



# AI in Education: Enhancing Student Motivation & Engagement.

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## **ABSTRACT**

Artificial Intelligence (AI) is reshaping various industries, and education is one of them. This transformative technology offers unprecedented opportunities to enhance learning experiences, personalize instruction, and improve overall educational outcomes.

AI is making a significant impact in the development of educational technology and these tools are creating various interactive and engaging learning experiences, such as virtual reality simulations and augmented reality lessons for the students. These technologies can help to make learning more immersive and memorable, particularly for subjects like science, history, and geography.

Traditional classroom often tend to follow a systematical approach, which can leave students struggling and loosen their interest. The analytical capabilities of AI allow educators to derive valuable insights, with this information; AI systems can tailor educational content and pacing to meet each student's unique needs.

Though, AI is remarkable in numerous ways in terms of education. It is not without its drawbacks. There are challenges like Data Privacy, Dependence on Technology, Cost and Resources, and Ethical Considerations. However, by carefully considering these factors and implementing AI in a responsible and ethical manner, we can harness the power of technology to create a more equitable and effective education system for all.

AI can also enhance assessment by providing students with faster feedback and identifying areas where they may be struggling. Additionally, AI can help to create more engaging and accessible educational content, and it can automate many administrative tasks, freeing up educators to focus on teaching and student support, streamlining administrative tasks, and providing data-driven insights. However, it is necessary for one to navigate the challenges thoughtfully and ensure that the integration of AI in education serves all learners equitably and effectively.

**Keyword:** AI in education, personalized learning, technology

## **INTRODUCTION**

Artificial intelligence (AI) is one of the fastest growing technologies in the modern times and it has successfully made a significant impact in the Educational Sector as well.

AI in education is used in numerous ways. For instance, improvement in the engagement of the students, quality of education, intriguing learning experiences and the most beneficial use is cost-effective learning which is a low or free cost learning method. Furthermore, AI in education tailors the learning experience to individual students and plays a major role in reforming the teaching that has been followed in the educational sector. It also gives the students the career guidance they seek for and the importance of career advancement. AI in education has multiple advantages including, 24/7 availability through which the people can resource learning outside the traditional techniques, it also helps the teachers in grading by automatization method and majority helps the users by enabling the language translation option which is one of the most concerning issues among the people who find difficulty in adapting other languages. However, AI in education in multiple risks, challenges, and has it's own set of drawbacks.

Privacy and Data Security is an issue that has been faced due to AI where the personal information is being misused by unauthorized parties. In addition to that, lack of human interaction has also been decreasing among the people in the current generation making it one of the major drawbacks regarding AI in education, nonetheless people cannot rely on AI for education always as it can be inaccurate erratically. In this research this scope, advantages and disadvantages of AI in education has been summed up.

## **NEED OF THE STUDY**

The need of the study is to get a holistic approach of ai in education in the dimension of learning and growth prospects, open to new methods of learning different from traditional form of learning.

This study brings in the perspective of the students on their approach of learning through ai.

As ai being the boom it is necessary to deploy even in the aspect of education. This study aims on finding out the barriers of ai in educational along with the advantages it provides.

## **REVIEW OF LITERATURE:**

Xuesong Zhai and Xiaoyan chu(2021) in their paper “A Review of Artificial Intelligence (AI) in Education from 2010 to 2020” see ai as the revolutionary change not confining merely in the field of education but also in bringing disruptive innovations in work places and industries. There is a need to utilize ai to its best given its rapid growth students have to acknowledge the complete potential of ai to foster academic success.

Neil Selwyn(2022) in the research paper highlights ai in education as apolitical aspect showing the variation of its impact on different groups of people from the educational background . In this paper emphasizes the

importance of a diversified opinion as the discussion considers the privileged who have the access . In conclusion to progress with a an accurate result it is important to consider a diverse group.

Fati Tahiru(2021) in the study deciphers the barriers, opportunities and benefits of ai in education providing an integrated approach on both the ends. Categorical analysis of into domain specific and general specific has been done wherein the commands and actions differ.

Tira Nur Fitria(2021) in the paper has mentioned as education being a rapidly evolving process it is necessary to bring in innovative changes to the learning process. Ai has a vast reach of applications in the field of education such as a mentor, voice assistant and also being a progress analyst for the students. Ai being the result of the creative minds of the humans it cannot replace the traditional form of learning a balance can be created.

Alexandra Harry, Sayudin(2023) in their paper specified the potential ai holds in making transformatory revolution in the sphere of learning and teaching with the use of algorithms . The learning pace of each student varies and personalization makes it a benefit for the students making them more engaged towards education. while ai has the potential to incorporate new learning techniques adequate care has to be taken with the privacy of the students.

### **Objectives of the study:**

1. To examine the relationship between student engagement and motivation in AI-based learning activities.
2. To analyse the demographic differences in student engagement and motivation.
3. To investigate student perceptions of AI as a learning tool.

### **Hypothesis:**

- **H<sub>0</sub>:** There is no association between the engagement frequency and the age of students in AI-based learning activities.
- **H<sub>1</sub>:** There is an association between the engagement frequency and the gender of students in AI-based learning activities.

### **Research methodology:**

Primary data : a structured questionnaire has been prepared to find out students engagement and motivation with ai .Secondary data : Includes magazines , journals and articles

Sample design: a structured framework of questions has been prepared and circulated with the help of google form a total of 72 responses were received constituting of 5 demographic questions and 20 multiple choice questions

**LIMITATIONS:**

- The study is restricted to Hyderabad and the perception may differ in different demographics.
- Restricted to specific section of students who are aware AI.

