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Smart Learning Systems

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Abstract

Artificial intelligence has already been used in education through some tools that help develop student skills. With the development of educational solutions in artificial intelligence, the hope is that artificial intelligence can help fill gaps in learning and education and allow schools and teachers to do more tasks than ever before. Artificial intelligence can lead to efficiency, simplifying management tasks to allow teachers time and freedom to provide understanding and adaptability. This study aimed to identify the concept of artificial intelligence and the importance of artificial intelligence in general, especially in education.

Keywords

artificial intelligence, artificial intelligence in education, types of modern education systems. AI applications in education.

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1- Introduction

Computer-Based Training and Computer-Aided Learning are considered as the first systems that attempted to teach using computers. Computer-Based Training refers to the instructions or training where the training is imparted through computers, or the mode of delivery is computers. In other words, using computers in training and monitor the progress to provide feedback. Computer-Aided Learning (CAL) uses computer-based programs that aim to replace traditional classroom-based teaching (particularly lectures). Under CAL, the lecture is replaced with computer-based programs the student uses to teach themselves the material [1], [2], [3].

Despite the efficiency of Computer-Based Training (CBT) and Computer-Aided Learning (CAI), but it doesn't provide individual care for students as teachers do. In order for the Computer-Based Training system to offer the maximum advantage, the system should think about both the specialized field and the learner himself as well, and this what encouraged research in Intelligent Tutoring Systems [4].

These systems provide a flexible presentation of scientific subjects and a great ability to respond to the students' needs. Those systems can acquire intelligence ability using non-digital coding, meaning it is more complex than ordinary computers that depend on (one and zero only), making complex decisions. Besides, it has the ability of artificial intelligence programs to solve problems even with incomplete data. It can even deal with contradictory data [5].

1.1 AIM AND RESEARCH QUESTIONS

This report investigates AI systems in the educational field and the most important artificial intelligence applications in education. To achieve this aim, the following questions will be answered:

1. What are the systems of AI in the field of education?
2. What are the most important applications of AI in education?

2- RESULTS

Artificial Intelligence is a part of computer science. Artificial Intelligence is about making intelligent machines that can think and act like humans and perform multiple tasks requiring intelligence, such as learning, planning, speech recognition, face recognition, problem-solving, cognition, and mental and logical thinking. Over the past two decades, artificial intelligence techniques have been widely deployed in many industries, including the education sector. Many startups are applying artificial intelligence concepts to get the best learning experience. This section deals with educational learning systems and their applications [4].

2.1 Educational Systems

Since many years ago, specialists and scientists expected a new education system called "Smart Learning," which is more effective than traditional methods. Smart learning is a broad term for education in today's digital age. It reflects how advanced technologies enable learners to digest knowledge and skills more effectively, efficiently, and conveniently. The basis of this system is interaction and active participation. Computer technologies and communication technology are represented on the internet and international networks, which play an essential role in this system [6].

2.1.1 Interactional Education System

Educational systems depend on educational interaction from the learner on the one hand and learning resources, including books, tools, teachers, and educational media, which can defeat the negativity in the current educational system.

2.1.2 Self-Education System

The Self-Education System depends mainly on teaching learners by themselves and offering them different and diverse units, taking into account their progress and educational levels. This method depends on encouraging learners and pushing them forward to their goals through the continuous searches in programmed educational resources such as E-books and Multimedia and Videoconferences; moreover, this method focuses more on understanding [7].

2.1.3 Schools Digital Systems

Digital systems for schools, which means establishing overlapping data networks. We can develop large-scale neural networks that can expect weaknesses and how to treat them for all students through it. Moreover, it helps in Information management and problem-solving continuously [7].

2.2 The Most Important Applications Of Artificial Intelligence In Education

Artificial intelligence is no longer a luxury increase in the field of education, as it has become in the developed world one of the pillars of educational development, and one of the most important ways to develop study subjects. One of the most important applications of artificial intelligence in education is the following:

2.2.1 Automated Grading

AI applications can be used in education in register grades for students. A robot or a machine evaluates students' answers and analyzes their weaknesses; Accordingly, appropriate personal training plans will be drawn for each student.

2.2.2 Adaptive Learning

Adaptive Learning is one of the most useful applications in AI. It contributes to the learning process and helps students make notable progress by teaching each student individually and providing a detailed report to the teacher.

2.2.3 Proctoring

Proctoring is considered one of the newest applications, and it can provide opportunities to do exams remotely, with smart control and security systems that can prevent cheating [8].

3- Discussion

The digital and dynamic nature of artificial intelligence provides a different field that cannot be found in today's traditional school environment. There is a clear interest in expanding digital technologies in education in many countries, leading to more data-intensive education systems. With the growing interest in adaptive smart learning systems that allow interaction in the natural language or new automated systems to enhance students' performance, the importance of data-intensive technologies in education will increase in the coming years.

Artificial intelligence can be used to analyze many data points that a teacher cannot measure. For example, if we have multiple-choice math questions and what we can learn by analyzing student interaction, as teachers look at the child’s outcome, artificial intelligence systems can detect the obstacles that are facing the student.

Artificial intelligence techniques can look at individual questions to determine if students have a general concept or confusion. The idea of creating virtual guides to use in a variety of educational environments is a promising area for development.

4- Conclusion

This report aimed to investigate in which way AI can be useful in the educational field. Although the matter is not yet true, this field's ultimate goal is to create human-like personalities that can think, work, and interact naturally and respond to verbal and non-verbal communication.

The research questions raised to achieve this aim were answered accordingly in sections 2 and 3.

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