



THE ROLE OF AI CREATING POSITIVE ATTITUDE TOWARDS STUDENT HABIT IN BLENDED CLASSROOM ENVIRONMENT

¹Sutapa Kar, ²DR. Kalitoli K. Chishi, ³Ruchira Ray,

¹Research Scholar, FOE, ICFAI University, Tripura, ²Asst. Prof., FOE, ICFAI University, Tripura,

³Research Scholar, FOE, ICFAI University, Tripura, Asst. Prof. VCE, WB.

Education Dept.

ICFAI University, Tripura, India

Abstract:

The combination of Artificial Intelligence (AI) into blended learning environments has revolutionized modern education by promoting personalized instruction, interactive engagement, and improved study habits. This study explores the role of AI in fostering a positive attitude toward study habits among higher secondary students in blended classrooms. AI tools, such as adaptive learning systems and smart teaching applications, provide individualized learning experiences by analysing students' needs, strengths, and progress. These technologies enhance motivation, concentration, and participation while offering instant feedback that supports both students and teachers in achieving better academic outcomes.

The research was conducted among 11th and 12th standard students from science and arts streams to examine variations in AI usage and study habits. Findings indicate no significant differences between the groups, suggesting that both grade levels and academic streams exhibit similar levels of adaptability and positive attitudes toward AI-based learning. The correlation analysis revealed a weak negative relationship between AI use and study habits, implying that while AI assists in learning, it does not directly determine students' study discipline.

Overall, the study concludes that AI serves as a supportive tool that complements traditional learning by improving engagement and awareness, though its influence on study habits remains limited. Effective teacher guidance, structured digital literacy programs, and balanced AI integration are essential to ensure that technology enhances not replaces students' intrinsic motivation and self-regulated study habits.

Keywords: Artificial intelligence, student engagement, blended classroom, study habits.

Introduction:

The emergence of Artificial Intelligence (AI) in education has transformed traditional teaching and learning processes by introducing innovative methods to enhance student engagement, personalize instruction, and boost academic achievement. In the modern, technology-driven era, conventional classroom practices are progressively merging with online learning, giving rise to blended learning environments. Within this framework, AI plays a pivotal role by analysing learner data, customizing content according to individual needs, and offering instant feedback to both students and educators.

AI-powered educational tools such as smart teaching systems, adaptive learning platforms, and learning analytics applications hold great promise in addressing one of education's ongoing challenges: sustaining student engagement. Through advanced algorithms, these systems assess students' strengths, weaknesses, and learning behaviour to create personalized learning experiences that encourage active participation and deeper understanding. Additionally, AI assists teachers in tracking progress, diagnosing learning gaps, and providing targeted support, ultimately leading to better academic outcomes.

Blended classrooms, which integrate the flexibility of digital learning with the interactivity of face-to-face teaching, serve as an ideal setting for the application of AI technologies. In such learning spaces, AI not only promotes individualized instruction but also enhances collaboration, creativity, and motivation through adaptive feedback and dynamic learning resources. Nevertheless, despite its numerous advantages, the adoption of AI in education faces challenges such as data security issues, inadequate technical infrastructure, and lacking of teacher training.

Hence, the present study aims to investigate the role of Artificial Intelligence in improving student engagement and performance in blended learning environments. By exploring the influence of AI-based systems on learners' motivation, participation, and achievement, this research seeks to provide valuable insights into the effective integration of AI in contemporary education and its potential to reshape future teaching and learning practices.

Operational Definition:

Artificial Intelligence: AI refers to the capability of machines or computers to think, learn, and make decisions similar to humans. It enables machines to carry out tasks that usually require human intelligence, such as language understanding, pattern recognition, problem-solving, and forecasting. AI is increasingly present in daily life, including virtual assistants, self-driving vehicles, recommendation systems, and healthcare solutions. By automating repetitive tasks and offering personalized experiences, AI enhances efficiency, speed, and accuracy, significantly changing the way we live, work, and learn.

