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IMPACT OF AI ON STUDENT ENGAGEMENT AND MOTIVATION WITH RESPECTIVE TO ACADEMICS

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ABSTRACT:

This study focuses on the impact of Artificial Intelligence (AI) on students' engagement and motivation in academics. The main aim of this study is to investigate the role of AI in enhancing the participation and involvement of students in the learning process. The current research considers AI-powered innovations as adaptive learning systems, chatbots, intelligent tutors and text generators. The variables under consideration include students' participation, problem-solving skills, self-confidence, study habits, and interest in learning. Even though the study reveals that AI integration in academics may maximise learning potential, it stresses that equal access to new technologies, acquiring knowledge of AI usage, and optimising its implementation in education are critical for effectiveness.

Keywords: *Artificial Intelligence (AI), Student Engagement, Student Motivation, Adaptive Learning, Critical Thinking, Virtual Tutors, Generative Chatbots, Plagiarism Tools, Cognitive Engagement*

INTRODUCTION:

Artificial intelligence (AI) is transforming education by making learning more interesting, engaging and effective. AI-powered language models, chatbots, personalised learning platforms, virtual tutors, grammar and plagiarism checkers, and other tools can make lessons unforgettable, provide a quick solution to common problems, offer valuable feedback, and help students practice and develop their knowledge. As such, it can improve students' productivity, save time and reduce academic stress, and boost self-esteem. Moreover, AI can stimulate active learning, critical thinking, and engagement in the educational process. However, the use of AI in education can have adverse effects, including more reliance on technology, privacy and security concerns, the risk of receiving biased information, and reduced critical thinking and competence in reading and writing. The present research aims to investigate students' use of artificial intelligence for academic purposes and its impact on their motivation, engagement, confidence, grades, and challenges.

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SIGNIFICANCE OF THE STUDY:

The study holds great significance as it can help understand how artificial intelligence (AI) may support students' engagement and motivation in academic settings. The research will demonstrate how technologies such as ChatGPT, virtual assistants, and other learning tools can be used to increase learners' interest, self-esteem, participation, performance, and many other factors. Moreover, the study will show how to use these technological advancements wisely to ensure that students do not rely on AI tools for problem-solving, critical thinking, and other intellectual activities. The research is significant for educators, organisations, policymakers, and other stakeholders. For instance, it can provide guidelines for implementing these technologies in a learning environment to optimise educational outcomes and ensure ethical use.

SCOPE OF THE STUDY:

This study aims to evaluate the influence of Artificial Intelligence (AI) on students' involvement and motivation in academics. The research will examine how such technology as generative chatbots, AI learning apps, virtual tutors, and grammar/plagiarism checkers affect learners' behaviour, critical thinking, problem-solving, confidence, curiosity, participation, and stress. Commerce, science, humanities, and diploma students at various levels of education will be studied to identify the similarities and peculiarities of their experience. The scope of the study will highlight the ways artificial intelligence can motivate and involve students in the learning process and benefit them.

REVIEW OF LITERATURE:

- Ahmed, Mohamed, Zaid, Norasykin & Abdullah Abdul (2025): The study found that AI improved participation, motivation, and self-learning among higher education students.
- Bella (2025): The study found that adaptive learning and intelligent tutoring improved student engagement, interaction, and motivation.
- Reddy & Leelavathi (2025): The study found that AI increased students' interest and involvement and reduced teachers' administrative workload.
- Mojolou et al. (2025): The study found improvements in behavioural, cognitive, and affective engagement, while warning against excessive AI use
- Suherman, Supriadi & Wan (2025): The study found that AI-supported activities improved motivation, participation, and involvement but emphasized avoiding technological dependence.
- Zamri & Masri (2025):The study found that intelligent tutoring and gamified learning improved students' autonomy, achievement, and behavioural, cognitive, and emotional engagement.
- Mansur Salih (2025): The study found that gamification improved behavioural, cognitive, and emotional engagement and increased students' motivation through rewards and interactive learning.
- Masih (2025): The study found that personalized AI learning improved student involvement, motivation, participation, and academic performance.
- Shankar Subramanian Iyer (2025): The study found that AI positively influenced learner engagement and highlighted the importance of educators and policymakers.

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- Ashlesha B. Hangargekar (2025): The study found that adaptive learning and timely feedback improved motivation and confidence, while over-reliance could reduce critical thinking.

