

Infusion of Artificial Intelligence (AI) in Indian Indoctrination

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Abstract:- A revolution in education has been sparked by Artificial Intelligence (AI). The new era of individualized, effective and interesting education has begun due to the synthesis of human intelligence with artificial intelligence. Artificial Intelligence (AI) has the potential to alter the entire educational system and lead it in the right direction as needed. It helps learners, teachers as well as educational administrations to work effectively in their fields. The incorporation of AI in education has become crucial but the 2-nd largest city in the world India faced both unmatched prospects and tremendous obstacles in using AI's potential inside its educational system. In India, a nation with a broad and varied educational landscape, AI brings both important opportunities and challenges. The documentary study explores the current status of AI in India and stresses the advantages it presents while also recognizing the particular difficulties. The technological barrier, cultural lag in teacher readiness, etc. are the obstacles to promoting individualized quality learning. In order to make AI a useful and effective tool in the Indian educational system, government organizations, educational institutions, and EdTech businesses must collaborate.

Keywords: Artificial Intelligence (AI), Indian Education, Opportunities, Challenges.

I. INTRODUCTION

Incorporating technology has changed traditional classrooms and learning paradigms in the ever-changing educational scene. Artificial Intelligence (AI) is one of the many breakthroughs that have entered our educational system and is poised to fundamentally alter how we teach and learn. A new era of individualized, effective and interesting education has begun due to the synthesis of human intelligence with artificial intelligence. Artificial Intelligence (AI) has the potential to alter the entire educational system and lead it in the right direction as needed [1]. Artificial intelligence (AI) is a broad tool that allows people to integrate information, analyze data and apply the ensuing insights to better decision-making [2]. It is already revolutionizing every aspect of human life [2]. According to Winston, (1992), "Artificial Intelligence is the study of the computations that make it possible to perceive, reason and act" [3]. The use of AI technology is widespread and it is constantly being upgraded [4]. People are paying attention to the role that technology plays in education as it develops and it is undeniable that AI is becoming more integrated into the

classroom administration and instructional environment of schools [5]. The importance of AI in education contributes to the promotion of personalized teaching and learning and it has altered how teachers instruct and how students learn [5]. It also creates a personalized learning plan based on the requirements and learning environment of students [6].

India is a vast nation where diverse traditional customs and cultures coexist peacefully with subtle educational reforms. Changing these reforms creates a revolutionary situation. Artificial intelligence (AI) has the potential to be the unstoppable force that closes gaps, improves learning outcomes, and ushers in a new era of superior education. There are many examples of AI's ability to think like humans do, which are demonstrated in the development of AI-based applications that have operated as efficiently as we human beings do, such as Google DeepMind [7]. The incorporation of AI in education has become a crucial project as India works to realize its objectives in the global knowledge economy. India offers both unmatched prospects and daunting obstacles in using AI's capabilities within its educational system due to its growing youth population and excessive population. The 2-nd largest city in the world India faced both unmatched prospects and tremendous obstacles in using AI's potential inside its educational system. AI provides individualized learning [8] opportunities, data-driven insights and the capacity to cross geographical barriers, all of which hold enormous promise for a country as large and diverse as India. In this study, we will investigate the dynamic interplay between AI and Indian education, looking at the opportunities for students, educators, and policymakers, as well as the obstacles that require thoughtful answers. Harnessing the power of AI in education may well prove to be the key that opens the doors to a brighter, more inclusive and knowledge-rich tomorrow as India marches bravely into the future.

II. OBJECTIVES OF THE STUDY

This study consists of three objectives. These are-

- To examine the current state of Artificial Intelligence (AI) integration in Indian education.
- To investigate the possible advantages of Artificial Intelligence (AI) in Indian education.
- To identify the challenges and concerns associated with Artificial Intelligence (AI) in Indian education.

III. METHODOLOGY OF THE STUDY

The study is based on documents, articles and research papers which are mainly available online. So the method of this study is considered a documentary analysis. The investigation of documents that have information about the phenomenon is referred to as the documentary research method [9]. The documentary research approach examines and organizes physical sources, most often written records that are in the public or private domain [9]. Documentary Research is a vital resource for all students, researchers, and academics conducting substantial research, especially in the fields of education, history, and the social sciences [10].