Student Engagement: Student engagement refers to the level of interest, motivation, and active participation a student shows in the learning process. It reflects how much a student is mentally, emotionally, and behaviorally involved in classroom activities, lessons, or learning tasks.

Blended Classroom: A blended classroom is a teaching method that merges traditional in-person instruction with online learning. Students participate in regular classroom sessions with a teacher while also using digital tools like videos, quizzes, and interactive lessons. This approach offers flexibility, enabling students to learn at their own pace, and makes learning more engaging and tailored to individual needs. By combining technology with classroom teaching, blended classrooms improve comprehension, encourage active participation, and enhance overall learning results.

Study Habits: Study habits refer to the consistent and organized patterns of behaviour that students adopt while studying, including time management, concentration, note-taking, reading, and revision strategies. They reflect how effectively students plan, regulate, and monitor their learning activities to achieve academic success and improve overall performance in their educational pursuits.

Need and Significance:

- There is an increasing need to implement innovative strategies that boost student engagement and academic performance.
- Artificial Intelligence in blended classrooms enables personalized learning, timely feedback, and active participation.
- This study examines how AI can effectively enhance both engagement and achievement in blended learning environments.
- Its findings will help educators and policymakers integrate AI to create more inclusive and effective learning experiences.

Critical Analysis of Literatures:

The studies mutually provide a comprehensive understanding of factors influencing students' academic success, motivation in educational settings and the transformative role of Artificial Intelligence in blended learning environment enhancing educational quality, engagement and personalised instruction across educational context.

Adetunji (2025) and Kwak (2025) emphasize AI's potential to personalize learning and improve student engagement, while Ateeq et al. (2025) confirm that interactive AI tools and adaptive learning technologies significantly enhance critical thinking and problem-solving skills. Ayob (2021) and Cao (2025) highlight the effectiveness of AI-integrated blended learning in improving academic achievement and language proficiency. Chen (2024) further reveals that positive perceptions of AI promote creativity and motivation among music students. Studies by Gault (2023), Karaki (2025), and Liu (2024) underline the importance of reflective teaching and self-regulated learning in sustaining engagement within blended environments.

Similarly, Mubarak (2024) and Zhaang (2024) demonstrate how gamified and robot-assisted learning models heighten motivation and computational thinking. Park (2024) and Riatun (2024) discuss integration challenges and the sustainability of e-learning systems post-pandemic. Finally, Sakka (2025) and Tariq (2025) provide evidence of AI's role in enhancing academic outcomes through adaptive and personalized interventions.

Sarwar et al. (2025) highlight that teacher motivation, mediated by emotion regulation and study habits, plays a pivotal role in reducing student procrastination. Aliyu and Tomori (2025) empirically confirm that effective study habits significantly enhance secondary students' academic performance. Furness et al. (2025) reveal a striking disconnect between medical students' awareness and practice of evidence-based learning strategies, calling for improved pedagogical support. Similarly, Al-Thani et al. (2025) present a novel Research Cognitive Learning Program that strengthens scientific identity and research skills among high school students. Oyetola et al. (2025) and Murtaza et al. (2025) both affirm that learning styles and consistent study habits are strong determinants of academic achievement.

Kumari et al. (2025) link scientific attitude with improved academic outcomes, while Sharma et al. (2025) explore how test anxiety and study habits influence language learners' performance. Singh and Ishrat (2025) emphasize the role of social support and digital self-efficacy in enhancing online learning satisfaction, and Ward et al. (2025) demonstrate the promise and challenges of AI in improving study habits.

These studies affirm that AI and blended learning, when ethically integrated, can redefine global education promoting learner autonomy, digital equity, and innovative pedagogy while requiring robust teacher preparation and policy frameworks. Most of studies are considered as very recent studies in both Indian and international context. Only few studies are taken for review but continuous research work is going on to enlighten the entire system for progressing environment. Collectively, these studies enrich understanding of modern learning psychology and educational innovation.

