UNVEILING THE ROLE OF ARTIFICIAL INTELLIGENCE IN CONTEMPORARY EDUCATION

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ABSTRACT

Rapid technological breakthroughs have transformed many industries, including education sector. The rise of artificial intelligence (AI) in influencing education industry in the future is one of the most important recent breakthroughs. AI is transforming how teachers teach, how students learn, and how educational institutions function. It is frequently regarded as a potent instrument. The revolutionary impact of artificial intelligence (AI) in modern education is examined in this article, along with how it might completely alter the way that people learn and teach with AI tools. AI in the classroom makes it possible to assess students' and teachers' development more thoroughly. It may also be used to automate administrative tasks including student registration, attendance tracking, and grading. (Chhatwal et al., 2023) AI may also be used to provide dynamic, interesting lessons, give students instant feedback, and create virtual tutoring programs. Artificial intelligence (AI) has the potential to completely transform education by making it more affordable overall, easier for teachers to manage, and more interesting for students.

KEYWORDS*: NEP 2020, Artificial Intelligence, AI in Education, Emerging Technology, Benefits*

INTRODUCTION

AI systems adapt to individual learning styles, offering tailored educational experiences that enhance student engagement (Tilepbergenovna, 2024) & (Donnell et al., 2024). This research investigates the impact of Artificial Intelligence on contemporary education, informed by Situated Learning Theory, analyzing predictive frameworks, regulations, and automated learning within the realm of AI, offering insights for curriculum developers, policymakers, and educators in Kenya and internationally. (Tsekhmister et al., 2024). These technologies enhance learning outcomes, especially in STEM subjects, by offering real-time feedback and assistance. This qualitative study not only investigates how AI-driven technologies might improve academic standards and change learning settings in the classroom. but also discussed the impact of AI technology into education, more focus on the importance of Implementing AI as outlined in NEP 2020.

Artificial intelligence refers to the intelligence shown by machines or software. It is the subfield of computer science. Artificial Intelligence is emerging as a very trendy branch of computer science since it has improved human life in many ways. Artificial intelligence in the last two decades has improved the manufacturing and service performance sector greatly and hence the sector of Education also. Higher academic standards and an overall improvement in educational quality are possible outcomes of integrating AI into the classroom. In addition to offering access to top-notch resources and assisting teachers in providing efficient education, artificial intelligence may help guarantee uniformity and accuracy in grading. By utilizing AI technologies, educational establishments may provide a more thorough and demanding curriculum that caters to students' changing demands. AI technology can support the establishment of dynamic learning platforms where instructors and learners can collaborate, exchanging educational resources and insights to cultivate an atmosphere of continuous growth and skill acquisition.

The education sector is embracing AI's potential to build smarter classrooms that improve both students' and teachers' learning experiences as technology develops. AI is changing the way we think about education, from adaptive tests to personalized learning. It can optimize educational procedures, improve instructional methods, and raise student learning outcomes. EdTech businesses have set out to use e-learning technologies to provide exact feedback, identify knowledge gaps, and personalize learning experiences. AI could make it possible to accomplish educational goals more effectively, more cheaply, and at a larger scale.AI may increase the adaptability of learning resources to students' needs and skills, and addressing the variety of incomplete learning that pupils have as a result of the pandemic is a policy issue.

LITERATURE REVIEW

The use of AI in the field of Education has been traced back to the 1970s when LOGO programming and Turtle robots were introduced to young learners. However, those tools focused more on computational thinking or programming concepts instead of AI. The concept of AI is slowly finding its way into the education sector. In the beginning, it was referred to as AI literacy refers to the ability to understand, use, monitor, and critically reflect on AI applications without necessarily being able to develop AI models themselves (Long and Magerko, 2020).

One of the most cited definitions of AI literacy has been by Long and Magerko (2020), who defined it as "a set of competencies that enables individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool online, at home, and in the workplace".

The role of AI in education is constantly growing ,which can be reflected by worldwide initiatives (like ISTE, UNESCO, Digicomp) that came forward to formulate AI learning keeping the new standards in educational sectors and guidelines designed for improving the level of digital literate skills throughout the world (Dig Comp, 2022: ISTE,2022: ISTE,2022; Miao and Shiohira, 2021).

