

Original Article

Academia Embraces AI : A Study of Awareness, Utilization and Effects

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The present research paper, based on data collected from various stakeholders such as students, researchers and teachers through e-primary survey analysed the awareness among the respondents about the application of various tools of artificial intelligence in academia. Further, this study also analysed the potential negative and positive effect of artificial intelligence in the education sector. The present study exhibits that AI is used to perform various functions such as preparation of projects and PPTs by the students while higher proportion of researchers use AI for grammar check and review of literature and teachers make their lectures interesting with the use of artificial intelligence. Further, this study explains that artificial intelligence has both positive and negative effects; the positive effects highlighted by the respondents are AI reduce the time and efforts and lead to improvement in quality while on the other side heavy dependence on AI can reduce the development of critical thinking and undermining the role of educators.

Keywords: AI, Academia, Research, negative effects, positive effects, NLP

Introduction

The concept of AI in general covers a set of technologies and techniques based on the capability of computer systems that perform tasks which require human intellect. These technologies are able to provide results similar to those created by humans and can considerably decrease energy and time to do the particular task manually. The digital developments have transformed each and every sphere of life, the working environment, knowledge, and ability to learn. These technological changes result in human well-being on one side and raise certain concerns such as social, ethical, and legal on the other side. Firms like Microsoft, Meta, and Google have already spent tens of billions of dollars in building infrastructure for developing various AI models (Economic Times, 31st Jan, 2025). OpenAI has spent \$500bn through a joint venture with Oracle and SoftBank in developing data centers for the smooth execution of AI in various fields. Recently, the breakthrough in AI has shocked the entire AI world with the development of the cheap AI model Deep Seek R1 by China. The way these companies are investing in AI has changed the entire scenario in the whole world. AI has transformed all fields such as medicine, economics, finance, law enforcement, business, robotics, and education (Patel et al., 2024). Artificial intelligence (AI) simulates human being aptitude in technology programs to think and act like humans. The way AI has entered the field of Academia has raised curiosity to understand how machine learning, supervised learning, unsupervised learning, natural language generation, and natural language processing (NLP) have changed over the years (Garcia, 2024). It has created new fields of knowledge with unlimited information/content for its users.





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AI has transformed social interactions and introduced new educational solutions. These technologies enhance educational goals through improved teaching outcomes. There are three main stakeholders of Academia: Teachers, Students, and Researchers. AI has acted as a catalyst among these stakeholders. It can help teachers use data to improve education equity and rankings in developing countries (Chen, 2024). At the same time, various platforms have provided all these stakeholders infinite opportunities to explore, research, and learn, but we cannot ignore the threats it has posed to the development of personalities of all these stakeholders. The students are not using their full potential and have become dependent on these machines. It becomes imperative to understand the perception of all these stakeholders for the effective implementation of AI in Academia. Research into teachers' and students' perceptions of AI in education can further help in the effective implementation of AI in education (AIED) (Yamamoto, 2024).

Need and Significance of Study:

The emergence of AI-based services and tools in academia aims to assist researchers and students. Universities play a crucial role in preparing future industry professionals. Adequate knowledge ensures graduates adapt to the evolving industrial sector. Unfortunately, limited platforms exist for learning these resources. AI-driven educational and research support tools include ChatGPT, OpenAI, Iris.ai, and researchrabbit.ai (Williams et al., 2024). Key topics when using these tools include trust, ethics, interpretability, and reliability. The inability to test and influence AI-generated literature is a growing concern in academic libraries. The rise of fake science in AI-based paper mills challenges academic quality control and research accountability (Lee, 2024).

AI has reduced costs and made education accessible to everyone by providing customizable content by addressing students' strengths and needs. AI may improve teaching jobs through automated assistants or tools, providing more support to individual students (Gupta, 2024). Surveillance concerns and fears of AI replacing teachers are prevalent. Algorithmic bias may lead to discrimination, such as voice recognition systems that struggle with regional dialects. Some AI applications may lack transparency, creating trust issues. Despite its promising applications, AI can produce inaccurate or unauthentic information. High-priority risks include data privacy and security concerns and "algorithmic discrimination," which may result in unfair learning opportunities (Thompson, 2024). Urgency arises from potential unintended or unexpected consequences. Automated instructional decisions may have adverse effects. For example, AI might speed up the curriculum for some students while slowing it down for others, widening achievement gaps. Poor data quality could lead to unexpected results. An AI-enabled teacher recruitment system might be biased if based on historical data, de-prioritizing diverse and talented candidates. Addressing AI in academia is essential to take advantage of opportunities, mitigate risks, and prevent unintended consequences (Soni, 2024).

