



Integration of Artificial Intelligence in Indian Education System

Mrs. Sunindita Pan

Assistant Profsson In Economics, Loyola Academy Degree & PG College, Alwal, Telangana-500010
pansunindia@gmail.com

ABSTRACT

UN in 2015 report "Transforming our world: 2030 agenda for sustainable development" affirmed that high quality education is obligator to promote people's lives and attain sustainable development. Technology is evolving at faster rate today. At present, Information and Communication technologies are assuming an important aspect of our lives. It has transformed different business besides education sector. As artificial intelligence progresses, it will cause a revolutionary change in education system. AI is growing seamlessly in day to day lives. In education, it has enhanced teaching-learning methods and will contribute in sustainable education. Ai is the future of education system through the world. Maybe in future the entire educational activities depend on AI. There is paradigm shift in education system in favor of technology driven education. The national Education Policy 2020 has also acknowledged the future role of disruptive technologies in education system. In technology driven environment, its inevitable to become familiar with disruptive technologies like AI, block chain technology, data science, machine learning, virtual reality, 3 D machining, Big Data. In Higher Education Institutes, many are already using AI tools to research, develop, evaluate and teach. Information and communication technology is playing vibrant role in teaching learning process. During the pandemic, use of AI tools in virtual classroom and online teaching made the teaching learning process an ongoing process without any difficulty. There has been a paradigm shift in education system of higher education due to adoption of AI. Application of AI has revolutionized the gamut of education system.

Keywords -Artificial intelligence, education system, sustainable development.

Objectives- Aim of this study is to analyze the role of AI in sustainable education of Indian higher education system. In this article, author explains meaning and concept of AI, potential applications and challenges.

Methodology- The study is descriptive and the data used are secondary data. The data has been compiled through journals, annual reports and articles linked to the present topic

Scope of Research -AI has accelerated education process and system. Augmentation of proper infrastructure is necessary for its sustainability. AI is game changer in education sector, thereby giving wider scope in future for further study.

Limitation of study- the present topic is limited to study of AI and its various applications education sector of India. It also analyses impact of AI in HEIs only.

Introduction

Indian education system is one of the largest and oldest in the world. Presently, they are facing challenges of weak and inadequate infrastructure, poorly qualified but motivated teacher force, on one hand, and on the other side increasing privatization and commercialization of education process and system. There are low learning levels due to rote learning of content without understanding the content. It ensures teachers to complete the vast syllabus by learners and reproduce the same in written examinations. One size fit for all approach is followed in education system in content, pedagogy and assessment system. Indian education occupies an important place in global education. The higher education ecosystem in India includes nearly 1000 universities and 43,000 colleges under the supervision of Ministry of education. According to report of IBEF, India has 41.38 million students enrolled in higher education in 2020-21. MHRD is continuously putting efforts to promote digitization of higher education. With help of tools of AI, Teachers can improve cognitive skills and ultimately improve education outcomes.

Artificial Intelligence-meaning and concept

In 1955, the first AI system was designed by Allen Newell and Herbert a Simon called Logic theorist. The term was used by John McCarthy in 1956.AI is defined as computers that can perform cognitive tasks associated with human beings. It is a branch of computer science that gives ability to computer to think and take decisions like human minds. It is also defined as computing systems which are capable of engaging in human like processes-learning, adapting, self correction, synthesizing and use data for complex tasks. The ability and development of computer systems and machines to perform task based on information technology using human intelligence is termed as AI. AI enabled tools are assistants for students in their intelligent tasks. In future,

AI could replace teacher from its role to a facilitator. The role of technologies is to augment educational process. Institutions are facing issues and challenges for teaching, learning and research activities in higher education system.

Literature review

Chaudhary (2017) affirms that AI is advantageous for teachers-learners. Application of AI and upgraded software has helped learners and educators to achieve more knowledge. AI are helping diverse groups. It allows feedback to students on their knowledge and individual performance. AI evaluates student's performance. Thus it is chief force on curriculum of higher education institutions. Tools of AI are helping teachers to devote precious time to research by checking the homework and assessment documents of students.

