

## ROLE OF ARTIFICIAL INTELLIGENCE IN DIGITAL TRANSFORMATION OF EDUCATION

**Prof.(Dr.) Prarthita Biswas<sup>1</sup>, MAM Sameem<sup>2</sup>, Dr. Liton Mallick<sup>3</sup>**

Corresponding Author: 1Professor, Department of Education, Swami Vivekananda University, Barrackpore, Kolkata, India; email ID: [prarthitab@svu.ac.in](mailto:prarthitab@svu.ac.in) [ Scopus Author ID:57866820900;

ORCID: <https://orcid.org/0000-0003-1384-6382>]

<sup>2</sup> Lecturer in English, Department of English Language Teaching, Faculty of Arts and Culture, South Eastern University of Sri Lanka, Oluvil, Sri Lanka; [Scopus Author ID: 55360204600; ORCID: <https://orcid.org/0000-0002-5164-5277>]

<sup>3</sup> Assistant Professor, Dept. Of Education, Swami Vivekananda University, Barrackpore, Kolkata, India

### ABSTRACT:

The issue of Asia's education system undergoing digital transformation is discussed. Challenges in developing a new, high-quality educational system using AI technologies are highlighted. The issue of education's digital transition is outlined, as are some of the characteristics of implementing artificial intelligence technology in the present day. Adaptive intellectual learning systems, a subset of electronic adaptive learning, are examined. Briefly outlined are some fundamental developments in today's electronic education that will allow for implementing adaptive electronic learning online. It is demonstrated that the learner's professional values and attitudes are shaped most by interacting with an adaptive digital environment. The intricacies of how artificial intelligence can promote diversity and equity in the classroom are discussed. The future of AI in the Indian system in this context is discussed in light of the proposed National Strategy of Artificial Intelligence Development until 2030.

Keywords: Artificial Intelligence, Education, Digital Transformation, Adaptive learning, IoT

### Introduction

The current educational system needs to be evaluated and updated because of worldwide changes, including the growth of the digital economy and society. In today's knowledge-based culture and economy, education's primary goal is to provide students with the tools they need to succeed personally and professionally.

This objective is a subset of the broader objective. The federal strategic papers state that the Indian government intends to prioritize expanding the digital economy and improving India's digital educational infrastructure.

This pledge was made to keep India's economy competitive internationally. This is because the administration understands the importance of these two initiatives to the country's long-term prosperity. The educational system is undergoing a digital revolution to meet the demands of the digital economy and take advantage of the possibilities presented by digital technology. These reforms aim to make the educational system more effective in meeting the demands of the digital economy.

From a practical standpoint, putting the educational process into action may necessitate the use of digital technologies, such as those in telecommunications, that permit the development of new generations of communication networks, artificial intelligence, and the analysis of large amounts of data (Big Data), virtual and augmented reality, cloud computing, and the Internet of Things (IoT). Virtual and augmented reality, for instance, can mimic real-world settings, while AI can sift through mountains of data. New generations of communication networks are now possible thanks to recent developments in telecom technology. These networks are far superior to anything that came before them.

Blockchain technology is one form of digital technology distinct from the norm. Developing individualized learning paths and providing a practice-oriented approach are only two examples of how new needs for the process and content of education inspire the creation of cutting-edge teaching methods. This is especially true because it allows for individualized learning paths and provides a focus on hands-on experience. This encourages the growth of numerous novel instructional approaches in educational settings. This is especially true when one considers that it enables the construction of personalized learning pathways and offers various digital educational options (e.g., adaptive systems, blended learning, case studies, mobile learning, gamification, project-based learning, and so on). This allows for the development of individualized learning pathways and the provision of various forms of digital instruction. This demonstrates the viability of constructing individualized learning pathways and provides access to numerous forms of digital instruction. There are many more cases like these, but only a few more. Currently, the market for educational services is experiencing tremendous upheaval, and each factor directly contributes to this change. It is crucial to develop reliable indicators that can back up the reasoning behind cognitive processes and the actual effect on learning outcomes if modern educational technologies are to achieve their full potential. This is a crucial step to be made if 21st-century instructional technology is to be used successfully. For new types of educational technology to attain their full potential and benefits, it is crucial to develop such metrics.

