

The Impact of Artificial Intelligence on Education in India

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Abstract: *Artificial Intelligence (AI) is rapidly emerging as an important technology in India, influencing education, research, employment, healthcare, and industry. The Government of India is taking various initiatives to promote AI skills, innovation, and its responsible use. The National Education Policy (NEP) 2020 recognises the growing importance of AI, machine learning, computer science, and data science in education and employment. It encourages students to develop modern technological skills that can prepare them for future careers. AI can also support teachers and provide personalised learning experiences according to individual students' needs. The India AI Mission, launched in March 2024, further strengthens India's AI ecosystem by supporting educational institutions, researchers, industries, start-ups, and government organisations. Special emphasis is also being placed on rural, tribal, and underserved communities to promote inclusive access to digital technologies. Overall, the integration of AI with education can contribute to skill development, innovation, inclusive growth, and India's future technological advancement.*

Keywords: AI in Education, Digital Education, Machine Learning, Data Science, AI Skills, Digital Literacy, Educational Technology, Inclusive Education, Ethical AI, Future of Education, India

1. Introduction

Artificial Intelligence (AI) is becoming increasingly important in India. It is being used in many fields, including education, research, employment, healthcare, and industry. The Government of India is taking several steps to develop AI skills and encourage its responsible use.

The National Education Policy (NEP) 2020 gives importance to new technologies such as AI, computer science, and data science. These subjects can help students develop the knowledge and skills needed for future careers. AI can also support teachers and make learning more suitable for individual students.

The India AI Mission, started in March 2024, is another important step towards developing India's AI capabilities. It supports educational institutions, researchers, industries, start-ups, and government organisations.

Special attention is also being given to rural, tribal, and other underserved areas so that the benefits of digital technology can reach more people.

AI and National Education Policy 2020

NEP 2020 recognises that technologies such as AI, machine learning, and big data are changing the nature of education and employment.

The policy encourages students to study AI and computer-related subjects along with other areas of knowledge. This approach can help students gain modern skills and become better prepared for future opportunities.

AI in Education

AI is gradually becoming part of school education in India. The Ministry of Education, along with organisations such as CBSE and NCERT, is promoting digital learning and AI awareness.

AI is gradually being adopted by schools, colleges, universities, and online education platforms in India.

It can be used for:

- Preparing quizzes and study resources.
- Creating learning plans based on student needs.
- Assisting teachers in checking assignments.
- Managing attendance.
- Providing quick learning support.
- Supporting teachers in their work.
- Managing different activities in educational institutions.

Artificial Intelligence is a technology that allows computers to achieve tasks that usually require human intelligence.

In education, AI can be used to:

- Study and analyse student performance.
- Provide learning materials according to student needs.
- Help teachers with routine activities.
- Give students feedback.
- Assist with grading and attendance.
- Support learners with different educational requirements.

AI can make teaching and learning more flexible and efficient. Students can receive learning support according to their individual needs, while teachers can reduce the time spent on repetitive activities.

For example, AI can assist in preparing study materials, creating questions, checking assignments, providing feedback, and analysing student performance.

DIKSHA Platform: DIKSHA is a digital education platform developed by the Ministry of Education. It provides learning resources for students, teachers, and parents.

Some of its technology-based features include:

- Read-aloud support for learners with visual difficulties.
- Digital learning materials for students.
- Educational support for teachers and parents.

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SOAR Initiative: SOAR stands for **S**killing for **A**I **R**eadiness. It is designed to introduce students and teachers to the basic ideas and applications of AI.

The programme provides learning opportunities for students in Classes 6 to 12 and also includes an **AI for Educators** course.

The teacher training focuses on:

- Understanding the basic concepts of AI.
- Using AI tools in classroom teaching.
- Supporting students with different learning requirements.
- Developing educational projects using AI.

SWAYAM Platform: SWAYAM is an online learning platform that provides free courses to learners. It includes several courses related to AI and other modern technologies offered by leading institutions, including IITs and IISc.

AI in Higher Education

AI is also becoming an important area of study in colleges and universities.

The **UGC** has included modern technology-related subjects in undergraduate education. These include areas such as:

- Artificial Intelligence
- Machine Learning
- Big Data
- Deep Learning
- Drone Technology
- 3D Technology

The **AICTE** has also encouraged the use of AI in technical education. It supports activities such as hackathons, faculty training programmes, and educational initiatives related to AI.