UN aims to fulfill AI FOR ALL assuming technology can offer equal learning opportunities. UNESCO aims to fulfill its 4 goal of sustainable Development "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"

Types of AI

- **Reactive machines-** they are the fundamental type of AI. AI capable of responding to stimuli externally in real time. They are unable to build memory or store information for future time period. They can't perform complex tasks. They perform basic automated functions ex IBM Deep Blue, Netflix recommendation engine.
- **Limited memory A-I** can store knowledge and use it for future task to make prediction. The core of limited memory is deep learning. . it allows machine to take data form past and learn for them ex chat bots, self driving cars, virtual assistants
- **Theory of mind AI-** they can perceive and pick p emotions of others and predict future actions. Though it posses its own risks, they can bring many changes to the technical world.
- **Narrow AI-** They are known as ANI or weak NI. They can carry out specific actions or commands. They can excel in one command or cognitive capability and cant learn beyond it. Ex are image recognition software, self driving cars, AI virtual assistant.
- **Self aware AI or AI point of singularity-** they possess self-awareness they can't sense feeling of others ex SOPHIA, a robot.

Domains of AI

Machine learning- they are capable of self improvement without direct programming. They create software that can independently learn by accessing and using data.

Deep learning- they involve many layers of neural networks. They control voice off many devices, recognize images and learn from vast amount of data.

Robotics- chatbots are used to perform various tasks by both teachers and learners.. They provide assistance to complete their assignments and homework's. they control computer system for sensory feedback and information procession

Expert systems -they answer any query and solve problems in particular domain using rule-based systems.

Computer vision- it allows to interpret the world visually. It's used n medical image analysis, surveillance, and manufacturing.

Natural language processing-NLP enables machines to interpret human languages use in translation services, chatbots and sentiment analysis applications.

Role of Ai in Indian education system

AI in Indian education system is in its nascent stages. The existing approaches like rote or drill learning, curricular materials and privileging tendencies get amplified through AI. The idea of learning must be learner-centered. The teaching methods must be adapted based on needs of learner. Any change in education system impact future generation and society, thus it should be done based on issues.

- Personalized learning-AI can adapt level of knowledge, speed of learning and desired goals of students so that they can benefit from their education. AI based learning analyze learners history weakness and suggest course for improvement and personalized learning. Conventional learning system lacked the customized or personalized learning for the students. Every student has their own way of grasping knowledge. AI tools like ML back sup how the student how they perceives lessons and adapts to proves of easing the burden. Thus, the blend of education and AI focuses on individual requirements.
- Delivery of quality content- through automatic assistance the learners find answers to questions in matter of seconds. This saves their time. They benefit quick and proper response. Chatbots observes the content and accordingly caters to their needs

- Equality in learning- due to personalized learning system and collaborative learning, learners benefit equally. They develop their full potential. Due to multi lingual support, it is easy for everyone to teach and learn like the converter tools like Presentation Translator provide subtitles for virtual lessons. AI also helps in educating visually or hearing impaired learners.
- Interactive teaching-learning- students from different part of the world can receive quality education without paying for travel an accommodation. Up skilling and training the teachers boos up their morale. It leads to improvement and innovation.
- Remote learning/tutoring-AI can help learners improving their abilities and overcoming weakness. They provide instructions without the need for the teachers to answer any questions outside the classroom. AI tools help learners to learn anytime and anywhere at their own pace. Digital lessons or study material are accessible from any device. A real life example is GURUSHALA-online learning platform developed by Appinventiv. It is true example of radical change of digital education ecosystem.
- Curriculum up gradation and course planning- AI bots can mix different learning activities like tests, seminar, presentations, group discussions. They use cloud based storage for class files and notes. They are easily accessible from anywhere at any time. In long run, teachers are benefitted to conduct classes, check homework's and assignments. AI smart content creation stimulates study environments like 2D-3D visualizations it also helps in generating digital lesson. Users get updates to prepae for future tasks.
- Assessment and grading- evaluation and assessment is the most time consuming activity for any teacher.AI tools simplifies the assessment process and saves time for other important aspects. It also prevents miscalculations. It helps to monitor learner's progress and teachers can easily increase the academic success rates. It motivates for better results by putting more efforts into learning.AI tools keep track of students through webcam, microphones and web browsers and analyze their movement.
- Secure campus-safe campus is being enjoyed due to digital infrastructure with help of connecting resources in campus. Teachers and learners face many challenges like data protection, data accessibility and outdated certification. AI based decentralized solution bring technical revolution. Ex NOVA resolves authentication issues. It is made by APPINVENTIV as learning management system and backed by block chain technology
- Research activity- with help of powerful and flexible computing environment, research activity of faculty members is made possible through collaboration at global level.
- Resources and event management- learning process is also affected by the services of administrative staff. They make services more efficient. Intelligent resource management is important during application time. AI helps to automate routine administrative tasks like sending emails, reminders and updating the registration process. Academic performance can be tracked by AI applications. It helps in classroom management.
- Feedback – Using AI applications, assessments are accurate which help teachers need for the follow ups. Effective e teaching includes continuous feedback besides giving the content. Continuous feedback helps students to understand where he is lacking.
- Automatic tasks- in virtual class rooms, Majority of tasks are taken by technology. By integrating technology into daily activities, daily goals' can be achieved easily it makes learning environment more productive. AI tools can easily check the assignments, homework's, grade the tests, organize research paper, maintain reports or notes, and manage the administrative tasks.