Among the advantages of AI is that it offers more support to the students (Baidoo-Anu and Ansah, 2023; Tahiru, 2021). For instance, AI-based help to the students utilizes the Chatbot and virtual assistants which are based on intelligent systems and can offer round-the-clock availability, answer queries, and give valuable feedback. AI further enables increased engagement and motivation of students by providing tools such as gamification of learning or interactive content. It makes students more interested and active (Zhang and Aslan, 2021).

Aithal and Aithal (2020) critically examined the 2020 New Education Policy (NEP) of India with its language policy, multilingualism, and multiculturalism and its impact on the education system towards holistic development of students through vernacular languages and the Three-Language Formula

Here are a few particular advantages AI offers the Education Industry:

- **Improved Customized Education**

  AI adapts instructional materials to the individual learning preferences and speeds of each student. Platforms such as DreamBox and Smart Sparrow, for instance, use real-time response analysis to dynamically modify classes so that each student may grasp subjects at their own pace.

- **More Students involved**

  AI uses adaptive learning platforms and gamified content to make learning more dynamic and interesting. AI is used by apps like Kahoot! and Minecraft: Education Edition to produce dynamic tests and simulations that react to user input, retaining students' interest and motivation.

- **Increased Availability**

  A more inclusive learning environment is ensured by AI-driven assistive solutions, which help students with disabilities. For students with hearing impairments, speech recognition software such as Notta converts spoken words into text, and educational games with AI support offer tailored learning experiences for young children.

- **Improved Classroom Management**

  Teachers can better control classroom participation and conduct with the aid of AI tools. Classcraft, for instance, gamifies classroom management with AI by monitoring student conduct and rewarding good behavior, hence preserving a motivated and productive learning environment.

- **Increased Scalability**

  Scaling educational programs to accommodate more students without sacrificing quality is made possible by AI. AI-based systems ensure accessibility and uniformity in education by managing

massive amounts of data and offering individualized learning experiences to an increasing number of students.

- **From neurotypical to neurodiverse learners**

  AI models could help including neurodiverse learners (students who access, process, and interact with the world in less common ways than "neurotypical" students) who could benefit from different learning paths and from forms of display and input that fit their strengths. Constituents want AI models that can support learning for neurodiverse learners and learners with disabilities. So they want AI models that can work with multiple paths to learning and multiple modalities of interaction.

  With the help of AI, various Educationa lsoftware will be developed in all major Indian languages, besides for students with disabilities and states will develop regional e-content with the help of the CBSE, NCERT, and NOS. The developed content will be accessible on platforms like SWAYAM and Diksha.

NEP 2020: ROLE OF AI IN EDUCATION

The National Education Policy (NEP) 2020, adopted by the Indian cabinet on July 29, 2020, aims at transform India's educational system by providing blue print for the future. The policy appears to be an extension of the 1968 and 1986 reforms that were implemented in the elementary, secondary, higher and technical education sectors. NEP 2020 intends to transform the Indian education system so that it becomes more competitive and highly educated nation. Under the BJP's 2014 manifesto commitment, NEP 2020, led by Narendra Modi fulfills the promise of indispensable educational reforms. The Ministry of Human Resource Development (MHRD) constituted a committee headed by former ISRO

Chief G. Madhavan Nair. Dr.K. Kasturirangan whose report was submitted on 31 May 2019, defined Education as" Education is essential for national improvement, equal communities, as well as individual development. As India moves forward economically and socially, it strives to offer quality education to its growing youth population that is expected to become the world's largest within the next. It has already been over a decade India signed the 2030 Agenda for Sustainable Development and India is dedicated to providing high-quality, inclusive, and equitable education as well as possibilities for lifelong learning.

According to NEP 2020, AI and other technological advancements will revolutionize classroom learning for students. The integration of AI into educational programs seeks to enhance productivity, tailor learning experiences, and optimize administrative tasks, allowing educators more time and flexibility to convey information. However, this transformation requires extensive scholarly and technical research to be fully realized.

