



Original Article

Transforming Education in the Era of AI and Automation: A Study of B.Ed. Students' Perceptions and Preparedness

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Abstract

This research paper has focused on AI. The AI revolution is transforming education at an unprecedented pace, offering game-changing opportunities to personalize learning experiences, support teachers in their daily tasks, and optimize education management. Recent research demonstrates the immense potential of AI to boost productivity in knowledge work, with one study finding that consultants using GPT-4 completed more tasks, worked faster, and produced higher-quality outputs compared to those without AI assistance. Artificial intelligence will definitely transform the teaching and learning process in coming days. This study is of awareness of B.Ed. students about artificial intelligence and automation in education. Even student-teachers are more concern about the threat of job as a teacher in future but still are more enthusiastic to learn such technology and artificial intelligence. AI will definitely occupy the field of education and there are most opportunities also. The knowledge of AI and training of AI is essential to use it skillfully in teaching and learning. In coming years there will be an introduction of various syllabuses for traditional education and for professional education. One cannot keep himself/herself far from AI and automation in education.

Keywords: Artificial intelligence, Education, Student-teachers, perceptions, preparedness, advantages.

Introduction

"The best teacher for a machine is a curious human."

Artificial intelligence is about to change the scenario of education in the India. Recent dialogues, such as those between Prime Minister Narendra Modi and Bill Gates, have spotlighted India's ambitious plans to democratize AI in schools, ensuring inclusive access to quality education for all students. These initiatives align with the National Education Policy 2020, which emphasizes the integration of technology to modernize the educational framework and make learning personalized and accessible across diverse socio-economic backgrounds. At present all teachers are using the technology in their day-to-day teaching but in coming days there is need of modification by using AI in education. Teachers have to use this AI in teaching, evaluation, training and even in drafting lesson notes.

The role of AI in Indian education

India faces challenges such as large student populations, varied learning needs, and limited access to quality education in remote areas. AI can address these challenges in the following ways:

1. **Personalized learning paths:** AI-driven platforms will definitely give space for individual learning by using tailored content.
2. **Intelligent tutoring systems (ITS):** It helps students to identify the strengths and weaknesses, offering real-time feedback and targeted support.
3. **Administrative automation:** AI helps in attendance, administration and evaluation process.

Government initiatives

The Indian government is actively promoting AI in education through various programs:

- **NEP 2020:** Emphasis on integrating technology for classroom and training to the teachers.
- **PM eVIDYA:** is going to provide the platform of AI to everyone for learning.

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Advantages of AI in education for students:

1. **Active engagement:** AI will motivate the students for learning with the help of content of their interest.
2. **Scope for space:** Students will learn it according to their speed and their needs.
3. **Better learning experiences:** Various learning methods, styles and approaches will be used for learning with the help of content having experiencing visual, auditory and interactive activities.
4. **No language barriers:** Students from different linguistic backgrounds have the access of learning and they can broaden their knowledge.

Advantages for teachers:

1. **Automation in administrative work:** Grading assignments, maintaining attendance, planning of time table are properly maintained by this AI
2. **Planning of lessons :** According to students' need a teacher can plan better lessons for students and their progress in respective area.
3. **Teaching:** With the help of all AI tools the quality of teaching is enriched.
4. **Augmented Reality and Virtual Reality:** When AI is integrated with AR and VR technology, there will be changes and students will learn the difficult subjects properly.

Rationale:

The integration of Artificial Intelligence (AI) and automation in education is transforming the ways of students' learning and teaching of teachers. As future educators, B.Ed. students play a crucial role in shaping the next generation of learners. Understanding their perceptions and preparedness to harness the potential of AI and automation in education is essential for effective teacher education and professional development.