Research Questions

- 1. How widely students, teachers and researchers use AI in Academia?
- 2. What are the potential effects of AI in Academia?

Objectives of the Study

The study is based on following objectives:

- 1. To study the awareness levels of Artificial Intelligence in Academia.
- 2. To study the use of Artificial Intelligence in Academia
- 3. To analyse the potential positive effects of AI in Academia.
- 4. To analyse the potential negative effects of AI in Academia.

Data and research methodology

The present study is based on e-survey; 132 respondents (45 students, 23 teachers, 34 researchers while 30 were both teacher and researchers) have been interviewed to collect data through a well structured Google form. Figure 1 exhibits the gender-wise classification of the sampled respondents; 64.4 per cent out of the total sample were female. A highest proportionate of the respondents were in the age group above 30, following by 21-25 years (Figure 2). Figure 3 shows that the 71.4 per cent of the sampled students are in the undergraduate courses while the corresponding proportionate for post graduate is 25 per cent.

(i) **Profile of the respondents**



Figure 1: Gender-wise classification of sampled respondents Source: Primary Survey





Figure 2: Age-wise composition of sampled respondents Source: Primary Survey



Figure 3: Class-wise composition of students Source: Primary Survey



Figure 4: Distribution of sampled respondents Source: Primary Survey



Results and Findings

The data was analysed in order to find out the potential usage of AI tools in Academia. We can observe from the below figure that 42.9% of the respondents are often using the AI tools in Academia 50% are using but not very often. 8% of the respondents are not at all using AI.

Section I: Usage of AI in Academia Extent and potential use of AI in Academia



Figure 5: Distribution of sampled respondents by frequency of use of AI in academia Source: Primary Survey

The data was further analysed with respect to the actual implementation of AI in the field of education. This section was separated for students, teachers and researchers. It can be observed from Figure 6 that majority of the respondents (students) i.e. 92.9% use AI in making Projects/Assignments whereas only 10.7% use it for Counselling purpose.





Figure 7 denotes the usage of AI tools by teachers/Educators. When the teachers were asked about their usage of AI in educating students, it was realized that majority of respondents (teachers) i.e. 59.5% use these techniques to make their lectures interesting and interactive. Further 29.2% respondents believe that they can help students who are vulnerable and 11.9% use it to recognize the students with learning disabilities.



Figure 7: Usage of AI tools by teachers/Educators Source: Primary Survey



When the researchers were asked about their usage, it was found that majority (53.8%) of researchers are using AI in Grammar check followed by 50% for Data Analysis, 46.2% for finding Research Gap and Review of Literature. Earlier Research work required visit to Library which has reduced due to AI. Now Researchers have many tools and platforms which have made it easy for them to carry out research and arrange data from any part of the world by just sitting at their home. On one side it has made the accessibility of the data very easy but on the other hand it is posing a big question with respect to trust and ethics.



Figure 8: Use of AI tools by Researchers Source: Primary Survey

Section Ii: Potential Effects of AI In Academia

This section deals with the second objective of analyzing the potential effects of AI in Academia. The respondents were asked about the positive and negative effects of AI. The figure below states the potential positive effects. The respondents were asked to check maximum 5 potential effects of AI. It included 8 statements. Out of which respondents had to select 5 most important positive effects. Majority of respondents chose improvement in the quality of output, followed by reduction in cost, time, repetitive tasks and improving learning experience whereas only 37.3% agreed that AI can lead to innovation. It was also found that not many respondents think that AI can improve student teacher relationship. It can be concluded that AI can be used as mechanical device to improve quality of output or to reduce cost but when it comes in comparison to human being; respondents have preferred Human touch instead of machine.