RESEARCH GAP:

Previous studies have examined the use of Artificial Intelligence (AI) in education or overall impact, but most of them have focused on school students or on the general benefits of AI in learning. Only a few studies have explored the impact of AI on student engagement and motivation in academic activities in students education. As a result, there is limited understanding of how AI influences students' interest in learning, participation, motivation, and academic performance at the college and university level. Therefore, this study fills this research gap by focusing on higher education students and examining how AI affects their engagement and motivation in academic activities. The findings will provide a better understanding of the role of AI in improving learning while encouraging its responsible and effective use in higher education.

OBJECTIVES OF THE STUDY:

1. To analyze the impact of AI in students' engagement

2. To identify the challenges students faced while using the AI-

3. To study the influence of AI on students' learning behavior and engagement in academic activities

RESEARCH METHODOLOGY:

The study is based on primary data collected from 100 student users using a structured questionnaire prepared through Google Forms. The respondents to generate firsthand information on the application of artificial intelligence in the academic field. The study was conducted over a period of six months. The collected data were analysed using Percentage Analysis to identify the distribution of respondents, Mean and Standard Deviation to examine students' engagement and motivation and Chi-square Test to determine the relationship between selected demographic variables and students' engagement and motivation with respect to academics.

CONCEPTUAL FRAMEWORK

INTRODUCTION

Artificial Intelligence (AI) refers to the use of intelligent technologies that can perform tasks requiring human-like abilities such as learning, reasoning, problem-solving, and decision-making. In education, AI includes tools such as chatbots, virtual tutors, adaptive learning applications, grammar and plagiarism checkers, and AI-based learning platforms. These tools provide students with personalised learning support, quick explanations, feedback, and assistance in completing academic activities. Hence, AI is considered the major factor in this study that may influence students' engagement and motivation towards academics.

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STUDENT ENGAGEMENT

Student engagement refers to the extent to which students actively participate in and remain interested in their academic learning. It includes behavioural, cognitive, and emotional involvement in activities such as attending classes, participating in discussions, preparing projects, seminars and presentations, completing assignments and working with others. AI can make learning more interactive and personalised, which may encourage students to participate actively and pay greater attention to their studies. Thus, student engagement is an important outcome considered in the conceptual framework.

STUDENT MOTIVATION

Student motivation refers to the willingness, interest, confidence, and enthusiasm of students to learn and achieve their academic goals. AI can support motivation by providing immediate feedback, personalised assistance, clarification of difficult concepts, and opportunities for self-paced learning. Therefore, motivation is considered an important variable through which the influence of AI on students' academic learning can be understood.

ACADEMIC ACTIVITIES

Academic activities refer to the different learning-related tasks in which students participate, such as classroom learning, online learning, assignments, projects, seminars, presentations, examinations, research work, and teamwork. AI can be used in these activities to obtain information, understand difficult topics, prepare academic work, receive feedback, and improve learning efficiency.

RELATIONSHIP

The conceptual framework explains the relationship between Artificial Intelligence, student engagement, student motivation, and academic activities. AI tools such as chatbots, virtual tutors, adaptive learning applications, and plagiarism checkers can provide personalized learning, immediate feedback, and academic assistance. These features may increase students' participation, interest, confidence, and motivation in academic activities.

ROLE

The role of Artificial Intelligence in education is to support and facilitate the teaching and learning process. AI helps students understand difficult concepts, receive personalised guidance, obtain quick feedback, save time, and participate more actively in academic activities. It can also encourage students to develop confidence, independence, and interest in learning. Thus, AI acts as a supportive educational tool that can improve student engagement and motivation while assisting students in different academic activities.

FUNCTIONS

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The functions of Artificial Intelligence in education include providing personalised learning, academic assistance, immediate feedback, interactive learning, and support for different academic tasks. AI can be used in assignments, projects, seminars, presentations, examinations, research work, teamwork, and classroom or online learning. It can help students clarify concepts, solve problems, obtain information, and improve their learning process.

CHALLENGES

Although AI provides several educational benefits, students may face challenges such as overdependence on technology, reduced critical thinking, concerns about reliability, privacy and security issues, and reduced independent learning. Students may also experience frustration when AI-generated responses do not match their expectations. These challenges are important in the conceptual framework because the impact of AI is not always positive and depends on how responsibly and effectively students use the technology.

