



ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION

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Abstract

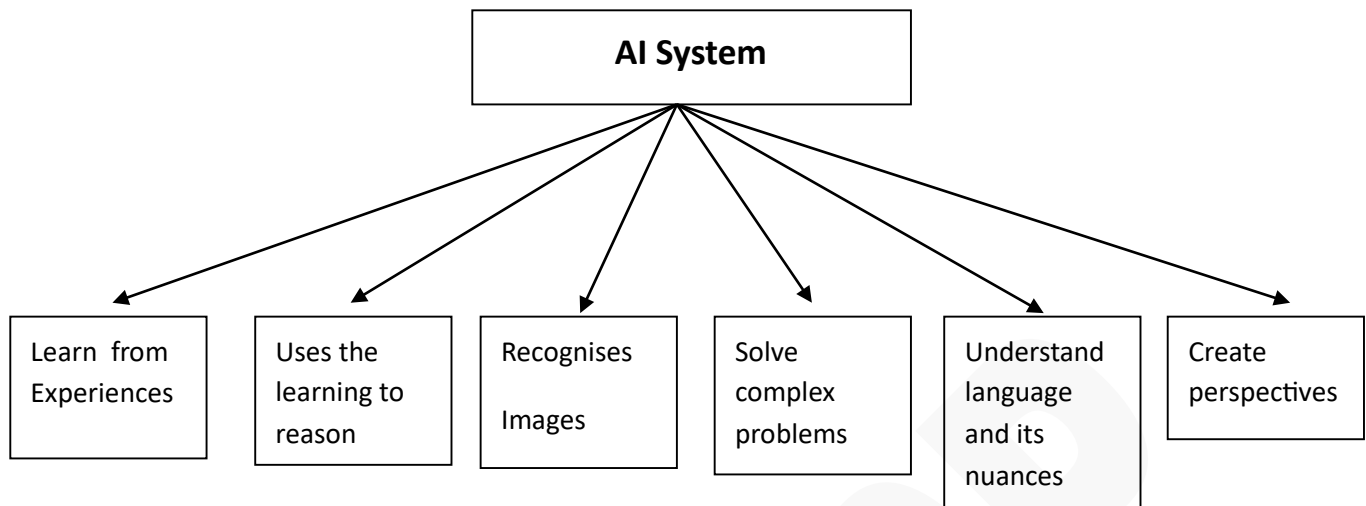
*In this competitive scenario where everything is so digitalized and revolutionized, the importance of technology has gained a new height whether it's science field, an educational field or in everyday's life of common man. Technology is an essential part of human progress, whether it sticks to smart phones or smart classes or e-learning in educational field, technology has allowed us to excel in our environment. With technology becoming more spreadful and classrooms being digitalized, the growing importance of the concept of Artificial Intelligence has been duly felt. So, this very paper will focus on the concept, meaning, evolution, research, advantages and disadvantages of Artificial Intelligence in schools. **Keywords:** Artificial intelligence, technology, schools, Education.*

Meaning Of Artificial Intelligence (AI)

- Artificial intelligence is when computers get smart enough to create knowledge for future generation computer systems to learn and build on the accrued knowledge, (Mccosker, A, 2018).
- AI, the ability of a digital computer or computercontrolled robot to perform tasks, commonly associated with intelligent beings. These tasks/ functions include the ability to learn, reason, analyze, take decisions, recognize speech and visual perception among others, (Cohn, D, 2019).
In simple terms, AI it is the ability of software to develop and apply intelligence like humans.
- AI is the science and engineering of making intelligent machines, especially intelligent computer programs, (Hammond, A, 2020)
- AI refers to the ability of a computer or a computer enabled robotic system to process information and produce outcomes in a manner similar to the thought process of humans in learning, decision making and solving problems.

Artificial Intelligence System

The objective behind AI system is to develop system that is capable of tackling complex problems in a way similar to human logic and reasoning.



Source: Brown, S, (2019)

Phases of Artificial Intelligence

According to Elson, D. K, (2012), there are three faces of artificial intelligence. These are:

- 1950-1970- AI as a concept, no real application.
- 1980-2000- Military and Academia begin to show interest in AI.
- 2000 onwards- large tech companies invest in commercial applications of AI/Machine learning (ML). AI is currently on the crest of its third wave and given the immense interest in this field, it can be expected to continue at this state for a long time.

