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# ARTIFICIAL INTELLIGENCE (AI) : A NEW WAVE IN EDUCATION SYSTEM


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**ABSTRACT:**

*This paper examines the role of Artificial Intelligence in education sector and how they will change the tradition approach of learning.*

**KEYWORDS:** *Artificial Intelligence , World Economy , technology.*

## INTRODUCTION

"Education is the most powerful weapon which you can use to change the world." - Nelson Mandela

World Economy changes as time changes, so to cater the need of world economy, the Education Environment is changing in a better and developed way. Now the traditional approach of learning from books is changing. Students are more seeking towards other means of learning, they are adopting ICT techniques. To understand the concept or enhance skills, people watch YouTube tutorials, Web Surfing, doing online courses and many more. Even in many schools in Delhi, they adopted SMART classes to teach to their students. These all techniques of learning is a part of "Artificial Intelligence". Whereas the term Artificial Intelligence is applied when a machine mimics "cognitive" function that humans associate with other human minds, such as "learning" and 'problem solving" (Russell & Norvig 2009). Artificial intelligence creates technology that allows computer and machine to function in an intelligent manner.

## IMPORTANCE OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence scope is not confined only to one particular sector. Most of the developed countries spent huge amount of money in exploring the benefits of Artificial Intelligence. By looking the trends of United States and China who adopted Artificial intelligence much earlier and succeeded in achieving the high productivity, India has also adopted the same and wants to reap the benefits of artificial intelligence in every sector. So we cannot ignore the fact that Artificial Intelligence has a potential to improve our education system and will meet the expectation of India's huge population but the question arises how to reap such benefits.

As we know, Each student has different caliber and different way of learning, some prefer facts, data, experiments whereas other prefers theory and principles. Some prefer reading writing material whereas other prefers problem solving. Learning Management system so far have been developed with the "Philosophy of one size fits for all", as a result of which some students tend to get disoriented and the information overload results in reduced efficiency. Artificial intelligence in education system will minimize such problem. In the near future, Artificial Intelligence is going to play an important role in providing quality education with the help of the fast-evolving technology. Wide scale of knowledge can

be learnt with vast opportunities from Artificial Intelligence. As world is getting competitive, working professionals as well as students always suffers from short of time to reach towards desired goal. So, 'AI learning' will able to alter this gap.

Applications of AI have addressed several challenges of learning, including natural language processing, concept of reasoning, planning process and cognitive modeling. Some well defined systems are available and they are known as Intelligent Tutor Systems. Today's computer software is able to track the "mental steps" of the learner during problem-solving tasks to diagnose different type of misconceptions and estimate the learner's understanding of the domain. Intelligent Tutor Systems also useful for many other supports. It can provide guidance time to time, feedback and explanations to the learner and it can promote productive learning behaviors, like self-regulation, self-explanation, and self-monitoring. AI has many expert systems for perform special tasks like, PUFF is a medical system for diagnosis of respiratory conditions, PROSPECTOR is used by geologists to identify sites for drilling or mining, DENDRAL is used to identify the structure of chemical compounds and LITHIAN that gives advice to archaeologists examining stone tools. Like all of them education system also have many intelligent tutoring systems.

## LITERATURE REVIEW

AI might just be the single largest technology revolution of our live times, with the potential to disrupt almost all aspects of human existence. Andrew Ng, Co-founder of Coursera and formerly head of Baidu AI Group / Google Brain, compares the transformational impact of AI to that of electricity 100 years back. With many industries aggressively investing in cognitive and AI solutions, global investments are forecast to achieve a compound annual growth rate (CAGR) of 50.1% to reach USD57.6 billion in 2021. NASCCOM predicts that by 2022, a startling 46% of the Indian workforce will be engaged in entirely new jobs that do not exist today or jobs that have radically changed skill sets. Some other sources estimate that demand for AI and machine learning specialists in India is expected to see a 60% rise by 2018. In the data domain as well, an independent study estimated that India will face a demand-supply gap of 2,00,000 data analytics professionals by 2020.

Discussion paper, National Strategy For Artificial Intelligence #AIFORALL, JUNE 2018; stated that education sector must be re-aligned in order to effectively harness the potential of Artificial Intelligence in a sustainable manner. Now schools must impart skill based education in subject relevant to AI. In higher Education institutions there is need for increased collaboration between industry and academia to meet and promote ideas and expertise. The Innovative learning initiative like "MOOCS" (Massive Open Online Courses), Coursera and many other online platform are such sources where the students, professional and teachers chooses courses as per their preferences and do as per their convenience. All these platform design their courses as per the current and future industry's requirement. These all kind of initiatives is part of spreading the cloud of Artificial intelligence in India. Now a days, Many companies have launched their technology gadgets, for example "Siri" in Apple phones and "Google Assist" Gadgets, These software or application are work intelligently and responded like a human. These gadgets show a glimpse of potential of Artificial Intelligence.