DATA ANALYSIS AND INTERPRETATION
PERCENTAGE ANALYSIS

This section presents the distribution of student demographics, AI tool usage, and challenges to highlight dominant patterns in academic engagement with AI

Frequency Analysis on Demographic Features, AI Tool Usage, Issues, and Barriers Faced by Students in Academic Learning

Features	Factors	Frequency	Percent
Gender	Female	96	96.0
	Male	4	4.0
	Total	100	100.0
Age	Below 18	7	7.0
	18-25	90	90.0
	26-30	2	2.0
	Above 30	1	1.0
	Total	100	100.0
Stream	Commerce	85	85.0
	Science	10	10.0
	Humanities/arts	5	5.0
	Total	100	100.0
Education	HSC 12th	10	10.0
	Under graduate	44	44.0
	Post graduate	42	42.0
	Professional	4	4.0
	Total	100	100.0
Location	Rural	6	6.0
	Urban	94	94.0
	Total	100	100.0
Annual income	Less than Rs. 250000	79	79.0

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	Rs.250001-Rs.500000	12	12.0
	Rs.500001-Rs.1000000	9	9.0
	Total	100	100.0
AI tools used by students	ChatGPT	87	64.4
	AI-based learning apps	21	15.6
	Virtual tutors	10	7.4
	Grammar/plagiarism tools	14	10.4
	Others	3	2.2
	Total	135	100
Issues faced while using AI tools	Difficulty in accessing AI due to internet/device problems	33	23.4
	Trouble understanding how to frame effective prompts	33	23.4
	Concerns about privacy or data safety	39	27.7
	Lack of trust in AI-generated answers	34	24.1
	Others	2	1.4
	Total	141	100
Barriers to regular AI use	Technical/infrastructure issues	31	21.5
	Fear of over-dependence on AI	50	34.7
	Answers feel too generic or irrelevant	31	21.5
	Worry about reduced critical thinking	31	21.5
	Other	1	0.7
	Total	144	100

Source: Primary data

INFERENCE:

It is inferred that the majority of the respondents belonged to the 18–25 years age group and were predominantly female, commerce stream, and postgraduates. Most of them were students who were located in urban (city). Most of them were students with an annual income less than ₹2,50,000. ChatGPT is most frequently used for academic purposes by students. Major issues faced by respondents was Concerns about privacy or data safety, and barriers to using AI tools were fear of over-dependence on AI.

DESCRIPTIVE ANALYSIS

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This section of the study uses standard deviation and mean to analyse and rank the students' perceptions of AI in academic learning and the challenges they encounter while using it.

Mean and Standard Deviation on Perceptions of AI in Academic Learning and on Challenges faced by students while using AI

Factors	Statement	Mean	St. Deviation	Rank
Perceptions of AI in Academic Learning	AI-based tools make my academic learning more engaging	3.27	1.213	III
	AI helps me understand academic concepts more effectively	3.41	1.207	I
	The use of AI improves my confidence in handling academic tasks	3.23	1.278	IV
	AI will change the role of teachers in the future	3.18	1.234	V
	Using AI in academic motivates me to explore new topics or areas of study	3.34	1.343	II
Challenges Faced by Students While Using AI	I feel unsure whether the AI's answers are correct or reliable.	3.09	1.264	V
	Using AI too much reduces my own critical thinking skills.	3.48	1.193	I
	AI provides personalized answers that fit my learning style.	3.21	1.200	III
	When AI's answers don't match my expectations, I feel frustrated.	3.31	1.152	II
	Using AI in academics sometimes distracts me from focusing on my actual study tasks.	3.15	1.313	IV

Source: Computed data

INFERENCE:

It is inferred that respondents show that students hold a positive perception of AI in academic learning, particularly for enhancing conceptual understanding and encouraging exploration of new topics. However, they also acknowledge notable challenges, especially the risk of

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reduced critical thinking due to excessive reliance on AI. Therefore, AI should be used as a supportive learning tool rather than a replacement for students' independent thinking and analytical skills.

INFERENTIAL ANALYSIS

CHI - SQUARE TEST ON CHALLENGES FACED BY STUDENTS WHILE USING AI

This part of the study applies the Chi-square test to explore the challenges faced by students while using AI. The hypotheses are framed to examine whether perceptions of AI and related factors show significant associations with demographic variables.

HYPOTHESES

- **$H0_1$:** There is no significant association between perceptions of AI reliability and demographic variables.
- **$H1_1$:** There is a significant association between perceptions of AI reliability and demographic variables.
- **$H0_2$:** There is no significant association between perceptions of AI reducing critical thinking and demographic variables.
- **$H1_2$:** There is a significant association between perceptions of AI reducing critical thinking and demographic variables.
- **$H0_3$:** There is no significant association between perceptions of AI providing personalised learning support and demographic variables.
- **$H1_3$:** There is a significant association between perceptions of AI providing personalised learning support and demographic variables.
- **$H0_4$:** There is no significant association between frustration with AI responses and demographic variables.
- **$H1_4$:** There is a significant association between frustration with AI responses and demographic variables.
- **$H0_5$:** There is no significant association between perceptions of AI as a distraction and demographic variables.
- **$H1_5$:** There is a significant association between perceptions of AI as a distraction and demographic variables.

