

A Study on the Role of Artificial Intelligence in Indian Higher Education System

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Abstract

In the present era, Artificial Intelligence (AI) has been transforming learning, teaching, and engaging, by making them more personalized and efficient in every field. In Indian Higher Education system, the application of Artificial Intelligence (AI) technology is improving learning techniques, by natural language processing, machine leaning etc. by students for analyzing data, using algorithms, discovering patterns and making the predictions for outcomes; and instructors may make lessons for each student for learning through AI. Artificial Intelligence (AI) plays an enormous role in education system because it allows the learners to learn at their convenient time and in their own learning styles appropriate for them. Self-Learning is the one of the best primary benefits of Artificial Intelligence (AI) in Indian education system. Smart and Intelligence methods, Chatbots, evaluating and grading by automation can help teachers saving their time while providing accurate and consistent feedback from the students. However, using AI in teaching presents several obstacles. Some of the obstacles to overcome are privacy, security, lack of confidence, cost of software and hardware, and setup of the users. Despite these obstacles, AI has tremendous potential in education. AI improves data analytics, allowing teachers and educators to take data-driven decisions. The present study discusses the role of Artificial Intelligence in Indian Higher Educational system and public relations, as well as its success in the education sector.

Keywords: Artificial intelligence, technology, teaching, machine learning, education, and learners

INTRODUCTION

Most parts of the world have experienced a technological revolution over the previous few decades. Society has completely changed from a society dominated by traditional living environments to a modern knowledge society where creativity and innovation lead the society. AI is altering many businesses and industries including Indian education system. Artificial Intelligence (AI) is having the ability of transforming our teaching techniques and learning practices, making them more effective and personalized, including their effectiveness [1]. They presented “look at the role of AI in Indian

Education system and how it will be affected, the way we learn” [2]. The rapidly developed technology in Artificial Intelligence which is giving big boom to all kinds of industries in India along with education system. According to Business Intelligence Association report, a huge number of jobs will be created for knowledge-based and analytical skills, from 28,80,000 to 40,00,000 around. According to a report given global base of 300 AI professionals, there is a wide range of opportunities, and this opportunity has led to increased salaries for those learning and working in AI [3–5].

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Meaning of Artificial Intelligence

Artificial Intelligence is concerned with the process of developing computer systems capable of learning, acting, thinking and decision making like human intelligence including data analysis for users for analyzing [6]. It is a multidisciplinary area that includes computer science, statistical data analysis, hardware, engineering, software, accounting, languages, philosophy, neuroscience and many more; almost in all the fields, AI is part of action. AI in business combines machine learning and deep-learning based on various technologies applied for data analysis, object-oriented classification, data forecasting and prediction, natural languages processing, intelligent data discovery, recommendations, and other things which are especially effected by AI [7–9].

RESEARCH METHODOLOGY

The qualitative descriptive approach is the research methodology employed in this study. Primary and secondary data are the two categories of qualitative data that were employed in this investigation. Data sources are obtained using library research methods by examining available online and offline sources of information such as printed computer journals, printed books, annual reports and many more reliable sources. Information has been collected from various selected sources like conversations, linking from various stories to another. In this study, surveys, interviews, and observation were the methods utilized to collect data. Decisions were made after analyzing this data [10, 11].

OBJECTIVES OF THE STUDY

1. To examine the excellence in education with AI.
2. How AI can help bridge the gap of 50% fewer teachers per thousand students compared to developing countries.
3. Unemployment is a major problem in India. Is AI relevant in this context?
4. Can AI get full support and backing in India's education system?

REVIEW OF LITERATURE

Exploratory research articles, journals, and Google Scholar related to the data were reviewed to gather as much information as possible on the relevant topic. The entire study is based on secondary data as mentioned in the references to examine the pros and cons of AI in developing countries like India.

- 1) Distinguishing between work completed and work to be completed is one of the project's various components.
- 2) Check the important variables related to the program.
- 3) Combine and get a new perspective on this topic.
- 4) Connect ideas and concepts with applications.
- 5) Demonstrate familiarity with new technological developments by placing the research in the historical context.

Artificial Intelligence Opportunities

There are 374 million smartphone users and 600 million internet users among India's 1.1 billion mobile phone users. With an average data speed of 6 Mbps, India has the lowest data cost in the world (\$0.24/Gb). Adoption chances are greatly enhanced by these factors.

Artificial Intelligence's Role in Education System

The idea of artificial intelligence is starting to appear in the field of education. The ability to comprehend, utilize, monitor, and critically analyze AI systems without the requirement to create AI models is sometimes referred to as AI literacy [3]. In 2015, post this is the first time the term Artificial Intelligence (AI) was ever introduced. This term is linked to several lists of literacies that have been proposed to indicate the understanding of specific skill structures, such as “reading literacy” and “verbal literacy” [12]. “AI literacy” includes AI skills that are relevant to the public and focus on students without computer skills (“non-experts”). Long and Magerko had introduced literacy AI, which states that “it is a

set of skills that enable a person to critically evaluate AI technologies, communicate with and work with AI, and use AI as an online tool” [3].