Artificial Intelligence methods have long been used in special education as well. Link-up between Artificial education approaches and students with different abilities and needs has opened new eras and trends which require use of specific tools and methods in order to improve children's life in both school and home.

Melis et al., (2001) introduced ActiveMath, a web-based intelligent tutoring system for mathematics. ActiveMath is an Intelligence Tutoring System (ITS), which allows the students to learn in their own environment whenever it is convenient for them. In ActiveMath the user starts his/her own student model by self-assessment of his/her mastering level of concepts and later chooses learning goals and scenario, for instance, the preparation for an exam. This application has reported many positive outcomes in the following years by a large number of studies, all of them supporting the effect of this ITS during the learning process.

Georgopoulos et al., 2003 presented a fuzzy cognitive map approach for differential diagnosis of specific language impairment (SLI). Fuzzy cognitive maps are a soft computing methodology that uses a symbolic representation for the description and modeling of complex systems. The aim of this tool is to provide the specialists with a differential diagnosis of SLI from dyslexia and autism, since in many cases SLI is difficult to be discerned due to its similar symptoms to other disorders. The system has been tested on four clinical cases with promising results.

Kohli et al., (2010) introduced a systematic approach for identification of dyslexia at an early stage by using artificial neural networks (ANN). This approach is amongst the first attempts which have been made for addressing the dyslexia identification problems with the use of ANN. The initial results obtained using test data were fairly accurate and suggest the application of this platform to real data as well.

## MULTI-DIMENSIONAL ROLE OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence benefitted in various platform in education sector like tutoring, grading, feedback on course quality, personalization in education. The ultimate goal of 'Artificial Intelligence' is also said to be a virtual facilitator for the learning environments. It is to create virtual human-like characters who can think, act, react, and interact in a natural way, responding to and using both verbal and nonverbal communication.

The big change today is that we are in an unprecedented period of technology innovation across so many different fields that gives us belief that the "AI Spring" has not only arrived but is here to stay. Key developments responsible for this optimism are:

a) Unlimited access to computing power: The worldwide public cloud services market is projected to grow 21.4% in 2018 to total USD186.4 billion, up from USD153.5 billion in 2017, according to Gartner, Inc. The access is amplified by rapid increase in computational power.
b) Huge fall in cost of storing data: We are in an age where the hard drive cost per gigabyte of data has been falling exponentially, to the extent that we are approaching near zero marginal cost for storing data (down from USD500,000 a gigabyte in 1980 to 2 cents a gigabyte in 2017).
c) Explosion in data that is digitized: As per IDC forecasts, by 2025, the global data sphere will grow to 163 zettabytes (that is a trillion gigabytes)2 , or ten times the 16.1ZB of data generated in 2016. As Barry Smyth, Professor of Computer science at University College Dublin, says: "Data is to AI what food is to humans." So, in a more digital world, the exponential growth of data is constantly feeding AI improvements.

If I talk about challenges in Higher Education, major factors come out to be Demand-Supply Gap, Quality education system, Research and Development, Faculty shortage, Low funding and poor management of Govt. Aided institutes etc.

Recent article "World fast-growing economy isn't creating jobs like before" bloomberg, Oct 10, 2018. This article stated that link between Growth and job creation getting weaker. Privately run Azim Premji University shows that a growth rate of 7% is now leading to less than 1 % improvement in employment. The outcome is an unemployment rate that hits 5% in 2015, the highest in at least 20 years. A poor correlation between growth and jobs was a mismatch between skills and "good jobs", according to researchers led by Amit Basole. The share of so-called good jobs that broadly includes formal employment with regular pay accounted for only 17% of country's 467 million force. Another report "state of working India 2018" pointed out that issue is not only one of job creation but of the creation of decent and desirable jobs.

An article "Empowering Classroom observation with an E-book Reading Behavior Monitoring System Using Sensitive Technologies" stated reading is a complex cognitive process, and one that is often difficult to observe. However, e-books present one way to overcome this problem, as they can be used to better understand student's reading strength and weaknesses, thus making it possible to more effective reading guidance. It proposed E-book behavior monitoring system based on sensing technology. This uses webcam and touch screen with the artificial bee colony logarithm to record data

of the students' reading fixation and reading rates, which can then be used as a reference by teachers to provide individual reading guidance.

## CONCLUSION:

I am concluding this research paper not by expressing the positive impact of Artificial Intelligence but by unanswered questions like " Can Artificial Intelligence reduce Gender Discrimination in higher education", "Can Artificial Intelligence improves accessibility and quality of higher education in India". Since every new approach attached with criticism also and major criticism for adopting Artificial Intelligence technique in production is that it might enhances the unemployment problem. So as per my observation, we can reap the benefits of Artificial Intelligence by using it in an appropriate manner.

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