The potential positive Effects of AI in Academia





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reactions and Rescarchers (in percentage)								
	Students	Teacher	Researchers	Both Teachers and				
		S		Researcher				
Helps in automating	46.4 (5)	52.6 (3)	77.3 (1)	54.5 (3)				
repetitive tasks								
Assists in reducing overall	10.7 (8)	31.6 (6)	63.6 (2)	72.7 (1)				
cost and time								
Improves quality of output	57.1 (2)	57.9 (2)	59.1 (3)	59.1 (2)				
Provides evidence base to	67.9 (1)	21.1 (7)	54.5 (4)	31.8 (6)				
support human decision-								
making								
Leads to greater product and	53.6 (3)	36.8 (4)	9.1 (8)	36.4 (5)				
service innovation								
Enables better control over	35.7 (6)	15.8 (8)	45.5 (6)	27.3 (7)				
processes and resources								
Enhances learning	28.6 (7)	63.2 (1)	50.0 (5)	50.0 (4)				
experience								
Enhances student teacher	50.0 (4)	36.8 (5)	27. (7)	9.1 (8)				
relationship								
Other	0.0 (9)	0.0 (9)	0.0 (9)	0.0 (9)				

Table 1: Potential benefits of AI in Academia by Response rate of Students, Teachers and Researchers (in percentage)

Source: Primary Survey

Note: The values in parenthesis are ranks

It can be clearly noted from the Table 1 that both Teachers and Researchers feel that AI can help in reducing the time and effort in repetitive task whereas researchers considered that AI can reduce cost as well as time. Improvement in quality of output was supported by all the category of respondents.

The potential negative effects of AI in Academia





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Table 2: Potential adverse effects of AI in Academia by Response rate of Students, Teachers and Researchers (in percentage)

	Students	Teacher s	Research ers	Both Teachers and Researcher
Undermining the role of the educator.	46.4 (5)	31.6(7)	68.1 (3)	68.2 (2)
Lead to new forms of inequality or discrimination, or exacerbate existing ones.	10.7 (8)	36.8 (5)	86.4(1)	40.9 (5)
Lead to the exaggeration of plagiarism.	57.1 (2)	36.8 (6)	40.9 (8)	59.1 (3)
Failure to cultivate critical thinking	67.9(1)	68.4 (1)	68.2 (2)	90.9(1)
Absence of social interactions and potential for the child to become emotionally involved	53.6(3)	47.4 (3)	63.6 (4)	40.9 (6)
Potential exposure of children to misleading or harmful content.	35.7 (6)	31.6 (8)	59.1 (5)	54.5 (4)
Exploitation of personal content using such tools.	28.6(7)	42.1 (4)	50.0(6)	31.8(7)
Sharp increase in the incidents of cyber bullying and excessive online use.	50.0 (4)	57.9 (2)	45.5 (7)	27.3 (8)
Other	0.0 (9)	0.0 (9)	0.0 (9)	0.0 (9)

Source: Primary Survey

Note: The values in parenthesis are ranks

The survey also highlighted that Majority of students believe that AI can support human decision making and majority of teachers believed that AI can improve learning experience of the students. There are pros and cons of every technique. Thus survey cannot be complete without understanding the negative effects of AI. The next figure shows the potential negative effects. Respondents were asked to choose from any 5 from 8 negative statements or they can give their opinion in option "other". The figure below shows the ranking given by respondents of all categories. It was interesting to note that approx. 70% of respondents believed that use of AI can impact critical thinking and reduce innovation followed by reduction in social interactions as people are involved in their own imaginary world instead real world. The respondents ranked undermining the role of educators and increase in plagiarism same 48% each. Table2 also shows that response of all respondents with respect to percentage and ranking of all the statements by different categories of respondents. Both researcher and teachers believed that AI will undermine the role of educator whereas Researchers gave high rank to discrimination created by AI. Students think that it will increase Plagiarism but maximum percentage was given by all categories of respondents to the lack of critical thinking.

Conclusion

No doubt AI has revolutionized education sector all over the world. As technology is growing at such a rapid pace that it becomes important to make informed decisions about the application of artificial intelligence. But it is way more difficult to deal with the complexities attached to the implementation of AI. We have further analysed that the major concerns in AI are not only data privacy and security but also new topics such as bias, transparency, and accountability. It will be harder to evaluate promising edtech platforms that depends solely upon AI systems. There is dire need to make stringent laws to deal with the issues related to privacy, ethics, transparency and all the stakeholders are required to get together and sync their efforts in building safe and secured environment to implement AI in developing countries like India where AI is still at a very nascent stage.

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