Theoretical base: This research study has the base of psychological theories i.e. Technological Pedagogical Content Knowledge (TPACK): This framework emphasizes the importance of teachers' knowledge and skills in integrating technology, pedagogy, and content (Koehler & Mishra, 2009). As well as Self-Determination Theory: This theory suggests that AI-powered systems can support student motivation and engagement by providing autonomy, competence, and relatedness (Deci & Ryan, 2000)

Statement of Problem: 'To Study the B.Ed. students' perceptions and preparedness in transforming education in the era of AI and automation

Operational Definitions:

- a) **B.Ed. students:** Individuals are currently enrolled in a Bachelor of education programme to become teachers at secondary and higher secondary level.
- b) **Perceptions:** subjective interpretations, attitudes of B.Ed. students about AI and automation in education.
- c) **Preparedness:** understanding of AI and automation in education settings.
- d) **Artificial Intelligence:** It is computer influenced system works better tasks.
- e) **Automation:** The use of technology to perform tasks in education with minimal human intervention.

Objectives:

- 1) To explore B.Ed. students' perceptions of AI and automation in education.
- 2) To assess B.Ed. students' preparedness to integrate AI and automation into their teaching practices.
- 3) To identify the challenges and opportunities associated with AI and automation in education from the perspective of B.Ed. students.

Scope: Research is related to Teacher Training College (B.Ed.) in Maharashtra state.

Limitations:

- 1) Sample was selected from one aided B.Ed. College from the Ahilyanagar district.
- 2) The results of research are depended on the responses received from B.Ed. students.

Delimitations:

- 1) Present Research study was delimited for Artificial Intelligence and Automation.
- 2) Students of aided B.Ed. College were considered for the research.
- 3) One B.Ed. college was selected from Ahilyanagar district which is affiliated to SPPU
- 4) This study was limited for the academic year 2025-26.

Research Methodology:

Survey method was used for the present study which is a type of Descriptive research.

Procedure: Selection of Research area—review of related literature—defining the Problem—Developing the data collection tool—Data collection— data analysis—Results—Report writing.

Population & Sample: Student-teachers from one aided B.Ed. College SPPU, Pune

Sample: One B.Ed. College has been selected by using purposive sampling method for the data collection. Total 20 student-teachers have been selected by using incidental sampling method.

Tools of Data Collection:

A questionnaire is developed by researcher, 15 multiple choice questions were included in the questionnaire. Around 30 minutes were allotted to student-teachers to place right tick mark for appropriate answer.

Data Analysis: The data of this study analyzed by the researcher using tabulation techniques and percentage.

Table 1. What is a primary goal of integrating AI and automation in education?

No.	Answer	No. of Respondents	Percentage
1	To replace human teachers	07	35%
2	To enhance student learning outcomes	11	55%
3	To reduce educational costs	02	10%
4	To increase administrative workload	00	0%

Observation: Only 55% student-teachers know about the primary goal of integrating AI

Table 2. Which skill is essential for students to succeed in an AI-driven world?

No.	Answer	No. of Respondents	Percentage
1	Memorization	04	20%
2	Critical thinking	13	65%
3	Repetitive tasks	01	5%
4	Basic arithmetic	02	10%

Observation: Almost 55% student-teachers know about the essential skills to succeed in AI.

Table 3. How should educators approach teaching coding and programming in the era of AI and automation?

No.	Answer	No. of Respondents	Percentage
1	Make it compulsory for all students	11	55%
2	Focus only on theoretical foundations	04	20%
3	Provide hands-on experience and practical applications	04	20%
4	Limit it to advanced students only	01	5%

Observation: Only 20% student-teachers know about the approach of educators.

Table 4. What is a potential risk associated with AI and automation in education?

No.	Answer	No. of Respondents	Percentage
1	Increased student engagement	11	55%
2	Improved academic performance	06	30%
3	Bias in AI-powered assessments	02	10%
4	Enhanced teacher-student relationships	01	5%

Observation: Only 10% student-teachers have strong opinion about potential risk.

Table 5. How can educators ensure equitable access to AI and automation technologies?

No.	Answer	No. of Respondents	Percentage
1	Provide devices and internet access to all students	13	65%
2	Offer AI-related courses only to advanced students	04	20%
3	Focus on theoretical aspects only	02	10%
4	Ignore the digital divide	01	5%

Observation: Almost 65% student-teachers know about the equitable access to AI & AT.