The National Research Foundation will Lead with AI technology in solving the issues in agriculture, health, and climate. Higher Education Institutions (HEIs) would be a major player in researching disruptive technologies, providing advanced making an e- learning course and degrees in machine learning. To utilize online education fully, NEP 2020 advocates for bridging the digital divide through initiatives such initiatives include 'Digital India Campaign' and cheaper computing hardware. The policy further focuses on training teachers to be effective online educators. Major recommendations for integrating digital technologies include:

- Various Pilot studies conducted by the IITs, NETF, and NITs in order to test online benefits from education and overcoming drawbacks.
- Investment in digital, open, accessible, and adaptive infrastructure that would serve for future needs.
- Increasing the ambit of e-learning portals, Diksha and SWAYAM: Providing online access to complete end-to-end tools Assessments.
- Quality digital content libraries, coursework, learning games, and simulations, with multiple languages in user-friendly applications will present Indian art and culture.
- The broadcasting of educational content by traditional media channels such as television and Radio, across the Indian languages and bridge the digital divide.

- Virtual labs to be developed through SWAYAM and Diksha platforms with a focus on quality learning Opportunities for all students.
- Web-based assessment and standardized tests by the organizations such as NAC, PARAKH, NTA, and school boards, and exploring the novel uses of educational technology.
- Promoting hybrid models of learning that include face-to-face, rotation, flex, and online lab instruction modes.
- Online learning content and pedagogy standards that will be followed by states and school boards, and higher education institutions.

Artificial Intelligence software for educational purposes currently offered in India's marketplace

1. Lido Learning: An artificial intelligence-driven educational platform in India, Lido Learning offers tailored educational experiences for students. The system provides customized learning strategies, adjustable practice sessions, and progress monitoring capabilities for students, their parents, and educators.
2. Vedantu: This AI-powered learning platform offers Indian students individualized educational experiences. For students of all ages, from K–12 to college and competitive tests, the website offers live lectures and instructional materials.
3. TutorVista: This AI-powered online learning platform offers Indian students individualized educational experiences. The platform offers individualized instruction.
4. BYJU's: The biggest Ed-tech company in India, BYJU's, uses AI-based technologies to provide individualized learning experiences. Students of various ages can access instructional information on the site, including K–12, college, and competitive exam materials.
5. Chatbots and Virtual Assistants: AI-powered chatbots, like Mainstay, offer students round-the-clock help and support outside of the classroom. By providing answers, reminding students of due dates and assisting them with administrative procedures, these chatbots improve student engagement and encourage self-directed learning.
6. Quizlet : Quizlet is an AI-powered study and learning platform that makes interactive study games, quizzes, and flashcards. The AI algorithms on Quizlet adjust to the learning styles of its users, making study sessions more efficient and offering tailored suggestions to improve memory and comprehension of a range of topics.

CONCLUSION

AI offers real-time insights into student learning performance and learning outcomes, it makes ongoing review and development easier. Artificial intelligence is the study of intelligent software and technologies that have the ability to learn, think, communicate, manipulate, and perceive objects.AI offers many advantages for education, including personalized and immersive learning as well as excellent, affordable instruction. AI will play a bigger role in changing education as it develops, providing both students and teachers with new learning and teaching options. This qualitative study explores the multifaceted implications of AI in higher education, revealing benefits such as enhanced study efficiency and personalised learning support, but also concerns over academic honesty, student dependency, and equity in AI access, highlighting a need for balanced and guided AI use in today's world.

AI is able to monitor student progress, spot patterns, and point out areas that require improvement through data analytics. This data can be used by educators to improve their methods, create individualized interventions, and make sure that learning goals are being reached. A proactive approach to education, where changes may be made quickly to improve the learning process and results, is made possible by continuous evaluation through Artificial Intelligence. India effectively used online learning systems to deliver high-quality education throughout the COVID-19 pandemic. NEP 2020 acknowledges the value of technology in education and intends to carry out pilot projects to evaluate the advantages of online learning and tackle its drawbacks. The goal of the policy is to address present and upcoming educational issues while improving and growing current ICT-based educational initiatives.

The 'Digital India Campaign' also seeks to establish a synergistic relationship between education and technology by integrating it deeply. By implementing cutting-edge technological tools, educational institutions will update their teaching methods and give students better learning opportunities. At last through the application of both practical and intellectual resources, people use technology to change the world and increase their opportunities. Information and communication technologies (ICTs) are only one aspect of it. In many nations where raising technological literacy levels is viewed as having inherent value, technology is taught as part of the curriculum. AI have more potential to enhance classroom evaluation practices through the provision of additional modes of, recording, reviewing and representing information on student learning products and process.

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