### **Conceptualization of the age of AI**

The field of artificial intelligence (AI) focuses on understanding the processes and characteristics of intelligent systems that can perform creative tasks traditionally associated with humans and produce outputs that are at least comparable to those achieved by human intellectual exertion. The term "the field of study of artificial intelligence" refers to the study of AI. This branch of computer science is formally known as the study of intelligent systems. (AI). The current trajectory of scientific inquiry can be summed up in the term "artificial intelligence" (AI). I cannot stress this enough; it is crucial.

The idea of AI is grounded in numerous subfields of computer science. They include but are not limited to neural networks, machine learning, deep learning, cognitive computing, computer vision, and many others. Nowadays, deep learning programmers can do everything from analyzing credit risks to forecasting the weather to calculating the value of a home based on various parameters to identify a person's personality type based on the words they use in an email. Because of developments in deep learning algorithms, a person's social nature can also be determined from their written words. This choice has only recently been accessible. These capabilities were formerly reserved for humans, but that is beginning to change. (Item area,

area, infrastructure elements, presence of natural objects, etc.). The quality of the outcomes achieved by applying deep learning methods is unparalleled. Several large corporations with operations worldwide invest much in gaining access to the latest scientific research with practical applications to their businesses. British artificial intelligence (AI) startup Deep Mind, established in 2014, spent over \$500 million researching and developing a program called Alpha Go. More than half a billion dollars were invested in the British firm Improbable in 2017 to allow them to complete their work on a large-scale reality simulator using the Spatial OS platform. This project was initially supposed to take place in the UK. Softbank, a Japanese media and technology conglomerate, is just one of several investors who have made public their plans to build what is almost certainly a manageable virtual world.

This is, and will likely remain for some time to come, one of the most significant investments ever made in a business. With the help of Spatial OS, researchers hope to create city-scale simulations that can replicate the behavior of tens of millions of people. The development of unique and trustworthy virtual worlds is high on the company's priority list, and it plans to use this information to influence people's choices in the real world. The group has this as one of its primary missions.

It is essential to point out that even Silicon Valley has been duped by Masayoshi Son's Softbank Corporation when discussing financial investments in artificial intelligence.

This should be stressed because it is of the utmost significance. (AI). Masayoshi Son currently holds the position of chief executive officer for the company. Venture capitalists with experience in the local market often rate the businesses they have invested in based on the success they have seen from those investments. This is typical behavior for them. The S. Masayoshi fund has modified its strategy and is now spending gigantic sums (up to \$30 billion at a time) on the most successful and most prominent companies in the designated field.

The many well-known IT businesses that have received funding from Sequoia Capital are Apple, Google, PayPal, YouTube, Instagram, and WhatsApp. The California-based Sequoia Capital also has regional and international branches. In 2018, Sequoia Capital announced plans to establish an investment vehicle with a potential investment capital of up to \$12 billion dollars. To put that in perspective, five years ago, when we established the matching fund, it cost us \$81.7 billion. Silicon Valley-based erstwhile competitor to Sequoia, Kleiner Perkins, has now announced that it has completed its original mission. Kleiner Perkins has invested in more than 850 unique businesses. Kleiner Perkins has backed various tech startups, including industry heavyweights like Amazon, Google, Netscape, Snapchat, and Twitter. The current trend in AI research is to investigate questions that have yet to be explored. In order to train neural networks, it is necessary to develop sophisticated mathematical procedures, store and manipulate massive amounts of data, and apply these operations.