Types of Artificial Intelligence

- Algorithm- Here the computer executes a function exactly in a way given to it and you want it to do. Algorithms are used for data processing, calculations and automated reasoning.
- Machine learning- In it computers are allowed to learn without completely programmed. The computer itself learns to analyze, interpret the data and make interferences..
- Narrow AI- It is also known as weak AI. This system is designed for one particular task only and follow a set of rules without deviating from it. Eg. Apple's Siri.
- General AI- It is also known as a strong AI. This system is programmed to perform human cognitive abilities which help it to apply intelligence to find a solution to an unfamiliar task. By this, a computer repeatedly improves itself and can become an ultra- intelligent, superhuman machine that can surpass human intelligence.
- Bot- This is a software designed to automate the tasks that are usually done by our own, like adding an appointment to the calendar or making a reservation for dinner.

Artificial Intelligence in Everyday Life

AI is everywhere. Many of us do not noticed its presence, but AI has become a part of our daily life. Here are a few examples-

- Smart phones
- Google Search
- Video Games
- YouTube □ E-Commerce sites □ Facebook etc.

Area of Focus for Firms Looking to Explore AI Opportunities

Area	Firms (in %)
Data Science	9.6
Business Intelligence	7.8



Health plans and patient case	6.3
Computer vision	5.6
Speech recognition	5.3
Aerospace and defence	5.3
Natural language processing	5.1 Entertainment
	4.8

According to Mikolov, T, (2014) the following are advantages of artificial intelligence in education:

Reasons why artificial intelligence works in education (Advantages)

From the view point of Learner

- Personalized learning
- Intelligent moderation of education in the classrooms.
- It becomes the real-time problem solving assessment system.
- AI can learn student's habits and propose the most efficient study schedule for them as it's a machine which won't get bored or tired.
- AI by using gamification will motivate the learners which help in improving retention while making the learning experience fun.
- AI helps in empowering the differently abled ones.
- AI driven programs will monitor the progress of students, educators and provide the real-time feedback to them.
- AI can change where and how students learn, and how they acquire basic skills.
- AI is changing the way we find and interact with information.
- Students feel less intimidated to learn by trial and error.
- AI also provides the facility and ability to study at anytime.
- Customizing the learning content according to individual needs.
- Students could get additional support from AI tutors.
- AI can change where students learn, who teaches them and how they acquire basic skills.

From the view point of Teachers

- Help in formation of Intelligent tutoring systems.
- Adaptive Group formation done which balance up the one learner's weaknesses with another learner's strengths.
- AI helps in recording and analyzing student performance data .
- Help teachers in a finding the gaps in their teaching method.
- Automate the entire grading process. □ AI could change the role of teachers.
- AI can be assistance to teachers.

Other Advantages

- Improvement course quality.
- AI will help in a generation of textbooks filled with the core content
- Data powered by AI can change how schools find, teach and support students.
- AI systems can provide for the much neglected psychomotor domain(skills), training by providing real life scenarios and stimulations.
- The largely outdated curricular in higher education can be revamped with AI.
- AI systems for higher education would bring together- teachers, psychologists, social psychologists, educationists, human computer interaction experts and software professionals among others.

Reasons to be Skeptical in Education (DISADVANTAGES)

Having rely on AI driven programs only will create several disadvantages of problems that are as follows –



- Take the case when a student cannot submit an assignment because the server is down, the computer will automatically give that student a zero marks.
- Students are not experts with Computer technology so at times they can panic and make a huge mistake.
- Humans are meant to interact with other people, when that skill withers, so do relationships. When relationships decline, so does human happiness.
- When combining the installation, repair and maintenance cost, it's clear that AI is expensive which only well funded schools can afford.
- Regular use of AI can make us risk technology addiction.
- Relying too much on these machines in AI to grade or tutor may lead to educational oversights that hurt learners more than help.
- More demand of AI driven programs will create less of demand for educators, leading to unemployment.
- During the repairing work, information existed in machines can be lost.

Challenges is Adopting Artificial Intelligence

According to Manurung, H, (2005) the following are challenges for adopting artificial intelligence.

- AI driven programs can teach students fundamentals, but the so far aren't ideal for helping students learn higher order thinking skills and creativity, something that the real world teachers are still required to facilitate.
- Our archaic regulatory bodies need to upgrade themselves to match advances in AI.
- Currently in AI, the machine understanding the everybody language and other cutting edge, technology like developing a human mind is still in the infancy phase.

