

AI IN EDUCATION: A SURVEY OF STUDENT TEACHERS' EXPERIENCES AND CHALLENGES

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ABSTRACT

Artificial intelligence (AI) has become a part of our lives. It plays a significant role in various fields, including education. At present, teachers have begun to integrate AI tools into numerous aspects of their academic work. The integration of AI in education enables teachers to enhance student engagement by effectively planning lessons, instructional strategies, and assessments. Student teachers are no exception to this, as they are largely relying on AI tools in their teaching preparation and practice.

The present study is an endeavor to explore the experiences of student teachers and the challenges by them with respect to the use of AI tools. The research is a short survey conducted to understand the experiences of student teachers and challenges faced by them. A Purposive sampling technique was employed, and data was collected from 200 student teachers across different B.Ed. Colleges in Pune City.

Findings of the present study showed that many of the student teachers strongly agree that they frequently use AI tools for planning lessons, creating content, innovative ways of assessment and preparing teaching aids. They also reported that use of AI tools saves their time and provides creative ideas. However, the participants also mentioned several challenges faced by them while using the AI tools. These include inadequate knowledge regarding the use of AI tools, limited awareness of the available tools and concerns regarding the accuracy and reliability of the information given by the AI tools.

KEYWORDS; Student teacher, AI tools, Challenges in using AI tools

INTRODUCTION

Artificial Intelligence (AI) has become a crucial part of human life. It is rapidly emerging as one of the most transformative technologies in the 21st century, impacting various domains such as business, finance, healthcare, education and so on. Along with the other sectors, AI plays a significant role in education by not only assisting teachers but also the student teachers to a great extent. AI tools help teachers in numerous ways viz. lesson preparation and planning, designing instructional material, assessment strategies etc. thereby enhancing the overall quality of the teaching learning process (Chen, Chen, & Lin, 2020).

The integration of AI in education brings with it multiple opportunities to enhance the teaching learning process and ensure student engagement. AI-driven applications simplify teachers' tasks like lesson preparation, content creation, analysing students' performance, providing feedback, planning assessment strategies, tailoring learning pathways etc. (Luckin et al., 2016). Moreover, AI tools assist teachers in creating engaging and innovative learning materials which enable teachers to design lessons to cater to diverse learners in the classroom.

For student teachers, AI has become a boon. It has become an indispensable element of their teacher training journey. Research studies across various time frames show that student teachers are increasingly using AI tools for preparing lesson plans, teaching aids, and finding novel assessment methods (Holmes, Bialik, & Fadel, 2019). Students teachers are highly motivated to use the AI tools due to the time-saving feature and the ability to generate creative ideas.

However, regardless of the numerous advantages, AI also brings with it myriads of challenges which obstruct the effective use of AI by student teachers. Studies conducted have indicated problems such as limited technical knowledge, lack of awareness of available tools, and concerns about the accuracy and reliability of AI-generated content (Chen et al., 2020; Holmes et al., 2019). Moreover, the accelerated expansion of AI tools and tremendous data availability makes it difficult for the student teachers to identify the best AI tool and appropriate and authentic information.

In the present study the researcher intends to explore the experiences of student teachers in using AI tools and to identify the challenges they encounter. The results obtained from this study will provide directions to develop strategies to provide need based training to enhance AI literacy so that student teachers can leverage AI tools seamlessly to improve instructional practices.

LITERATURE REVIEW:

Shan Wang, Fang Wang, Zhen Zhu, Jingxuan Wang, Tam Tran, Zhao Du (2024) in their research paper which was a review paper where the researchers reviewed 2,223 review articles and content analysis of 125 selected papers was done and 3 key issues were addressed in this paper which included questions like what are the primary AI applications explored in the field of education, what are the predominant research topics and their findings, research design were

studied in this paper. This paper helped to identify various areas for research in AI and identify what the future opportunities for research in this area are. This paper showed that there is a wide range of applications where AI is used in Education like, adaptive assessment, intelligent assessment, tutoring etc. It also highlighted the challenges associated with use of AI in education.

Nur Fitria, Tira. (2021) in their paper on use of AI tools in teaching learning highlights the importance and use of AI tools in the teaching learning process. The objective of this study is to investigate AI in education, especially in the teaching learning process. The research says that all the work of the teachers, which includes attendance, paper correction and other work can be submitted to be completed by technology devices. It also says that using AI for all this can reduce the work of the teachers which actually consumes a lot of time and energy of the teacher and teachers can focus on creative work or on the work which really is essential for the students which cannot be done by the robots like character development amongst students. This paper focuses on how different AI tools can be used in the teaching learning process.