IV. THE CURRENT STATE OF AI INTEGRATION IN INDIAN EDUCATION

The field of education is no exception to how artificial intelligence (AI) has become a transformational force in a number of industries [11]. In India, a nation with a broad and varied educational landscape, AI brings both important opportunities and challenges. Every child's educational experience could be transformed by artificial intelligence, which is already being used in many schools across the nation [12]. To deliver learning, testing, and tutoring to students, many Indian EdTech companies are creating digital platforms with AI-enabled intelligent instruction design [13]. An AI-based adaptive learning platform has been created by the Indian firm SpeEdLabs to supplement the lecture method of instruction [13]. The Central Board of Secondary Education (CBSE), which oversees 6543 Indian schools, published a circular in 2019 that designated Artificial Intelligence (AI) as an elective subject for grade 9 students, beginning with an introduction in grade 8 to familiarise students with the idea of AI and its ethics [14]. The Andhra Pradesh chief minister demanded that AI should be incorporated into the curriculum and emphasized the significance of the inventions of steam engines, electricity, and computers [15]. To track proxy invigilators and students in addition to an individual student's performance based on his prior grades, participation, and performance, UP government-initiated AI bots will be put in UP schools [16]. Artificial intelligence has been included as a subject in class IX starting in the 2019–20 school year at the institutions connected to the Central Board of Secondary Education (CBSE) in order to improve the multidisciplinary approach to teaching and learning and to sensitize the younger generation [17]. Public schools in the state of Tamil Nadu, India are struggling to address student attendance for this reason a lightweight edge computing device with an embedded camera that uses TNeGA's DL-FRS, a deep learning approach for facial recognition-based attendance system was installed [18]. With the right application of grammar elements, Learning Matters' Tara focuses on expanding the teacher's vocabulary in order to enhance communicative abilities [19]. The Government of India's Niti Aayog has released a Discussion Paper on the National Strategy for Artificial Intelligence, in which it has identified the focus "AI for All" to use game-changing technologies to guarantee social and inclusive growth consistent with the government's development philosophy [20]. India has set a

goal of becoming a trillion-dollar digital economy by 2025, with future technologies powered by AI likely to play a big role (Ministry of Electronics & Information Technology, India AI journey) [21].

V. THE ADVANTAGES OF ARTIFICIAL INTELLIGENCE (AI) IN INDIAN EDUCATION

In various studies, it has been shown that AI is the most powerful weapon of the education sector for the advancement of teachers and students. Over the past 50 years, Artificial Intelligence (AI) has produced many results that are significant for the purposes of students, teachers, the overall educational system, and our society [22]. The purpose of AI is to support the educational process intelligently by assisting the teacher in his or her tasks and helping learners to learn efficiently [22]. Here are some advantages of AI in Indian education-

A. *Personalized Learning:*

The goal of personalized learning is to tailor instruction to the individual requirements, interests, and skills of each learner [23]. AI could help in such tailored individual approaches to learning [24]. Chatbots can offer individualized assistance to resolve any pressing problems, as well as provide answers to each student's questions and meet their specific demands [24]. AI can be utilized to develop engaging educational materials for students of all ages, whether they are learning in a traditional classroom setting or outside in the open air at places like historical sites, museums, or even in the natural world [25]. In particular, when discussing easily accessible learning opportunities through the usage of tablets and smartphones, combining learning with AI makes the information more available and effective [26].

B. *Language Learning:*

Traditional English education faces various obstacles, which are simultaneously in crisis and being tested. In recent years, deep learning on computers has developed the ability to mimic the human brain's learning process and acquire the intrinsic qualities and inherent rules of data, such as sound, video, and image, which may be used in many spheres of life [27]. Ding et al., 2021, designed a kind of online deep learning method based on the combination of the multilayer neural network model and the k -means clustering algorithm, which can be used to help constantly improve the artificial intelligence technologies necessary for college English online teaching [28].

C. *Effective Administration:*

Since AI has beneficial traits in many spheres of life, particularly in education, its implementation begins with the admissions process. Numerous educational institutions promote admissions on their websites, and applicants anticipate receiving good services including advice and admissions-related material [29]. Teachers can get assistance from AI applications in the form of Learning Analytics, Virtual Reality, Grading/Assessments, and Admissions for a variety of duties [29]. It reduces a teacher's administrative

duties so they can focus more on instructing and guiding students.

