AI-related educational videos available on the YouTube platform. The adoption of a localized approach enables a more comprehensive comprehension of the perception of AI in educational videos, by considering the distinct traits and preferences of students residing in Al city.

STATEMENT OF THE PROBLEM

The problem with AI-assisted learning platforms for students lies in ensuring they are effective, accessible, and beneficial for everyone. Many students have different learning needs, and not all platforms can adapt to these differences equally. Some students may struggle to access these platforms due to a lack of technology or internet. Additionally, there are concerns about how accurate and reliable the AI systems are in providing feedback and support. Another issue is ensuring that these platforms complement teachers rather than replace them, while also addressing concerns about data privacy and security. These challenges need to be solved to make AI-assisted learning truly helpful and fair for all students. This study will help to identify the problems related to AI-related learning platforms and to find a solution for them.

OBJECTIVES

1. To know the AI learning platform Apps.
2. To study the impact of AI-assisted teaching on students 'psychological well-being.
3. To identify an AI-assisted learning platform for students' academic performance.
4. To understand the performance of educational experiences fostering student engagement.
5. To provide recommendations for the effective integration of AI in education.

RESEARCH METHODOLOGY

Sampling Design	Purposive Sampling
Period of the study	November 2024 to March 2025
Data used	Primary and Secondary Data
Test for analysis	Percentage analysis, Graphical methods, Bar diagram, Pie charts, Ranking method

LIMITATIONS OF THE STUDY

To make this project authentic and reliable, every possible aspect of the topic was kept in mind. The main limitations are:

- ❖ Time is one of the significant constraints which limit the effective data collection
- ❖ The number of respondents is limited to 117
- ❖ Some information cannot be accessed due to its confidential nature
- ❖ Reliability and accuracy of the analysis depend on the respondents ' openness and truthfulness towards each question in the questionnaire

RESULTS AND DISCUSSION

INDEPENDENT SAMPLE T TEST

An independent t-test is a statistical method used to determine whether there is a significant difference between the means of two independent groups. It is commonly applied in research and experiments where two separate groups are compared to assess the effect of a treatment, intervention, or condition. The independent t-test calculates a t-statistic, which helps determine whether the observed difference between the group means is due to chance or represents a true difference in the population. If the resulting p-value is below a chosen significance level (typically 0.05), researchers reject the null hypothesis, concluding that there is a statistically significant difference between the two groups.

LIKERT FIVE POINT SCALE

A Likert five-point scale is a commonly used rating scale in surveys and research to measure attitudes, opinions, or perceptions. It consists of five response options that range from one extreme to another, typically including "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree." This scale allows respondents to express the degree to which they agree or disagree with a given statement. The five-point Likert scale is widely used because it provides a balanced measure of sentiment while being simple for respondents to understand.

It is frequently applied in social sciences, customer satisfaction surveys, and psychological research to quantify subjective opinions and analyze trends effectively.

2. TABLE SHOWING LIKERT FIVE POINT SCALE

Effectiveness	LIKERT SCALE								
	STRONGLY AGREE (5)	AGREE (4)	NEUTRAL (3)	DISAGREE (2)	STRONGLY DISAGREE (1)	No. of Respondents	Weighed score	Average Score	Rank
Easy to navigate the learning platform app	76 380	35 140	5 15	1 2	0 0	117	537	4.58	I
Quality of educational content	19 95	87 348	8 24	3 6	0 0	117	475	4.04	IV
Effectiveness of personalized learning features	40 200	44 176	30 90	2 4	1 1	117	471	4.02	VI
Engagement level of learning platform	24 120	59 236	23 69	10 20	1 1	117	446	3.81	X
User interface quality	38 190	50 200	20 60	6 12	3 3	117	465	3.97	VIII
Likelihood of recommending the app	32 160	64 256	18 54	2 4	1 1	117	475	4.05	III
Quality of technical support	48 240	46 184	21 63	2 4	0 0	117	491	4.19	II

Ease of accessing additional resources	32 160	62 248	20 60	2 4	1 1	117	473	4.02	V
Impact of AI assisted teaching on stress	35 175	52 208	26 78	4 8	0 0	117	469	4.00	VII
Impact on academic performance confidence	32 160	57 228	20 60	6 12	1 1	117	461	3.94	IX

Source: Primary Data

INFERENCE:

From the Likert scale calculation, it is evident that respondents are giving

- ❖ I rank with a score of 4.5897 for an easy-to-navigate learning platform App.
- ❖ II Rank with a score of 4.1965 given to strongly agree with the quality of technical support.
- ❖ III Rank with a score of 4.0598 given to agree in this study, many respondents agreed with the likelihood of recommending the App.
- ❖ IV Rank with a score of 4.0498 given to agree on the quality of educational content on the App.
- ❖ V Rank with a score of 4.0427 given to agree ease of accessing additional resources.
- ❖ VI Rank with a score of 4.0256 given to strong agreement on the effectiveness of personalised learning features.