Farahani, M. S., & Ghasmi, G. (2024) This study helps to show how AI in education helps to reduce gaps in student knowledge and also provide targeted feedback. The study also helps us to know the numerous benefits which AI brings into education. It also explores how AI driven tools help in catering to inclusivity by providing personalized support to the learners with diverse needs and learning styles. The study also shows the ethical challenges associated with the use of AI in education. The study also explores how AI in education can offer collaborative learning, skill development and lifelong education. By studying the potential offered by AI the educators can prepare learners for better opportunities and challenges in the field of education.

1)Yilmaz, R. & F. G. Karaoglan Yilmaz (2023): This study talks about the AI generative technology i.e. chatgpt on the student's self-efficacy, motivation and computational thinking skills. Research was done using a true experimental design which included experimental and control group. The experimental group was allowed to use chat gpt and the control group was not allowed to use chat gpt from the data collected and analyzed it was proven that the computational skills, self-efficacy and motivation was higher as compared to the students who did not use it. Thus the results showed that use of these tools in lessons has a positive effect on the learning.

From the reviews reviewed it could be concluded that there is a use of AI based technology to a greater extent which is found to be effective but this research paper tries to find out the perception of the student teachers about the use of AI in education and also what are the challenges faced by the students in using these tools.

Objectives of the Study:

- 1.To explore the experiences of student teachers regarding the use of AI tools in the process of teacher preparation.
- 2.To identify the challenges faced by the student teachers while using the AI tools.

METHODOLOGY:

In the present study the researchers have adopted a descriptive survey research design as the study aimed to examine the experiences of student teachers and the challenges they come across while using artificial intelligence (AI) tools in their learning process. The survey method facilitated the systematic collection of data from a relatively large group of student teachers and provided insights into their experiences while using the AI tools in education. The survey also provided an understanding regarding the challenges that the students' teachers faced with the use of AI tools in teaching and learning. The sample for the study consisted of 200 student teachers enrolled in various Bachelor of Education (B.Ed.) colleges in Pune city. The researchers used purposive sampling techniques to select the participants, as the study specifically targeted student teachers who are pursuing their teacher education program. During this process the student teachers are engaged in multiple activities such as preparing lesson plans, understanding differentiation, preparing content and are expected to perform several other educational tasks simultaneously.

Data for the present study was collected using a structured questionnaire developed by the researchers. The questionnaire comprised two sections. The first section included items related to the details of the respondents, while the second section consisted of statements designed to explore the extent of use of AI tools, the experiences of student teachers while using the AI tools and the challenges faced by them while using such tools in lesson planning, content creation, assessment preparation, and development of teaching aids. The items were measured using a

Likert-type scale, ranging from strongly agree to strongly disagree. The questionnaire also included open-ended questions for better understanding of the experiences and challenges.

The questionnaire was circulated among the student teachers across different B.Ed. colleges in Pune city. The participants were informed about the purpose of the study and were assured that their responses would be used solely for academic purposes. Participation in the survey was voluntary.

The quantitative data was analyzed using percentage, while the qualitative data was analyzed using thematic analysis to identify patterns in the use of AI tools among student teachers and to understand the key challenges they experience while integrating AI into their academic and teaching preparation activities.

FINDINGS AND DISCUSSIONS

Analysis of the data apparently indicated that AI tools are increasingly becoming a significant component for the student teachers.

The findings revealed that a significant number of respondents (N=164, 82%) reported using AI tools in their academic and teaching related activities. Approximately three-fourths of the participants (N=150) indicated that they use AI tools

in teaching-learning activities, while the remaining respondents (N=36) reported no use of such technologies. Among the participants who mentioned that they use AI tools ChatGPT, Google Gemini, Microsoft Copilot, and Canva AI were identified as the most frequently used AI applications. The student teachers used these tools predominantly for generating ideas for lesson plans, preparing worksheets for activities, making teaching aids, preparing presentations, searching for subject-related information, and creating quizzes or assessments. This finding reflects that there is an increasing integration of AI tools in teacher education programs and the finding aligns with results the study conducted by Zawacki-Richter et al. (2019), which reported that AI-based tools are increasingly being used by teachers as well as student teachers to enhance their instructional design and content development.

