



# **A Study of the Impact of AI-Assisted Innovation Challenges on Student Engagement and Creativity With Special Reference to Coimbatore District**

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**Abstract-** This study looks at how AI-assisted innovation challenges affect students' engagement and creativity. It shows that students become more interested in learning when they take part in AI-based activities. These activities help them think creatively and solve problems. AI tools make learning more practical and interactive. Students can understand concepts better and apply them in real life. The study also finds that participation in AI challenges increases students' motivation. It helps them feel more confident and active in learning. AI-based learning creates a more engaging classroom environment. However, proper guidance from teachers is important. Overall, the study shows that AI improves engagement, creativity, and learning experience.

**Keywords:** Artificial Intelligence, Student Engagement, Creativity, Innovation Challenges, AI Tools and Applications, Learning Motivation.

## **I. Introduction of the Study**

Artificial Intelligence (AI) is becoming an important part of education today, changing the way students learn and teachers teach. It brings new and interesting ways of learning that go beyond traditional classroom methods. AI-assisted innovation challenges encourage students to take part in activities where they can think, create, and solve problems on their own. These activities help students develop important skills like critical thinking, creativity, and practical knowledge while using AI tools and applications. In many cases, traditional teaching focuses more on theory, which may not fully engage students or help them think creatively. But with the use of AI tools, learning becomes more interactive and enjoyable. Students feel more interested and motivated when they are involved in hands-on activities. AI also helps students learn at their own speed, making it easier for them to understand difficult concepts. At the same time, these innovation challenges give students real-life exposure and help them apply what they learn in practical situations. These activities also encourage students to work together, share ideas, and learn from each other. This improves their confidence and communication skills. By taking part in AI-based challenges, students can improve their creativity and problem-solving abilities, which are very important for their future careers. However, the success of using AI in education depends on proper guidance from teachers and the availability of resources. Without support, students may not be able to use AI effectively. So, it is important to understand how AI-assisted innovation challenges affect student engagement and creativity. This study focuses on finding their impact and suggesting better ways to include these activities in education for improving learning outcomes.



### **Objectives of the Study**

- To assess the AI-assisted innovation challenges enhance student engagement in learning activities.
- Effectiveness of AI tools and applications in promoting creative thinking among students.
- To explore the relationship between AI-based innovation participation and students' motivation toward learning.
- To recommend educational strategies for effectively integrating AI-assisted innovation challenges into curricula to enhance engagement and creativity.

## **II. Statement of the Study**

Today, Artificial Intelligence (AI) is becoming an important part of education, but many students are still not fully engaged in learning through traditional teaching methods. They often lack opportunities to think creatively and actively participate in problem-solving activities. Even though AI tools and innovation challenges are introduced in some institutions, their real impact on student engagement and creativity is not clearly known. Many students use AI tools, but they may not be using them in a way that improves their learning or creative thinking. Also, there is not enough understanding of how taking part in AI-based innovation challenges affects students' motivation toward learning. Because of this, educational institutions may not be able to use AI effectively in the classroom. So, there is a need to study how AI-assisted innovation challenges influence student engagement, creativity, and motivation, and to find better ways to include these activities in the curriculum for improved learning outcomes.

## **III. Research Methodology**

### **Research Design**

This study follows a descriptive and analytical research design to understand how students engage and show creativity. It also looks at how AI-based activities are related to their learning outcomes.

### **Area of the Study**

The area of the study is Coimbatore district.

### **Sample Size and Technique**

A total of 110 students are selected for the study using purposive sampling. Only students who have knowledge or experience in AI activities are chosen.

### **Data Collection Method**

Primary Data and Secondary Data

### **Limitations of the Study**

The study is limited to a small number of students and a specific area. Also, the answers given by students may be based on their personal opinions, which can sometimes be biased.



#### **IV. Literature Review**

Sabrina Habib.,2024, “Balancing AI Assistance and Human Creativity in Education: Enhancing Idea Generation through Collaborative Learning”The study Summary AI can enhance students’ creativity by increasing fluency, flexibility, and elaboration in idea generation. However, AI often provides generic answers and may reduce originality if students rely on it too heavily. Prior studies suggest that AI works best as a collaborative tool, supporting brainstorming while humans contribute critical thinking and originality. Overall, the literature emphasizes that careful integration of AI is necessary to foster creativity without weakening students’ independent creative skills

Mark Treve., 2024, “Transforming Education through AI: Opportunities, Challenges, and the Importance of Ethical Integration” Its Explores AI in education enhances personalized learning, improves engagement, and boosts academic performance. It also fosters creativity and problem-solving through real-world applications. However, concerns include data privacy, bias, ethical issues, and over-reliance on technology. Overall, the literature concludes that AI can transform education positively if integrated carefully with proper ethical safeguards

Min Zhou and Song Peng.,2025, “The Role of Artificial Intelligence in Enhancing Personalization, Creativity, and Student Engagement in Education” The study Explained that AI in teaching enhances personalization, efficiency, and student-centered learning while reducing teachers’ repetitive tasks. Prior studies indicate that AI supports students’ creativity by providing adaptive feedback, innovative learning methods, and problem-solving opportunities. Learning engagement is highlighted as a key mediator, and AI literacy acts as a moderator that strengthens or weakens the impact of AI on creativity. Overall, the literature confirms that effective use of AI fosters both academic achievement and higher-order skills like creativity.