**DATA ANALYSIS AND INTERPRETATION**

Analysis is done by using SPSS software

Percentage analysis and chi square analysis is used

**How often do you engage with AI based Learning activities? \* Age Crosstabulation**

Count

		Age				Total
		15--18 yrs	19---22 yrs	23--25 yrs	above 25 yrs	
How often do you engage with AI based Learning activities?	Daily	3	14	3	1	21
	Monthly	2	8	2	0	12
	Rarely	0	16	1	0	17
	Weekly	3	19	0	0	22
Total		8	57	6	1	72

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.092 <sup>a</sup>	9	.343
Likelihood Ratio	13.413	9	.145
N of Valid Cases	72		

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .17.

**Conclusion:** Since the p-value is larger than 0.05, we fail to reject the null hypothesis. This means that there is no statistically significant association between the two categorical variables testing (e.g., age and engagement frequency in AI-based learning).

**How often do you engage with AI based Learning activities? \* Gender****Crosstabulation**

Count

		Gender		Total
		Female	Male	
How often do you engage with AI based Learning activities?	Daily	13	8	21
	Monthly	8	4	12
	Rarely	11	6	17
	Weekly	14	8	22
Total		46	26	72

**Chi-Square Tests**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.081 <sup>a</sup>	3	.994
Likelihood Ratio	.082	3	.994
N of Valid Cases	72		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.33.

**Conclusion:** Since the p-value is extremely high (0.994), we fail to reject the null hypothesis. This indicates that there is no statistically significant association between the variables testing (e.g., Gender and engagement frequency in AI-based learning).

- According to the survey conducted out of 72 responses 63.9%(i.e 46) are female , 36.1%(26) are male 15-18 years 11.1%, 19-22 years 79.2%,23-25 years 8.3%, above 25 years 1.4%.

Education:4.2% of people are from High School,1.4% of people are from Intermediate,

90.3% of people are Undergraduates and 4.2% of people are from PG.

Occupation:87.5% of people are studying and 12.5% of people are working.

Field of study/Discipline:40.3% of people pursue Science,43.1% of people are pursuing Commerce,

15.3% of people are pursuing Management Studies and 1.4% of people are pursuing Arts.

### **ENGAGEMENT FREQUENCY:**

- Out of 72 people 80.6% are aware of AI in education and 19.4% of people are not aware of the concept of AI in education. Also, 16.7% people use AI in education on a monthly basis and 23.6% rarely use AI in education, 30.6% of people use on a weekly basis and 29.2% of people use AI in education on daily basis. Furthermore 4.2% of people use it more than 5 hours and the least use is 54.2% for around 2 hours.
- The most engaging AI based learning form is Online Courses accounting to 72.2% of people, Educational Games, Virtual Simulations and Adaptive assessments are the second highest accounting to around 32% of people.
- In Addition to that: 47.2% of people are positive whereas 15.3% of people strongly agree and 25% are neutral on AI enhancing education. 55.6% of people are open to using AI powered tutors, virtual classrooms and other educational tools whereas 31.9% of people use it occasionally and Machine Learning being the highest of them with 59.7% of use, Reinforcement learning and Chat Bots being the least used among the AI educational tools.
- Personalized Learning in one such field which benefits students the most holding up to 58.3%, Career Guidance and Educational content generation holding up to 50% and Tutoring Support being the least holding up to 41.4%. When it comes to concerns of AI in education “Privacy and Data Security” is a pervasive concern and validation from Human Interaction lacks in AI in education making it the most concerning drawback.
- Based on the above data Privacy and Data Security being the top concern acknowledges the need for more regulations and guidelines regarding use of AI in Education ,36.1% of people agreeing to it and 8.3% of people strongly disagreeing to regulations and guidelines.

### **HOW AI MOTIVATES STUDENTS IN LEARNING:**

- 95.5% of people are motivated to use AI learning as it interests them. Personal interest and career advancement being the highest factor for motivation. Majority of the people get a sense of personal satisfaction and accomplishment by using AI in education as there is a choice for personalizing.
- 43% of the people find AI lucrative to enhance their career and find social interaction in AI based learning important. As it develops their skills and knowledge

**Conclusion:**

- Ai being ubiquitous its application in education has picked a rapid pace in recent times and student's engagement towards ai has also grown tremendously.
- According to the study conducted students use various ai tools chatgpt the most used ai tool.
- Ai in education has given an opportunity for the students to explore the dimension of online courses, educational games and adaptive assessments bringing in a contemporary approach to learning.
- Majority of the students finding the assistance of ai helpful as there is scope for personalized learning and intriguing methods of learning and retaining knowledge.
- There is rift when it comes to creative enhancement as a set student are of a perception that ai reduces the creative abilities of the students and there is other lot that perceives as a mode to enhance creativity.
- Data safeguarding and regulations on privacy being the top concerns of every student adequate measure from students has to be taken to avoid falling prey for any fraud.
- As ai in education has a modern approach students find it engaging and feel motivated to learn through ai
- Career advancement prospects has also been a boon for the students proving in-depth knowledge on desired aspects as well.
- As using ai is a personalized form of learning a sense of accomplishment is seen in students making their efforts feel valued.
- Ai having a major setback of lacking human interaction is concerning as students seek validation from their learning.
- To conclude even though ai might give an analysis of the progress students made the human guidance and justified validation from mentors lack hence a balance between both has to be maintained to reap benefits from both ends.

**References:**

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