Illustrations-few examples

- ✓ Microsoft math-Optical Character Recognition (OCR) recognizes mathematical equation, images and provides solutions. It provides step by step solution, explanations and interactive graphs to facilitate student learning.
- ✓ Natural Language Processing (NLP)- it converse with students via chatbots. It provides subject related questions ad provide feedback on the responses received
- ✓ Education insights offered by Microsoft Teams uses data analytics to inform students engagement, learning progress and their well-being.
- ✓ Audio transcribers of MS teams help student with hearing impairment to understand content.
- ✓ Tara is 2-way interactive, personalized teacher assistant used in Google home ,Amazo's Echo-dot and smartphones.
- ✓ Nuance-speech recognition software has transcription speed of 160 words per minute and is useful for students with limited writing capabilities.
- ✓ Turnitin-plagiarism detection services

Risks -there are certain pitfalls in the learning environment using artificial intelligence tools, which educational institutes must not ignore. They are as follows

- Reliance on such tools by learners rather than genuine learning.

- Certain tool like chatbot maybe used to cheat and copy for writing assignments endangering the spirit of creative and innovative skills
- There is cultural diversity as all tools are not inclusive.
- Lack of data privacy and safety concerns

Findings

It has been found that teachers in higher education institutions are using AI not only to the benefit of their own, even it promotes quicker and better teaching to learners. AI has created communication gap between teacher-teachers and teachers-students as well. It is essential to maintain digital balance.

Conclusion and suggestions

Any change in education affects future generation and its society at large. Thus, use of Ai in education should be done carefully. AI is revolutionizing India's economy. It is facing challenges of digital infrastructure, skill gap, data privacy. IT is accelerating towards inclusive and equitable education and promotes lifelong learning opportunities for all. Role of AI in education system of India is automation of academic and administrative tasks. India has the potentiality to integrate technology into education and educate better the learners for better future India.

References

- Chaudhary, s.(2017) "Artificial intelligence in education",IJSSIR,6(4), April 2017, p 16-28.
- Shivani,tmar,Pradeep Verma (2020)-"Impact of AI technologies in teaching. Learning and research in higher education in india" ISBN 978 1799847649.
- MalhotraDheeraj(2020)- "AI basics for school students", ISBN 978 1647 608095
- Babu,Dr GaneshN, Dr panchatham,N (2020): "Revolutionizing Indian Education system", ISBN 978 81 946245 0 9
- Indian journal of technical education, vol45, No3, July-September 2022
- <https://itforchange.net>
- <https://www.indiatoday.in>
- <https://frontonline.thehindu.com>
- <https://indiaai.gov.in>
- <https://www.clearis.com>
- <https://builtin.com>
- <https://www.trasition.com>