Research Gap:

Despite the growing interest in AI and blended learning, very limited research has specifically examined its impact on student engagement and academic performance in blended classrooms. Subject-stream wise collective analysis is also very less. Most existing studies have been conducted at the international or national level, with very few investigations at the regional or local level. This highlights a need for further research to understand how AI-based tools influence engagement and learning outcomes in diverse educational contexts.

Statement of the Problem:

“The Role of AI Creating Positive Attitude Towards Student Habit in Blended Classroom Environment”

Objectives of the Study:

1. To understand the difference between 11th standard student and 12th standard student in relation to uses of AI and attitude towards study habit.
2. To understand the difference between science students and arts students in relation to use of AI and attitude towards study habit.
3. To understand the relationship between uses of AI and attitude towards study habit of 11th & 12th standard students.

Hypothesis of the Study:

H1₁: There exists a significant difference between 11th & 12th standard students in relation to uses of AI.

H1₂: There exists a significant difference between 11th & 12th standard students in relation to attitude towards study habit.

H1₃: There exists a significant difference between Science & Arts stream students in relation to uses of AI.

H1₄: There exists a significant difference between Science & Arts stream students in relation to attitude towards study habit.

H1₅: There exists a significant Relationship in between uses of AI and attitude towards study habit.

Methodology and Procedure:

Population: The data was collected through survey method. The data was collected from a particular school i.e. “Arundhutinagar Higher Secondary School (Vidyajyoti)”, Agartala, Tripura, according to convenience of the investigator.

Sample: From 116 students of 11th & 12th standard students 100 samples are randomly selected for the hypothesis testing. From that 50 students are from 11th standard and 50 students are from 12th standard. Again 50 students are from science stream and 50 students are from Arts stream.

Tool: A self-made questionnaire has been employed for the investigation of the study of AI-Uses and a questionnaire uploaded by Joyce Clark Serencio in www.scribd.com entitled by "Study Habit Questionnaire" was used.

Statistical method used:

Mean: The mean, or average, is used in research study for summarize and interpret data in a clear and meaningful way.

Standard Deviation (SD): The standard deviation (SD) is used in research studies to show how much the data varies or spread out from the mean (average). It helps researchers understand consistency, reliability, and differences within a dataset.

t-test: The t-test is employed in research studies to examine whether a statistically significant difference exists between the means of two groups. It enables researchers to determine whether the observed differences are genuine or simply the result of random variation.

Delimitation of the study:

Population Studied: Only 100 students were selected from a total population of 116 students for this survey.

Research Focus: The study was confined to only one school of Agartala, Tripura.

Study Boundaries: The investigation was limited to students of 11th & 12th students, more precisely Science and Arts Stream students.

Data Analysis:

H₁: There exists a significant difference between 11th & 12th standard students in relation to uses of AI.

table no.: 01

Students	Total	Mean	SD	df	t-test	result	Decision
11 th	50	36.48	7.49	98	0.371	NS	H ₁ failed to accepted
12 th	50	37.86	7.40				

The t-test result ($t = 0.371$, $df = 98$) indicates that there is no significant difference between the mean scores of 11th and 12th standard students. Although the 12th standard group shows a higher mean (37.86) compared to the 11th standard group (36.48), the difference is statistically not significant. This suggests that both groups perform similarly in relation to uses of AI and the hypothesis (H₁) is failed to accepted.

H₂: There exists a significant difference between 11th & 12th standard students in relation to attitude towards study habit.

table no.: 02

Students	Total	Mean	SD	df	t-test	result	Decision
11 th	50	59.52	14.98	98	0.237	NS	H ₂ failed to accepted
12 th	50	62.76	11.82				

The t-test result ($t = 0.237$, $df = 98$) indicates that there is no significant difference between the mean scores of 11th and 12th standard students. Although the 12th standard shows a higher mean (62.76) compared to the 11th standard (59.52), the difference is statistically not significant. This suggests that both groups perform similarly in relation to attitude towards study habit and the hypothesis (H₂) is failed to accepted.

