

## **Artificial Intelligence in Education: Transforming Teaching, Learning and Future Possibilities**

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### **Abstract**

This research paper explores the transformation of AI from traditional teaching method, aligning with the goals of NEP 2020. This paper also studies the opportunities like employment generation and practical knowledge, with some challenges of job loss of unskilled labour primarily. But these challenges overpowered by future pathways of nation progress by youth skill set development. In today's world, AI driven technologies help to provide practical application of theory and concept which helps in developing skill and employment. The study examines how AI enabled systems can enhance the attention of students from the tools like mind meister and ChatGPT which make their future advanced with upgraded technology. This paper findings are AI helps nation to develop the youth mind set practically. Progress of nation majorly depends on youth which helps overall development of the nation.

**Keywords: ChatGPT, Robotics, intelligent tutoring, DIKSHA, SOAR initiative**

### **Introduction**

Artificial Intelligence (AI) is a rapidly developing technology that is transforming the way people work, learn, and solve problems. It refers to computer systems or machines that can perform tasks which normally require human intelligence, such as understanding language, recognizing patterns, analysing data, and making decisions. By automating complex and repetitive tasks, AI helps in making human work easier, faster, and more efficient. In today's digital age, AI has become an essential tool for technological progress and is increasingly viewed as a key driver of future national development. AI plays a significant role in shaping the future of a nation because it supports innovation, productivity, and skill development. Countries that adopt AI technologies can improve their economic growth, strengthen their technological capabilities, and create new employment opportunities. At the same time, AI contributes to the development of the younger generation by opening new career paths in fields such as data science, machine learning, robotics, and digital technology. By equipping students with modern technological skills, AI helps in preparing them for the demands of the future job market and supports the overall progress of the country.

In the field of education, AI has brought many positive changes. It assists both teachers and students by providing smart and interactive learning solutions. Various AI-powered tools such as virtual assistants, intelligent learning platforms, and applications like ChatGPT, Gemini, and other educational technologies provide quick access to information and real-time solutions to academic queries. These tools help students understand difficult concepts more easily, organize their study materials, and create clear and structured notes. As a result, learning becomes more engaging, personalized, and effective.

AI is also very helpful for teachers. It supports them in preparing lesson plans, creating study materials, designing assessments, and managing classroom activities more efficiently. With the help of AI-based educational platforms, teachers can analyse students' learning progress and identify areas where students may need additional support. This allows teachers to provide more personalized guidance and improve the overall quality of teaching. Moreover, AI has created many opportunities in the education sector. It encourages skill development by introducing students to new technologies and digital tools. Educational institutions can use AI to develop innovative teaching methods and provide better learning experiences. The integration of AI in education also helps students develop important skills such as critical thinking, problem solving, and digital literacy, which are essential for success in the modern world.

However, despite these advantages, the use of AI in education also presents certain challenges. One major issue is the gap in skills among young people. Many students have theoretical knowledge but lack practical exposure to modern technologies. In addition, some teachers and students may not be fully trained to use AI tools effectively. There are also concerns related to overdependence on technology, data privacy, and the need to ensure that AI is used responsibly in educational environments. To overcome these challenges, it is important for educational institutions and policymakers to focus on improving digital infrastructure, providing proper training programs, and encouraging responsible use of AI technologies. By integrating AI with traditional teaching methods and promoting practical learning experiences, the education system can maximize the benefits of this technology.

In conclusion, Artificial Intelligence has great potential to transform the education sector and contribute to national development. Although there are certain challenges associated with its implementation, the opportunities it provides for learning, skill development, and career growth are significant. With proper planning, awareness, and training, AI can help build a more advanced education system and create a brighter future for the younger generation as well as for society as a whole.

#### Research methodology:

To achieve the above objectives, mainly secondary and qualitative data has been used. The study uses the data of different government sites like PIB and ministry of education, and other private sites.

#### Objective:

The major objectives of this study are following here in under:

1. To highlights the benefits received from AI.
2. To examines the challenges face by after implementation of AI
3. To highlights the future pathways of AI.