D. *Classroom Monitoring:*

The use of AI-assisted solutions for classroom-based student monitoring is growing. AI-assisted video apps, for instance, have been designed to track a student's gaze, from which the system deduces whether or not they are concentrated on the instructor or the job at hand [30].

E. *Quality education:*

The potential of artificial intelligence (AI) for education and learning has drawn more attention and is quickly becoming a hot topic in policy discussions [30]. AI can produce quality education for students. With the power of AI, the teaching and learning process can be made intelligent [23]. The school has a wealth of data regarding student profiles, customer satisfaction, outcomes analysis, and teaching and learning through the Quality Management System [23].

F. *Learning with Disability:*

According to the mental disorder, children frequently struggle with social and communication deficiencies as well as issues responding to changes in their surroundings, which can hinder their capacity to learn efficiently. The scope and efficacy of AI-assisted solutions that have been used to address learning issues in students with a variety of neurodevelopmental disorders are which was created using machine learning models [31]. In this context, assistive technology directly helps individuals with disabilities overcome challenges they face on a daily basis, enabling them to pursue education, participate in the labor force, and contribute to society in a positive way [32]. The integration of assistive technology with Internet of Things (IoT) devices has advanced significantly [32].

VI. THE CHALLENGES AND CONCERNS ASSOCIATED WITH ARTIFICIAL INTELLIGENCE (AI) IN INDIAN EDUCATION

Applications of AI have addressed several challenges of learning, including natural language processing, the concept of reasoning, the planning process and cognitive modeling [22]. Today's computer software can track the "mental steps" of the learner during problem-solving tasks to diagnose different types of misconceptions and estimate the learner's understanding of the domain [22].

A. *Technological Backwardness:*

India has a digital divide for a number of reasons, including intermittent power supply, poor internet connectivity in rural and urban coastal, hilly, and remote areas, a lack of knowledge about technology and internet access, a lack of ICT training and support for educators and students and financial limitations that prevent the purchase of hardware equipment [33]. India has gender disparity among their location in using internet facilities. 72.5 percent of urban males and 51.8 percent of urban females have used the internet at some point in their lives. Compared to this criteria,

only 24.6% of rural women and 48.7% of rural men have ever used the internet [34].

B. *Lack of Teacher Preparation:*

Artificial intelligence (AI) is becoming a subject that will be included in K–12 education, thus it's crucial to know how prepared instructors are to teach the new subject because the success of AI education will likely be highly dependent on the level of teacher readiness [35]. According to research, teachers have a general understanding of AI ethics however, this understanding does not match the growth of AI knowledge and skill [36]. At a global workshop on "creative pedagogy and new educational strategies" held in Hyderabad, experts claimed that a lack of teacher preparation has resulted in subpar teaching methodologies in schools across the nation [37].

C. *Infrastructural Barriers:*

According to the UNESCO report, the education industry in India faces a number of obstacles, the most prominent of which is a lack of resources and infrastructure, which impedes the spread of AI in education [38].

D. *Cultural Barriers:*

Global perspectives on the ethics and governance of artificial intelligence (AI) face a significant problem due to cultural diversity [39]. By claiming that the local culture lacks certain ethical values, such as privacy, or upholds contradictory values, such as the notion that state intervention is beneficial, malicious actors may be able to disregard the demands of fundamental ethical principles or even justify their violation through deference to the local culture [39]. Indian participants place more trust in humans, whereas those from OECD (The Organization for Economic Co-operation and Development) nations place more faith in AI advisors [40].

E. *Teacher-Student Relationship:*

Global teacher shortage is a significant challenge with serious ramifications for education's future. This, however, necessitates the development of artificial personalities capable of taking on independent teacher duties, despite the widespread belief that robots will not be able to entirely replace humans in the classroom of the future [41].

VII. CONCLUSION AND RECOMMENDATIONS

The integration of AI into the Indian educational system has the potential to transform learning processes. The technological backwardness, cultural lag, ethical issues and teacher readiness are the barriers that must be addressed in order to take advantage of these potentials. India can harness the power of AI to create a modern education environment that empowers students, educators, and the entire country by combining innovation with inclusivity and privacy. Government agencies, educational institutions and EdTech companies must work together to make AI a useful and efficient tool in the Indian educational system. India can set the way for a more inclusive, effective and efficient education system that equips its youth for the challenges of

the future by overcoming these obstacles and seizing the chances.

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