The responses indicated positive insights into using AI tools in the teaching-learning process. A majority of the respondents (N=129, 64.5%) mentioned that AI tools help generate better ideas for lesson planning. Participants indicated that AI tools assist them in generating creative ideas for teaching aids, developing innovative teaching strategies, and creating engaging classroom activities such as quizzes and interactive worksheets. Furthermore, majority of the respondents (N=158, 79%) reported that by using AI they have significantly reduced the time required for lesson planning and preparation, because of this they can focus on the lesson delivery and classroom interaction. These findings align with the findings of the study conducted by Holmes et al. (2021). Their results emphasized that AI technologies can enhance teaching efficiency by automating routine academic tasks and supporting instructional planning.

Another important finding of the study is the use of AI tools in assessment and feedback. Majority of student teachers (N=158, 79%) stated that AI tools help them create quizzes, generate evaluation questions, and help in preparing various forms of assessment. However, these participants also indicated that they were not aware how to use AI tools for providing feedback to students. These findings align with the findings of the study conducted by Luckin et al. (2016), who highlighted that the AI tools have great potential to expedite formative assessment. Their results mentioned that AI tools assist in generating assessment materials and providing feedback.

The findings further suggest that AI tools play an important role in providing information related to the subject and other academic activities. Majority of the respondents (N=164, 82%) reported that AI tools help them search for relevant information related to their subject areas and provide them content for academic activities. These respondents also mentioned that the AI tools increase efficiency and help them in completing academics like preparing assignments, speedily. These findings are consistent with the study conducted by Chen et al. (2023), which reported that AI technologies can enhance teachers' professional capabilities.

Despite the positive experiences of the student teachers regarding the use of AI tools, the results of the study also revealed several challenges and apprehensions allied with their use. One of the most noteworthy challenges mentioned by the respondents was the lack of adequate training in the effective use of AI technologies in education. Many participants (N=118, 59%) indicated that although they are aware of various AI tools and they also use AI tools, they do not possess sufficient knowledge and skills to use them efficiently in educational settings. This finding highlights the need for structured training to be provided to the student teachers in teacher education. Furthermore, these concerns align with the results of the study conducted by Zawacki-Richter et al. (2019), which mentioned that the successful integration of AI in education depends mainly on the technical know-how competence and preparedness of teachers.

Another important challenge faced by the respondents relates to the accuracy and reliability of information generated through AI. A substantial number of respondents (N=134, 67%) agreed that AI tools at times provide information which is either inaccurate or unreliable and they are not aware of how to verify the authenticity of such information. This is a challenge for them. This finding again corresponds with the findings of Holmes et al. (2019), who mentioned that teachers must verify the material or information generated through AI before using it.

The results of the study also revealed that overdependence on AI tools endangers teachers' creativity. Some respondents (N=86, 43%) expressed their view that excessive reliance on AI may reduce teachers' creativity. This issue is supported by Selwyn (2019), who highlighted that the increasing use of AI technologies in education may lead to a decrease in human creativity.

Another finding mentioned that the use of AI tools raised ethical issues. Many respondents (N=134, 67%) stated that by using AI tools there is always a threat of plagiarism or academic dishonesty, particularly when student teachers depend heavily on AI for content generation, for assignments and academic tasks. The findings also highlighted the need for training and clear guidelines regarding the ethical use of AI in education. These findings align with the concerns highlighted in the study by Luckin et al. (2016). This study emphasized that although AI can transform education, there exists ethical concerns such as academic integrity, which need to be addressed carefully.

Another significant challenge highlighted in the present study relates to limited access to technological resources and infrastructure. Few respondents (N=30, 15%) mentioned that lack of adequate facilities affected the effective use of AI tools. Additionally, a few participants also mentioned that they found it difficult to use AI tools, they are neither familiar with the AI tools nor able to understand how to use these tools. These findings highlight the need for training of the AI tools and having user-friendly to ensure equitable access to AI-based educational resources. These findings align with the observations made by Chen et al. (2023), in their study.

Their findings highlighted that for the successful application of AI in education it is not only important to have technological innovation but also adequate infrastructure and training to support it.

CONCLUSION

The present study suggests AI tools are largely used by the student teachers. They are onside it as valuable support in

enhancing their teaching and learning processes. At the same time, the study also highlighted several challenges that the student teachers encounter while using these AI tools. Finally, the results emphasize the importance of having AI literacy and ethical awareness programs to be provided into teacher education programs. This will enable future teachers to use AI tools effectively at the same time ensuring academic integrity.

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