Impact of Artificial Intelligence in Different Stages of Education

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Abstract:

In today's era, we are living in a cybernetics society. Nowadays Artificial intelligence is developing and its application is spreading at an alarming rate. AI has changed the way people learn as well as lifestyle. Artificial intelligence has been adopted by a huge number of countries to upgrade their conventional education system and give it a new touch-up. Considering the increasing practice of Artificial intelligence, this paper is going to discuss the principles and characteristics of Artificial intelligence along with its impacts on the different states of education. This paper is based on secondary data. In future AI will continue to play an important role in providing targeted interventions and support to meet the diverse needs of students, promoting inclusion in education. And also AI will help make teaching and learning much more active and much more engaging.

Key words: Artificial intelligence (AI), AI technologies, Teachers, students, Learning, AI effect.

Introduction:

We know that computers cannot learn. Computers can store data but do not have intelligence of their own to use it. Computers cannot handle any situation by themselves. Human brain is much more advanced than the computer. Computers are faster but they are not as smart as brains. We cannot imagine that the machines that beat Kasparov at chess, or the robots that work in factories, are intelligent. Or devices that recognize our voice or face. In 1955 John McCarthy 1st used the word Artificial intelligence. Artificial intelligence is the field to develop machines which should learn and act like human. It is an art and science to developing machines intelligent like human. It refers that the machine will exhibit human intelligence.The development of the internet, multimedia, digital devices and well-structured learning management systems are the backbone of Artificial intelligence and its wide application. Artificial intelligence is a rich technology that is being used in almost every field and is changing the world. Education is one of them.

Objective:

● To determine the principles and characteristics of Artificial intelligence.
● To highlight the impact of Artificial intelligence in primary education.
● To highlight the impact of Artificial intelligence in secondary education.
● To highlight the impact of Artificial intelligence in higher education.

Methodology:

The present paper is qualitative and theoretical in nature. This research work is based on secondary data collected from various journal official documentary evidence and also various sources of information like books, websites, newspapers.

OBJECTIVE WISE ANALYSIS:

Objective-1; Principles and characteristics of Artificial intelligence

Principles of Artificial intelligence:

- **Machine Learning**: AI systems often use machine learning techniques to improve their performance by learning from data.
- **Data Input:** High-quality, diverse, and representative data is crucial for training AI models.
- **Ethical Considerations:** Ethical AI involves responsible development and deployment to avoid bias, discrimination, and unintended consequences.
- **Interpretability**: Understanding and explaining AI decisions is important for transparency and trust.
- **Continual Learning**: AI systems should adapt and learn over time to stay relevant and accurate.
- **Human-AI Collaboration**: AI is often most effective when it augments human capabilities rather than replacing them.
- **Safety and Security**: Ensuring AI systems are secure and do not pose risks is a key principle.

Characteristics of Artificial intelligence:

- **Learning**: AI systems can learn from data and improve their performance over time through techniques like machine learning and deep learning.
- **Reasoning**: AI can use logical and probabilistic reasoning to make decisions and solve complex problems.
- **Problem-solving**: AI is designed to tackle a wide range of problems, from image recognition to natural language understanding.
- **Adaptability**: AI systems can adapt to changing circumstances and new data, making them versatile in various applications.
- **Perception**: AI can process and interpret data from sensors, cameras, and other sources to understand the environment.
- **Natural language processing:** AI can understand and generate human language, enabling communication and interaction with users.
- **Efficiency**: AI can perform tasks faster and more accurately than humans in many cases, leading to increased productivity.

Objective-2; Artificial intelligence in primary education (Elementary School)

Content Adaptation: Al in primary education often focuses on personalized content delivery and adaptive learning. It can help identify individual student strengths and weaknesses, providing tailored exercises and content to match their abilities.

Assessment: AI can automate basic assessments, such as grading, multiple-choice quizzes or evaluating early literacy skills. It can also detect learning gaps and recommend suitable activities.

Learning Styles: AI can be used to support diverse learning styles, including visual, auditory, and kinesthetic approaches. Interactive and gamified AI applications are often beneficial for younger students.

Social and Emotional Learning (SEL): AI can assist in developing social and emotional skills, like empathy and communication, through interactive virtual characters.

Teacher support: AI can help primary teachers with classroom management, tracking student progress, and recommending resources.

Data Privacy and Safety: Special attention must be given to data privacy and online safety in primary education when implementing AI, as younger students may be more vulnerable.

Objective-3; Artificial intelligence in Secondary Education (High school)

Personalized Learning: AI in secondary education can help personalized learning by adapting content and pace to individual student needs. It can provide tailored recommendations and exercises to reinforce learning.

Assessment and Grading: AI can assist in automating grading and assessment tasks for teachers, making it more efficient to evaluate assignments, quizzes and exams.

Administrative Tasks: AI can streamline administrative tasks in secondary schools, such as managing attendance, scheduling, and student records.

Virtual Assistant and Chatbots: Artificial intelligence powered Chatbots can assist students with routine queries, helping them find information about classes, assignments, and school events.

Adaptive curriculum Design: AI can help educators adapt the curriculum to address learning gaps and challenges faced by students.

Objective-4; Artificial intelligence in higher education

Individualization: It can be challenging for one teacher to find out how to meet the requirements of each and every learner in his/ her classroom. AI systems quickly adopt to each learner's individual learning needs and can Instruction on their requirements.

Tutoring: AI system can assess a students Learning style and prior knowledge. With AI personal assistance students can avoid all the confusion they can drill and practice at their own pace.

Task automation: Teachers have lots of work involved they don't just teach. They also spend time grading tests, evaluating homework, making progress reports, managing teaching materials etc. In the end teachers spend a lot of time on non teaching tasks. AI will automate these tasks to have more time to do their primary work of teaching. In the grading system AI helps with error free checking.

Easy to Track everything: It can be possible to track each and every student through the help of AI. To observe the progress and activity of each student. Through face recognition it can be possible to easily upgrade the students' attendances.

Universal Access: Through AI tools education classrooms can become globally available for all who may be visually impaired or having hearing problems or speak different languages, which actually promote inclusive education. AI opens up new possibilities for students who need to learn a subject which is unable in their institution.

Better understanding: Content technology designs a programme which can give feedback to students as per their performance. Through the help of AI, students face expression which can help to identify the difficulties of students.

Adaptive learning: For transforming education we can use AI to teach students at an advanced level on the basis of skill that students have at present and students may become proficiency with the help of creating guided instructional experiences.

Assistive technology: AI can be applied in Assistive technology for the people with disabilities. Speech processing and human language transcription is the most traditional tool for AI. AI also helps blind students or low vision students from various assistive technologies, mechanical magnifiers, expended letter keyboards etc. With electronic voice synthesizer, news paper, books and even picture can be read or represented aloud.

Plagiarism Detection: AI has also been implemented to tackle the problem of duplication of content. AI powered plagiarism detection software programs can deeply dig out even a single plagiarized phase.

Conclusion:

In conclusion, we can anticipate numerous advancements in our future education system with the integration of Virtual Reality and Robotics with the help of Artificial Intelligence. So, Artificial intelligence in Education has the potential to be a game changer for every students as well as teachers. But we can't say that AI is a replacement of a teacher. There are various fields where emotions, complex problems such as human teachers can be taught to students. A revolution in education is possible with the combination of teachers and artificial intelligence. AI can revolutionize education by making it more personalized, accessible, efficient and effective. However, it also poses challenges related to privacy, bias and the need for skilled educators to exploit its full potential.

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