### **Educational technology and machine learning:**

From the dawn of civilization, people have been fascinated by the prospect of creating tools and machines that mimic our actions. This interest is still going strong. Academics and professionals alike have grown fascinated with AI and ideas like machine learning in recent years. (ML). The phrase "artificial intelligence" describes the capacity of machines like computers to act intelligently and rationally regarding reasoning, comprehension, and conclusion drawing. (Wang, 2019). The ability of robots to mimic human thought processes is

what is meant by the phrase "artificial intelligence" (AI). Sub disciplines of computer science that can be found under artificial intelligence include machine learning, deep learning, and natural language processing, to name a few.

It is crucial to reassess educational change processes in light of the pervasive digitalization of all parts of life, the widespread use of the internet, and the emergence of uniform standards, competencies, and certifications in education. These features are associated with another shift in the technological mode and models of economic growth due to the fourth industrial revolution. As part of the digital revolution in education, the old technology of material transmission is giving way to developing the required professional capabilities of each student. Depending on the circumstances, this change could be understood in various ways. This challenge can be navigated and conquered in two ways: by enhancing the learning process and by actively integrating students in activities connected to the project. Considering each student's specific interests and skills is crucial during this process. First and foremost, the digital transformation of the educational process includes –

- moving towards an individualized educational path,
- changing the technique of carrying out the educational activity, and
- the modification of the principles and rules of the educational institution.

### **Conclusion**

Professionally valuable ideas, skills, and perspectives are increasingly being conceived, transmitted, and realized in the context of the shift to a new digital world. Along with this shift is the increasing significance of communities in the physical and digital worlds. This kind of reform's primary objective is to personalize each student's learning experience. As a result, some students should be able to improve their academic performance, while other children should learn more and faster than their peers. One strategy for making value systems more systematic and implementing them is to keep a professional digital portfolio updated throughout one's career. Together, these two developments can reshape social and political ties and enable better allocation of educational system resources per predetermined criteria for various individuals and groups.

### **References:**

- Agostino, D., Arnaboldi, M., & Lema, M. (2021). COVID-19 as an accelerator of digital transformation in public service delivery. *Public Money and Management*, 41(1), 69–72.
- Benis, A., Tamburis, O., Chronaki, C., & Moen, A. (2021). One digital health: a unified framework for future health ecosystems. *Journal of Medical Internet Research Internet*. <https://doi.org/10.2196/22189>
- Criado, J., & Gil-Garcia, J. (2019). Creating public value through smart technologies and strategies: From digital services to artificial intelligence and beyond. *International Journal of Public Sector Management*, 32(5), 438.
- Dignum, V. (2018). Ethics in artificial intelligence. *Ethics and Information Technology*, 20(1), 1–3.

- Mu, R., & Wang, H. (2022). A systematic literature review of open innovation in the public sector: Comparing barriers and governance strategies of digital and non-digital open innovation. *Public Management Review.*, 24(4), 489–511.
- Neumann, O., Guirguis, K., & Steiner, R. (2022). Exploring artificial intelligence adoption in public organizations: A comparative case study. *Public Management Review.* <https://doi.org/10.1080/14719037.2022.2048685>
- Osborne, S., Powell, M., Cui, T., & Strokosch, K. (2022). Value creation in the public service ecosystem: An integrative framework. *Public Administration Review.* <https://doi.org/10.1111/puar.13474>
- Torreson, J. (2018). A review of future and ethical perspectives of robotics and AI. *Frontiers in Robotics and AI.* <https://doi.org/10.3389/frobt.2017.00075>
- Whittlestone, J., Nyrup, R., Alexandrova, A., Dihal, K., & Cave, S. (2019). Ethical and societal implications of algorithms, data, and artificial intelligence: A roadmap for research. Nuffield Foundation.
- Willems, J., Schmid, M., Vanderelst, D., Vogel, D., & Ebinger, F. (2022). AI-driven public services and the privacy paradox: Do citizens really care about their privacy? *Public Management Review.* <https://doi.org/10.1080/14719037.2022.2063934>