Table 6. How can AI and automation support teachers in the classroom?

No.	Answer	No. of Respondents	Percentage
1	By replacing teachers entirely	02	10%
2	By automating administrative tasks	14	70%
3	By providing one-size-fits-all lesson plans	03	15%
4	By reducing student-teacher interaction	01	5%

Observation: Almost 70% student-teachers know about the AI & A support teachers.

Table 7. What is a key consideration for educators when integrating AI and automation into the curriculum?

No.	Answer	No. of Respondents	Percentage
1	Ensuring AI replaces human teachers	02	10%
2	Focusing solely on technical skills	11	55%
3	Developing critical thinking and problem-	07	35%

	solving skills		
4	Ignoring the impact on future careers	00	0%

Observation: Only 35% student-teachers know about the key consideration for educators.

Table 8. How can AI and automation enhance student assessments?

No.	Answer	No. of Respondents	Percentage
1	By relying solely on multiple-choice questions	03	15%
2	By providing instant feedback and personalized assessment	10	50%
3	By ignoring student performance data	02	10%
4	By increasing the complexity of assessments	05	25%

Observation: Almost 50% student-teachers know about the assessment.

Table 9. What is a key challenge in implementing AI-powered education systems?

No.	Answer	No. of Respondents	Percentage
1	Ensuring equity and access for all students	08	40%
2	Replacing human teachers entirely	06	30%
3	Focusing solely on technical skills	04	20%
4	Ignoring student feedback	02	10%

Observation: Only 40% student-teachers vividly know the challenge in implementing AI.

Table 10. How can educators prepare students for jobs that don't exist yet?

No.	Answer	No. of Respondents	Percentage
1	By focusing on specific technical skills	05	25%
2	By developing transferable skills like creativity and problem-solving	12	60%
3	By ignoring the impact of AI on future careers	02	10%
4	By limiting access to technology	01	5%

Observation: 60% student-teachers firmly believe in preparing students for job.

Table 11. How can educators promote digital literacy in the era of AI and automation?

No.	Answer	No. of Respondents	Percentage
1	By focusing solely on technical skills	04	20%
2	By teaching critical thinking and media literacy	14	70%
3	By ignoring online safety and ethics	01	5%
4	By limiting access to digital resources	01	5%

Observation: 60% student-teachers firmly believe in preparing students for job.

Results:

1. Only 45% student-teachers don't know about primary goal of integrating AI and Automation in Education.
2. Almost 65% student-teachers know the Critical thinking is essential for AI.
3. Almost 80% Student-teachers don't have idea about approaching coding programme.
4. Only 10% student-teachers know about the potential risk associated with AI.
5. Almost 40% Student-teachers have the idea about key challenge in implementing AI in education system.

Conclusion:

This study highlights an importance of understanding B.Ed. students' perceptions and preparedness to harness the potential of AI and automation in Education. Student-teachers recognize the benefits of AI and automation in Education, including personalized learning and improved student outcomes. However they also express concerns about job displacement, bias in AI systems, and the need for professional development to effectively integrate these technologies. Teacher Education programmes need to priorities AI literacy, digital pedagogy and critical thinking to prepare future teachers for the challenges and opportunities of AI-driven education.

Recommendations:

1. There should be integration of AI literacy into Teacher education programme.
2. There should be Provision of professional development opportunities for using AI-powered tools and technologies.
3. Foster critical thinking i.e. to encourage B.Ed. students to critically evaluate the potential benefits and challenges of AI and automation in Education.

Discussion of the Results:

The findings emphasize the importance of integration AI literacy, digital pedagogy and critical thinking into teacher education curriculum. There is chance for investigating the long term impact of AI and automation on teaching and learning

practices. The study's findings contribute to our understanding of the complex issues surrounding AI and automation in education, highlighting the need for ongoing research and development in this area.

'Teacher enlightens minds; AI accelerates the journey.'

Contribution:

This research contributes in providing the valuable insights for educators and policymakers seeking to harness the potential of AI and automation to transform teaching learning practices.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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