H₃: There exists a significant difference between Science & Arts stream students in relation to uses of AI.

table no.: 03

Students	Total	Mean	SD	df	t-test	result	Decision
Science	50	37.56	7.04	98	0.772	NS	H ₃ failed to accepted
Arts.	50	37.14	7.31				

The t-test result ($t = 0.772$, $df = 98$) indicates that there is no significant difference between the mean scores of Science and Arts stream students. Although the Science students show a higher mean (37.56) compared

to the Arts stream students (37.14), the difference is statistically not significant. This suggests that both groups perform similarly in relation to uses of AI and the hypothesis (H₁₃) is failed to accepted.

H₁₄: There exists a significant difference between Science & Arts stream students in relation to attitude towards study habit.

table no.: 04

Students	Total	Mean	SD	df	t-test	result	Decision
Science	50	61.26	14.83	98	0.365	NS	H₁₄ failed to accepted
Arts.	50	58.72	12.72				

The t-test result ($t = 0.365$, $df = 98$) indicates that there is no significant difference between the mean scores of Science and Arts stream students. Although the Science stream students show a higher mean (61.26) compared to the Arts Stream students (58.72), the difference is statistically not significant. This suggests that both groups perform similarly in relation to attitude towards study habit and the hypothesis (H₁₄) is failed to accepted.

H₁₅: There exists a significant Relationship in between uses of AI and attitude towards study habit.

table no.: 05

VALUES	COREALTIONAL VALUES	RESULT	DISCUSSION
STUDY HABIT (100 STUDENTS)	-0.07973	VERY LOW (-)VE CORRELATION	NAGATIVE SIGNIFICANT RLATIONSHIP
USES OF AI (100 STUDENTS)			

The correlation between study habits and uses of AI shows a very weak negative relationship. This suggests that as one variable slightly increases, the other tends to decrease marginally. However, since the correlation is very low, the relationship is not statistically strong. It may indicate that students' study habits are not significantly influenced by uses of AI.

Discussion:

The data analysis reveals no significant differences between 11th and 12th standard students regarding the use of Artificial Intelligence and their study habits. Although 12th standard students show slightly higher mean scores in both aspects, the variations are statistically insignificant, indicating similar levels of AI engagement and study behaviour among both groups. Similarly, Science and Arts stream students exhibit almost equal mean scores in AI usage and study habits, suggesting that academic stream has minimal influence on these variables. The correlation analysis shows a very weak negative relationship between the use of AI and study habits, implying that increased AI usage does not necessarily enhance or weaken study behaviours. Overall, the results indicate that students across classes and streams share similar patterns in AI utilisation and study habits, reflecting a balanced integration of technology in learning without major differences in academic attitude or performance.

Conclusion:

The present study investigated the role of Artificial Intelligence (AI) in creating a positive attitude toward study habits among students in a blended classroom environment. The results revealed no significant differences between 11th and 12th standard students in their use of AI and study habits, suggesting that both groups demonstrate similar engagement levels and adaptability toward AI-based learning. Likewise, Science and Arts stream students showed almost equal mean scores in both variables, indicating that the type of academic stream does not significantly influence students' use of AI or their study-related attitudes.

Furthermore, the correlation analysis displayed a very weak negative relationship between AI use and study habits, implying that increased AI utilization does not necessarily enhance or weaken students' study habits. These findings suggest that while AI is gradually being integrated into students' learning environments, its direct impact on study patterns and academic attitudes remains minimal. Overall, the study concludes that students across grades and streams have embraced AI in a balanced yet cautious manner. Therefore, more structured implementation of AI tools, along with teacher guidance and digital literacy programs, is essential to maximise the educational benefits of AI and foster stronger, more effective study habits among students. Overall, the study concludes that while AI has become a part of students' learning process, its influence on their study habits remains limited. Students across grades and streams appear to utilize AI more as a

supplementary tool rather than as a transformative learning method. Hence, it is essential for educators to provide controlled guidance, promote digital literacy, and develop pedagogical strategies that meaningfully integrate AI into classroom learning. Strengthening the role of teachers as facilitators in AI-supported environments can ensure that technology enhances not replaces human interaction, motivation, and disciplined study habits in the blended learning context.

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