Uses of AI in Education

AI has many possible applications in educational institutions.

- **Learning Support:** Students can use AI tools to understand difficult subjects and prepare for examinations.
- **Attendance Management:** AI can assist in recording and managing attendance.
- **Classroom Management:** Teachers can use technology to follow student progress.
- **Writing Support:** AI can assist in checking grammar, language, and other aspects of student writing.
- **Assessment:** AI can help analyse examination and assignment results.
- **Note Preparation:** Lectures can be converted into text or study notes.
- **Communication:** AI-based systems can make communication between teachers, students, and parents easier.
- **Campus Management:** AI can support security, parking, traffic management, and other institutional activities.

Benefits of AI in Education

AI can provide several useful benefits in education:

- 1) **Saves Time:** It can assist teachers with routine activities such as attendance and grading.
- 2) **Individualised Learning:** Learning materials can be adjusted according to the needs of different students.
- 3) **Improved Student Support:** AI can identify areas where students may need additional help.
- 4) **Better Communication:** Digital AI tools can support communication among students, teachers, parents, and administrators.
- 5) **Campus Safety:** AI-based systems can assist in monitoring educational campuses.
- 6) **Support for Learners with Disabilities:** Features such as speech-to-text and read-aloud tools can make learning more accessible.

AI Research and Development

Research and development are important for the growth of AI in India. Government programmes are supporting research and innovation in different sectors.

AI research can contribute to areas such as:

- Healthcare
- Education
- Agriculture
- Smart cities
- Financial services

The **IndiaAI Mission**, introduced in 2024, has been given a budget of ₹10,371.92 crore for five years. The mission supports computing infrastructure, datasets, AI research, and the development of practical AI applications.

Challenges of AI in Education

Although AI offers many opportunities, its use in education also creates several challenges.

- 1) **Improper Use:** Students may depend on AI to complete assignments or may use it for cheating.
- 2) **Bias:** AI systems can produce unfair results when the information used to train them contains bias.
- 3) **Digital Inequality:** Students who do not have reliable internet or digital devices may not receive the same benefits.
- 4) **Reduced Human Interaction:** Excessive use of technology may reduce direct interaction between teachers and students.
- 5) **Data Privacy:** Personal and academic information of students must be properly protected.
- 6) **Infrastructure and Training:** Institutions need suitable technology, infrastructure, and trained teachers to use AI effectively.

Future of AI in Indian Education

India is taking several steps to increase awareness and use of AI in education. **NEP 2020** supports digital learning and encourages students to develop knowledge of modern technologies.

In the coming years:

- More educational institutions may introduce AI-related courses.
- Students may receive more opportunities to learn AI skills.
- Teachers may receive training in the use of AI tools.

- AI may become more common in higher education and research.
- Technology may help educational institutions provide learning opportunities to a wider range of students.

Disadvantages of AI

There are also some limitations to the use of AI in education:

- AI cannot provide the same emotional support and personal guidance as a teacher.
- Student information may be exposed if data security is weak.
- Excessive dependence on AI may affect independent thinking and learning habits.
- Students in rural or economically weaker areas may have limited access to digital technologies.

2. Conclusions

Artificial Intelligence is becoming an important part of the Indian education system and has the potential to transform teaching, learning, research, and educational management. Initiatives such as **NEP 2020**, the **India AI Mission**, **DIKSHA**, **SOAR**, and **SWAYAM** are helping to develop digital and AI-related skills among students and teachers. AI can support personalised learning, reduce teachers' routine workload, improve accessibility, and provide better learning support to students.

However, the effective use of AI requires responsible and ethical practices. Issues such as data privacy, digital inequality, bias, misuse of AI, and excessive dependence on technology need to be addressed. Teachers will continue to play an essential role because AI cannot replace human guidance, empathy, creativity, and critical thinking.

Therefore, AI should be used as a **supportive tool rather than a replacement for teachers and human learning**. With appropriate infrastructure, teacher training, digital access, ethical guidelines, and responsible use, AI can contribute significantly to inclusive, innovative, and quality education in India and help prepare students for the changing demands of the future.

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