Aniella Mihaela Vieriu., et.al,2025, “Integrating Artificial Intelligence in Education: Benefits, Challenges, and the Need for Ethical and Balanced Implementation” The study Explained AI in education supports personalized learning, improves academic performance, and enhances student engagement. Studies highlight its benefits in saving time, improving comprehension, and structuring information. However, concerns include over-reliance on technology, reduced critical thinking, academic dishonesty, and data privacy risks. Overall, the literature emphasizes that AI should complement traditional teaching, with ethical guidelines and balanced integration ensuring its positive impact on education

##### **Overview of the Study**

This study looks at how AI-assisted innovation challenges affect students’ learning, especially their interest and creativity. It explains how using AI tools can help students understand subjects better and think in new ways. The study also shows how taking part in AI-based activities can increase students’ motivation to learn.

Overall, the study finds that AI makes learning more interesting and helps students become more active and creative. It also suggests that using AI in education can improve the learning experience for students.



## V. Data Analysis and Interpretation

Table 1: Participation in AI-Assisted Innovation Challenges

Climatic Condition	Number of Respondents	Percentage
High Price (Drought/Heat)	50	42%
Moderate Price	40	33%
Low Price (Favorable Weather)	30	25%
Total	120	100%

### Interpretation

The table shows that out of 120 respondents, a majority (50 respondents, 42%) experience high prices due to unfavourable climatic conditions such as drought and heat. A considerable number (40 respondents, 33%) report moderate price levels, while a smaller group (30 respondents, 25%) benefit from favourable weather conditions leading to lower prices. This indicates that adverse climatic conditions significantly influence price increases, affecting the majority of respondents.

Table 2: AI Tools and Student Engagement

Response	Number of Students	Percentage
Strongly Agree	48	40%
Agree	42	35%
Neutral	18	15%
Disagree	8	7%
Strongly Disagree	4	3%
Total	120	100%

### Interpretation

The table indicates that a majority of students have a positive opinion, with 48 (40%) strongly agreeing and 42 (35%) agreeing. A smaller portion, 18 students (15%), remain neutral, while only a few students (8% disagree and 3% strongly disagree) show negative responses. Overall, this reflects a highly favorable attitude among the respondents.



Table 3: AI Innovation Challenges and Creativity

Creativity Improvement	Number of Students	Percentage
Significant	46	38%
Moderate	38	32%
Slight	24	20%
None	12	10%
Total	120	100%

### Interpretation

The table shows that a majority of students experienced improvement in creativity, with 46 (38%) reporting significant improvement and 38 (32%) moderate improvement. A smaller group, 24 students (20%), observed slight improvement, while only 12 students (10%) reported no improvement. Overall, this indicates that most students benefited positively in terms of creativity.

### Findings

- A majority of respondents (42%) experience high price fluctuations due to adverse climatic conditions like drought and heat, showing the strong impact of climate change on prices.
- Most students (75%) have a positive opinion about AI tools, indicating high engagement in AI-assisted learning.
- A large number of students (70%) reported significant or moderate improvement in creativity through AI innovation challenges.
- Only a small percentage of respondents reported low prices (25%) or negative views on AI tools (10%), indicating overall positive outcomes.

### Suggestions

- Conduct more AI-based innovation activities.
- Include AI tools in the curriculum.
- Train teachers in AI usage.
- Provide proper AI resources to students.

## VI. Conclusion

This study shows that AI-assisted innovation challenges help students become more interested and involved in their learning. Students who take part in these activities are more active in class and show better understanding through practical experience. These challenges also help students improve their creativity, as they get opportunities to think in new ways and solve problems on their own. Using AI tools makes learning more interesting and enjoyable, which encourages students to participate more. The study also finds that students who are involved in AI-based activities feel more motivated to learn. They gain confidence and develop skills that are useful for both academic and real-life situations. However, the benefits of AI can be achieved only when students are properly guided and given the right support by teachers. Therefore, it is important for educational institutions to include AI-based innovation activities in the curriculum. Providing proper training, guidance, and resources will help students use AI effectively. Overall,



AI-assisted learning can improve student engagement, creativity, and motivation, and prepare them for future challenges.

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