Therefore, undergraduate learners can learn any subject like computer-science students may learn and practice how Artificial Intelligence can be used to solve problems, think, understand, learn, communicate, decide, and act. The concept was still limited to the computer field. In order to manage teaching, learning, and decision-making as well as to offer virtual support for individual AI education learning, the major idea of the Artificial Intelligence (AI) in Indian education and its integration into educational administration systems were later developed [13]. AI can manage learning needs by providing students with individualized learning. Educators can use artificial intelligence technologies, such as cloud computing, to deliver learning content to students in formats appropriate for the needs of diverse students [14]. Additionally, AI can help students engage with chatbots that improve learning and eliminate humiliation to encourage self-directed learning. The use of AI in education is expanding quickly, and global projects have begun to consider AI education in line with the new standards of education and design guidelines to address levels of literacy worldwide. Various viewpoints on the idea of AI education are represented by these frameworks. For instance, 11 nations are integrating AI into their STEM and computer science curricula in an effort to boost competitiveness and for better future of the youth. According to the AIK12-2019, “Five Big Ideas” in the AI serve as the framework for discovering the most important concepts of AI that all ages of the students should be learning.

Artificial Intelligence in Grading and Assessment Process

Artificial Intelligence (AI) is not ready to replace the human class, but it is getting closer to multiple-choice tests which can now be graded by experts to fill in the blanks, and student work may soon be graded automatically.

- *Personalized learning:* Artificial intelligence (AI) enhances skills by customizing the students’ educational experience. This can raise student engagement and enhance learning outcomes.
- *Do tutoring:* Although teachers will always play a part in education, new technologies like intelligent computer systems may alter that position. Here are some reasons why: As we discussed, AI can perform tasks such as grading, help improve student learning, and replace actual lessons.

Produce Smart Content

- *Digital lessons:* AI can be used to build digital learning interfaces and customization possibilities, study guides, digital textbooks, simple communication, etc.
- *Information visualization:* AI has the potential to enable new information viewing methods, such as simulations, web-based learning environments, and visualizations.
- *Learning content update:* In addition, AI creates and updates course content to help keep content up-to-date and adapted to different learning curves.
- *Contribute to task automation:* Simplify administrative tasks: Grading, assessing and responding to students are time-consuming tasks that teachers can optimize using AI.

Challenges Ahead of Artificial Intelligence in Indian Education System

Issues regarding Privacy and Security

Practice of gathering data and analyzing enormous volumes of the student’s personal data may be hazardous if it falls in the hands of wrong people, where it might be misused. Educational organizations may take adequate measures for protecting the privacy of the students and data breaches. The learners might be hesitant for agreeing to Artificial Intelligence (AI) enabled gradings, or students’ feedback. It is very difficult to establish the trust in the kids and ensure their familiarity with technology. Implementing and maintaining AI systems can be costly, making it challenging for educational institutions with limited budgets. The educational organizations should weigh the advantages and cost to be incurred for integrating AI in the classroom.

Potential

The Artificial Intelligence (AI) system may bias, when taught on skewed data. This can lead to misbehavior among some students and long-term misunderstandings. The educational institutions should ensure that this kind of education system are error free and may not fall behind the times.

Transparency

This kind of education system should be transparent to the students, including exploring of how and why decisions should be taken. For establishing trust in the students, this system must ensure the awareness and usage of technology.

Latest Applications of Artificial Intelligence: Recent Trends in Real World

There are many different areas where AI can have an impact.

1. *AI in Marketing*: With the help of machine learning, customer data can predict individual behaviors and help marketers segment easily.
2. *AI in banking*: It is a growing trend for many banks to use AI-based technologies to detect credit card fraud, to detect exceptions and provide customer assistance through electronic virtual assistants.
3. *AI in Finance*: Employs this approach to find marketing tendencies in the smallest amount of time. These machines analyze past data trends to forecast future data.
4. *AI in agriculture*: Automated methods can help farmers increase yields and control weeds.
5. *AI in Health*: Use complex algorithms to detect and track complex human behavior; deliver medicine.
6. *AI in gaming*: Create adaptable and intelligent behavior for gamers.
7. *Dive into the world of AI*: AI and machine learning are the most effective techniques to handle and process data at this size. The artificial intelligence was employed on NASA's Mars 2020 mission.
8. *AI in chatbots*: Virtual assistance is widely used in every household today like Siri, Alexa, Cortana, etc. You can use it to control your home appliances, book taxis, order food and more.
9. *AI in artificial creativity*: Artificial creativity on social platforms like Facebook.

Artificial intelligence employs machine learning and deep learning algorithmic techniques for face detection and auto-tagging, impact-based feed creation, and malicious content detection.

Artificial Intelligence: Future in Education System

According to the "World Economic Forum" estimation, a substantial majority of enterprises will be able to utilize technology such as machine learning. Governments and academic institutions will focus on each STEM subject to increase their knowledge and skills. "Technology, Mathematics, science and engineering" and un-cognitive abilities can be employed to address these pressing demands. As per Microsoft Study, by 2030, all the students should be in a position to understand dual characteristics of the environment before graduating; and understanding how to employ various technologies, such as AI.

Strengths: Understanding the collaborative techniques with other teams successfully and addressing the weaknesses. Preparing pupils for the future of AI begins early. So, most of the students should be familiar with the digital technologies by the time of they reach to the school age and it is critical for educating the students the skills required for thriving in their digital careers. Incorporating Artificial Intelligence (AI) in to your education will make you stronger in the long term and more prepared to confront the unknown difficulties of tomorrow's careers.

CONCLUSION

While adopting AI into education offers numerous advantages, it also presents some obstacles and issues that might be addressed to the students from education institutions. The education organizations should be assessing very carefully the establishment-cost and advantages of deploying this system to the classroom, as well as take adequate precautions for protecting the students' privacy and avoid harm to them. The benefits and drawbacks of this system in education should be weighed and we

should provide better and more efficient and effective learning experiences for all the learners in the field of education.

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