3. TABLE SHOWING ONE-WAY ANOVA FOR SIGNIFICANT DIFFERENCE BETWEEN THE EFFECTIVENESS OF AI LEARNING PLATFORMS FOR STUDENTS

Variable		Mean square	F-value	Signification value
Effectiveness	Below within groups	40.641	1.686	.174

Effectiveness/Age	Mean	F value	Significance value
S1/AGE	1.106	3.050	.032
S2/AGE	.206	.609	.610
S3/AGE	1.891	2.629	.054
S4/AGE	.406	.506	.679
S5/AGE	2.085	2.294	.082
S6/AGE	1.106	.325	.807
S7/AGE	.206	2.396	.072
S8/AGE	1.891	4.175	.008
S9/AGE	.406	.295	.829
S10/AGE	2.085	.982	.404

Source: Primary Data

INFERENCE:

The above table ANOVA shows a significant value stated with <0.01 , and it is less than 0.05. Hence, I reject the null hypothesis and conclude by accepting that there is a significant difference between the effectiveness of AI learning platforms for students.

The higher F value is 4.175 for effectiveness further supports and motivates the stronger influence.

4. TABLE SHOWING DESCRIPTIVE ANALYSIS: PLATFORM IS INTUITIVE AND USER-FRIENDLY

Variance	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Mean	Standard Deviation
Easy to navigate the learning platform app	76	35	5	1	0	4.5897	.61803
Quality of educational content	19	87	8	3	0	4.0427	.57824
Effectiveness of personalized learning	40	44	30	2	1	4.0256	.86564

features							
Engagement level of the learning platform	24	59	23	10	1	3.8120	.88990
User interface quality	38	50	20	6	3	3.9744	.96902
Likelihood of recommending the app	32	64	18	2	1	4.0598	.75761
Quality of technical support	48	46	21	2	0	4.1966	.79045
Ease of accessing additional resources	32	62	20	2	1	4.0427	.77006
Impact of AI-assisted teaching on stress	35	52	26	4	0	4.0085	.81469
Impact on academic performance and confidence	32	57	20	6	1	3.9741	.85933

Source: Primary Data

INFERENCE:

The above table shows that the highest-rated aspect is ease of navigation (Mean = 4.59, SD = 0.62), suggesting that users find the platform intuitive and user-friendly. The quality of educational content also received a favorable response (Mean = 4.04), indicating general satisfaction. Personalized learning features (Mean = 4.02, SD = 0.87) and ease of accessing additional resources (Mean = 4.04) were rated positively, though with some variation in responses. The engagement level of the platform received a slightly lower rating (Mean = 3.81, SD = 0.89), suggesting room for improvement in making the platform more engaging. Similarly, user interface quality (Mean = 3.97) had a slightly mixed response. Most users expressed a willingness to recommend the app (Mean = 4.06), and technical support was well-rated (Mean = 4.20). The impact of AI-assisted teaching on stress (Mean = 4.01) and confidence in academic performance (Mean = 3.97) indicates a generally positive but not overwhelmingly strong influence. Overall, while the platform is well-received, particularly for navigation, content quality, and support, there is potential for improvement in engagement and user interface experience.

5. RANKING FACTORS INFLUENCING THE MORE USE AI AI-ASSISTED LEARNING PLATFORMS

RESPONSE TABLE

FACTORS	RANK				
	I	II	III	IV	V
Avoid Homework	63	20	15	10	9
Learn New Skills	43	22	15	13	24
Text-based materials	45	30	10	10	22
Watch Videos	50	30	10	10	17
Personalised Learning	45	35	15	10	12

Source: Primary Data

RANK TABLE

FACTORS	TOTAL	MEAN SQUARE	RANK
Avoid Homework	7290	62.30	I
Learn New Skills	6402	54.71	V
Text-based materials	6615	56.53	IV
Watch Videos	6865	58.67	III
Personalised Learning	6887	58.86	II

Source: Primary Data

INFERENCE:

From the above table, the I Rank is that students use learning platform apps to avoid homework a mean square is 62.30. The II Rank is personalised learning mean square is 58.86. The III Rank is watching videos, the mean square is 58.67. The IV Rank is text-based

materials, the mean square is 56.53. The V Rank is to learn new skills; students use a learning platform, and the mean square is 54.71.

Therefore, the highest mean square value of 62.20 is used to avoid the homework of students used in learning platform apps.

DISCUSSING THE RESULT

The statistical analysis evaluates the effectiveness of an educational app based on hypothesis testing, Likert scale rankings, and ANOVA results. The hypothesis test indicates a significant difference in the quality of educational content for S2 ($p = 0.021 < 0.05$), while other statements (S1, S3-S10) show no significant difference ($p > 0.05$).

Likert scale rankings reveal that ease of navigation ranks highest (Mean = 4.59), followed by technical support (4.20) and willingness to recommend the app (4.06). ANOVA results show a significant effect ($p < 0.01$), with the highest F-value (4.175) supporting AI's effectiveness in learning. The study also finds that students primarily use learning platforms to avoid homework (Mean Square = 62.30), followed by personalized learning (58.86) and watching videos (58.67).