In Nigeria especially, following challenges are there which we have to tackle down along with above ones- □

Basic infrastructural facilities and conducive environment is not there for its implementation.

- Teachers are not well equipped with the technology and the way to use them to get fruitful results.
- Awareness regarding the concepts and the benefits to be gained by AI are not felt by the respective authorities and sectors.

Is Teachers replaced by Computers by the Advent of Artificial Intelligence

There is two sides to this concept which is the discussed below- **AI**

machines will replace the teachers

- As everyone can have the best teacher which should be completely personalized, the software that AI provide will give you that throughout your educational journey.
- It can move at the speed of the learner.
- The inspiration in terms of intellectual excitement will come from the lightning up of the brain which the machines will be superbly well geared for.
- The machines will know what it is that most excites you and gives you a natural level of challenge that is not too hard or easy, but just a right for you.
- Computer and other AI driven programs will help some students to progress in their studies quicker compared to studies in original classrooms.

Teachers not being replaced by computers

Teaching is not an info dump as much as we might think it is. The reasons behind the role and importance of teachers are as follows-

- Teachers perform a variety of services that computers don't. They understand their students as emotional beings. So, teachers wear multiple hats, not just the teacher/ instructional hat.
- As non verbal communication is the key to education, teachers can read that whereas computer can't.
- Teachers provide nuanced feedback.
- Teachers model human interactions that teach kids to be communicators.



- Teachers can help students become relational beings who live in community; computers can't help with that kind of feedback or encouragement.
- A Computer or AI programs can't help a student develop character or problem solving skills in the same way a teacher can.
- Teachers organize and design learning experiences particularly social once with the feedback and help along the way which computers can't.
- When a student cannot get an assignment on time due to crisis like death of any family member, teacher will understand it, not the computers.
- AI will suffer from the handicap of being a one-way communication medium, which is not there in teacher's presence.
- Teachers exclude energy in the class where as AI programs fail in that.
- AI programs will only design the instructional material but it's only teachers who are responsible for teaching the students how to learn.
- As class is the microcosm of society which provide social environment in which students collaborate, learn to respect diverse opinions and compete with one another. In this, the teacher coaches, grow into good adult citizens.
- In educational setting, there is an affective domain that learners tend to respond more warmly and engage more with a human teacher which helps us with installing and maintaining motivation.
- Students realize that they are not dealing with the machines but with a human being who deserves attention and respect. In that way social skills developed among them.
- Teachers are required in the learning process because they acknowledge some student deficiencies and help them to solve their problems by repeating the same explanation, giving extra exercises or even suggesting a private tutor. Hence, Students can have a better chance of avoiding a failure in a subject. Thus, teacher role is still important in the learning process and it will continue in the future because no machine can replace the human interaction and its consequences.

Artificial Intelligence and Indian Government's Budget 2018

There are several highlighted points of Budget 2018 in context to AI program-

- As Technology formed as main focus in Union Budget 2018, government giving more precedence to fifth generation technologies like Artificial Intelligence (AI), Machine Learning(ML), Internet of things(IOT), 3D printing and block chain.
- In context to above point, Government has doubled its allocation to the "Digital India" program to rupees 3073 crores in 2018-19.
- Government will be investing extensively in research, training and skill development in robotics, AI, Big Data Intelligence, digital manufacturing etc.
- Government run think tank in NITI Aayog, will be launching a national programme with the aim of facilitating research in artificial intelligence related areas. This programme will be geared towards developing new application of the AI technology.
- Strengthening of programmes like ABHED which is already assisting the police forces with the AI capabilities.

These are some steps taken by Indian government in the context.

Educational Tools

Definition: AI-enhanced educational platforms provide personalized learning experiences for English language learners.

Applications: Educational apps use AI to assess individual strength and weaknesses, adapting lessons to cater to each learner's needs. Search Engines like Google use AI to improve the accuracy and context-sensitivity of search results.



Conclusion

It has been concluded that in this world of digitalization, there is a place for computers and the internet in education which have enhanced the quantity and quality of information, knowledge and education gained by AI, but only as a supplement tools for teaching - learning process, not as a replacement for human beings. So, in order to fully gain from AI, a balance must be struck between the machines that optimize tasks and the people that use the machines. The aim of artificial intelligence in the classroom shouldn't be to replace educators. It should make their jobs easier. However, its application in education is in the infancy and Big Data, Analytics, Socio- Cognitive perspectives, personalization, theories of learning will be the areas work on, which will usher the AI era in education.

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