CHI-SQUARE TEST OF ASSOCIATION BETWEEN CHALLENGES FACED BY STUDENTS WHILE USING AI AND DEMOGRAPHIC VARIABLES

Statement	Factors	Pearson Chi-square	P-value
	Gender	0.996	0.910
	Age	8.718	0.727

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I feel unsure whether the AI answers are correct or reliable	Stream	9.888	0.273
	Education	4.879	0.962
	Location	**15.246**	**0.004**
	Annual Income	7.282	0.507
Using AI too much reduces my own critical thinking skills	Gender	2.167	0.705
	Age	**22.218**	**0.035**
	Stream	12.526	0.129
	Education	6.506	0.888
	Location	**15.738**	**0.003**
	Annual Income	9.570	0.296
AI provides personalized answers that fit my learning style	**Gender**	**7.884**	**0.096**
	Age	**20.471**	**0.059**
	Stream	7.142	0.521
	Education	**26.204**	**0.010**
	Location	**16.287**	**0.003**
	Annual Income	9.153	0.330
When AI's answers don't match my expectations, I feel frustrated	Gender	1.295	0.862
	Age	8.295	0.762
	Stream	8.038	0.430
	Education	7.656	0.811
	Location	**27.137**	**0.000**
	Annual Income	7.067	0.529
Using AI in academics sometimes distracts me from focusing on my actual study tasks	Gender	4.173	0.383
	Age	15.773	0.202
	Stream	4.604	0.799
	Education	9.577	0.653
	Location	**9.451**	**0.051**
	Annual Income	18.794	0.016

Source: Computed data

INFERENCE:

It is inferred that students are using AI as a supportive tool in academic learning, with positive associations noted for enhancing understanding and providing personalised support. However, the Chi-square analysis reveals significant relations between certain demographic variables and challenges faced by students while using AI [reliability, reduced critical thinking, and frustration with responses]. These findings show that while AI can enrich the learning experience, excessive dependence may hinder independent thinking, and perceptions vary across demographic groups. Therefore, AI should be integrated cautiously, serving as an aid to learning rather than a substitute for students' analytical and critical abilities.

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FINDINGS OF STUDY

The study shows that Artificial Intelligence (AI) has become a well-established academic support tool, one that students rely on heavily for breaking down difficult concepts, finishing assignments, getting ready for exams, carrying out research and generally improving the quality of their learning. According to the findings, AI raises engagement, motivation, confidence and the ability to learn on one's own, since it saves time, delivers support tailored to the individual and makes studying more interactive. At the same time, a number of drawbacks were recognised: students become too dependent on it, their critical thinking suffers, reliability is open to question, prompts are hard to frame correctly, and it can pull attention away from the actual study work. Looking at the demographics, the bulk of respondents were young people aged 18 to 25, female, enrolled in postgraduate commerce programmes, and came from urban households with low incomes, with ChatGPT named as the tool they used most often. Statistical testing indicated that how often AI is used doesn't vary much across demographic groups.

SUGGESTION

Artificial Intelligence has become a promising educational tool that engages students, motivates them, boosts their confidence, and improves their performance by offering personalized learning experiences, instant feedback, and easy access to information. Students appreciate the ability of AI to make learning easier, save time, and reduce academic stress. Yet, there are some concerns about using this technology in education, such as overreliance on it, decreased critical thinking, lack of trust in AI, and distraction. Thus, it is essential to use artificial intelligence as a supportive tool in education to ensure that students receive the best quality of learning and become competent and motivated professionals in their fields.

CONCLUSION

Educational institutions must encourage the responsible use of AI as an additional tool in learning in addition to traditional methods. AI literacy programs and workshops should be introduced to educate students on how best to prompt, test, and use AI to get the most out of the technology. Moreover, students need to be helped to enhance their critical thinking skills so that they do not rely on AI too much. It is also essential to sensitise and educate students about possible issues associated with misinformation and critical thinking and the ethical aspects of AI usage. Moreover, guidelines on academic integrity should be emphasised, and students should be taught how to cross-check information generated by AI using other resources such as books and journals.

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