#### Findings

##### Opportunities

- School curriculum: Ministry of education has created AI in school curriculum through CBSE and NCERT, starting with grades 9, with NEP 2020 and NCF 2023. It's help in learning AI from school level, which build them mentally.
- DIKSHA platform: Ministry of education, launched AI based DIKSHA platform for inclusivity. Now every student, parents and teachers can learn from this app. This app is stored with lot's of information, which helps them to understand easily.
- SOAR initiative: Ministry of skill development and entrepreneurship launched SOAR ( Skilling for AI Readiness) to build AI awareness and skills from class 6 to 12 .
- SWAYAM platform: Ministry of education SWAYAM platform offer 110 + free AI courses from IIT and IISc, which helps to learn from these platforms.
- Job generation: AI helps in job generation, by providing skills for every job required.
- Understandable language: AI try to helps us in many languages which we understand easily. It provides everything in every language, which makes us clear and easy to learn easily.
- Accessible: AI is accessible by everyone, whether it's youth or old generation. Every person can easily use the AI tools.
- Lesson planning: AI also helps teachers by making their lesson plan. Teacher easily can do their work with these lessons plan with wasting time.
- Concept building: AI helps in concept building for students, which helps them to boost their potential skill rather than roote learning.
- Intelligent tutoring and support: AI helps 24/7 hours with immediate response and chatbots assistant.
- Administrative tasks: AI also helps in administrative task of school, colleges, institutions,

after giving data, AI can easily helps in managing the data and providing useful information.

#### Challenges:

- **Data privacy:** Data stored in AI can be misuse by anyone, which makes everyone to think, that data can be given or not. Data privacy is subject to risk by institutions because every personal details and important documents are saved in the system.
- **Theft:** All the data of student, teachers, staff are recorded on the system, chances of theft increase after use of AI, because every system is connected and any person can steal the data and information, also misuse this data which creates problems for the institution.
- **Implementation cost:** AI implementation cost in institutions, school, colleges are very high, which increases their budgets. These setups can't install easily; it's required skilled staff which is not easily available. Also, the staff are not use to of AI, they try to avoid to learn skills of AI.
- **Loss of human interaction:** AI can't understand the human emotions; it can't read the facial expressions of person. Therefore, individuals prefer to avoid use of AI and do manual tasks.
- **AI divide:** AI create the gap between the users like who don't have knowledge how to use AI and can't take its benefits from it because of not literate. These create the gap between them. Rural areas, marginalized communities have less resources to use AI and less knowledge than urban people and skilled person who take advantage of this.
- **Accessibility:** AI is not accessible by anyone; it requires skill to use AI and take advantage of this technology. Because of less knowledge and high cost, every person can't able to access this.

#### Future pathways:

- **Skill building:** AI helps in skill building of young generation, which practically makes the progress of the students and for nation also. Skills help to develop student mentally and build their career strong.
- **Job generation:** AI is the future of the nation. It's creating job in AI sector, which covers estimated half of the national income.
- **Robotics and AI :** Work on robotics is under process, in future every work can by done by the help of robotics, we need less manpower to do small tasks and its saves our cost and resources of the nation's.
- **Digitalised:** After successful implementation of AI in education sector, every departmental work can be done by AI automatically, it's increases efficiency and saves time of the staff.
- **6% of national income:** NEP goals are that spending of education is 6 % of GDP, but currently there is approx 2% is done, after successful use of AI in education sector in future year, we can achieve this target also, by making our system internally strong.
- **Human centred approach to AI:** UNESCO try to promise" AI to All ", in this they try to shift the conversation role of AI to reduced inequalities with access to knowledge, research and cultural diversity.
- **AI literacy:** AI literacy by institutions creates a big impact in career of the students as well as nation growth. When they learn how to use AI, they can effectively and efficiently use AI and its benefits in every form.

#### Conclusion:

AI is the dual edged sword for the nation. Positively it's help in growth of the nation and building the careers of students, generating more income. But on other side, it also causes bad effect by theft and creating digital divide and more gap in skilled and unskilled. But more over negative effects overpowered by positive effects if we use the AI as a human centred approach.

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