Overall, users appreciate the platform's ease of use, content quality, and support, though engagement and UI experience could improve.

FINDINGS

- A significant difference was found in the effectiveness level of the quality of educational content ($p = 0.021 < 0.05$), rejecting the null hypothesis.
- For all other factors ($p > 0.05$), the null hypothesis was accepted, indicating no significant difference in effectiveness levels based on gender.
- The most highly rated factor was ease of navigation (Avg. Score = 4.58, Rank I), indicating users find the platform intuitive.
- Quality of technical support (Avg. Score = 4.20, Rank II) was also highly rated.
- Likelihood of recommending the app (Avg. Score = 4.05, Rank III) suggests users are generally satisfied.

- Engagement level (Avg. Score = 3.81, Rank X) was the lowest-rated factor, highlighting a potential area for improvement.
- A significant difference was found for S8 (Ease of accessing additional resources) across different age groups ($p = 0.008 < 0.05$).
- No significant differences were found for other factors ($p > 0.05$), meaning most effectiveness measures do not vary significantly by age.
- Ease of navigation received the highest mean score (4.59, SD = 0.62), affirming the platform's user-friendliness.
- Quality of educational content (Mean = 4.04) **and** technical support (Mean = 4.20) were also positively rated.
- Engagement level (Mean = 3.81, SD = 0.89) was rated the lowest, indicating a need for improvement.
- Avoiding homework was the most influential factor driving students to use AI-assisted learning platforms (Mean Square = 62.30, Rank I).
- Personalized learning ranked second (Mean Square = 58.86, Rank II)
- Watching videos ranked third (Mean Square = 58.67, Rank III), highlighting video-based learning as a preferred method.
- Learning new skills ranked lowest (Mean Square = 54.71, Rank V), indicating it is a less common motivation for using AI-assisted learning platforms.

The AI-assisted learning platform is well-received, particularly for its ease of navigation, quality of content, and technical support. However, engagement levels need improvement. Gender differences were mostly insignificant, while age differences were noted for ease of accessing resources. The most influential reason for using AI-assisted learning is avoiding homework, followed by personalized learning and video content consumption.

SUGGESTIONS

- Improve platform navigation, user experience, and resolve technical issues.
- Increase interactive and gamified learning with more personalized content.
- Offer digital literacy support and beginner-friendly guides.
- Add stress management tools and real-time feedback for confidence-building.
- Provide flexible pricing, scholarships, and subsidized access.
- Promote AI-driven recommendations and word-of-mouth marketing.

- Enhance mobile and tablet compatibility for seamless learning access.
- Integrate AI chatbots for instant academic and technical support.
- Develop multilingual content to support diverse learners.
- Introduce AI-driven adaptive assessments for personalized progress tracking.
- Partner with educational institutions for certification and credibility.
- Improve data security and privacy features to protect user information.
- Offer offline access to learning materials for better accessibility.
- Include gamification elements like leaderboards and rewards to boost engagement.
- Provide AI-powered career guidance based on learning patterns.
- Regularly update course content to stay relevant to industry trends.

CONCLUSION

The study highlights the increasing reliance on online learning platforms, with 80% of respondents actively using them. Coursera emerged as the most preferred platform, followed by Duolingo and Quizlet, reflecting diverse learning needs. The preference for mobile devices and laptops underscores the necessity for user-friendly, responsive platforms. English being the dominant language choice suggests that globally recognized platforms have a competitive edge. User motivations for engaging with AI-assisted learning include skill development, knowledge enhancement, and exam preparation, emphasizing the potential of AI-based platforms to bridge educational gaps. However, technical difficulties such as software glitches and connectivity issues were reported by 79% of respondents, indicating the need for improved technical support and seamless platform design.

Engagement and content preferences played a crucial role in user satisfaction. Interactive simulations were the most preferred content type, followed by text-based materials and video lectures, showing that learners value interactivity and real-world applications. Additionally, while 47% of respondents reported reduced stress levels due to AI-assisted learning, others experienced increased stress, suggesting the importance of workload management and cognitive load considerations. AI-driven education positively impacted self-esteem and reduced academic performance-related anxiety, reinforcing the benefits of personalized learning experiences. Statistical analyses further validated these findings, with the t-test confirming a significant difference in effectiveness based on educational content quality, and ANOVA results indicating that younger learners may adapt more easily to digital platforms.

Financial considerations revealed that most respondents were willing to pay between Rs . 101 and Rs. 150 per month for online learning platforms, demonstrating a moderate to high investment interest. Features like personalized learning, augmented reality, and real-time feedback were highly valued, reinforcing the importance of AI-driven customization. Overall, AI-assisted learning platforms have revolutionized education by offering flexible and engaging experiences. However, challenges related to technical difficulties, stress management, and content engagement must be addressed to optimize their impact. The study's insights provide valuable guidance for platform developers, educators, and policymakers to enhance AI-assisted learning environments, ensuring continued evolution and effectiveness in modern education.

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