International Journal Research Publication Analysis

ARTIFICIAL INTELLIGENCE AND EDUCATION

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ABSTRACT

Artificial intelligence (AI) systems offer effective support for online learning and teaching, including personalizing learning for students, automating instructors' routine tasks, and powering adaptive assessments. However, while the opportunities for AI are promising, the impact of AI systems on the culture of, norms in, and expectations about interactions between students and instructors are still elusive. In online learning, learner–instructor interaction (inter alia, communication, support, and presence) has a profound impact on students' satisfaction and learning outcomes. Thus, identifying how students and instructors perceive the impact of AI systems on their interaction is important to identify any gaps, challenges, or barriers preventing AI systems from achieving their intended potential and risking the safety of these interactions.

KEYWORDS: Education, future human being, Intelligence.

INTRODUCTION

Artificial intelligence is the process of simulating human intelligence into a programmed machine to think like a human being for solving problems. Artificial Intelligence is a branch of computer science used to develop an intelligent machine that can think and act to solve complex problems rationally like a human being. It is powered by the technique of machine learning, deep learning, heuristic searching, rule based system, Artificial Neural network, Support Vector Machine, Natural Language Processing, etc. There are two types of AI. Narrow AI or weak AI is an artificial intelligence technique that operates within a limited

situation and is a human intelligence simulation. Narrow AI is always focused on performing a single task efficiently and effectively. These machines are intelligent systems that are operating under many constraints and restrictions even better than basic human intelligence. Strong AI or Artificial General Intelligence (AGI) is the type of artificial intelligence used in robotics, movies etc. It is a machine with general intelligence that can think and work like a human being; it can apply that intelligence to solve any problem. Artificial Intelligent can be used in various fields such as Smart assistant system like Alexa, Siri, and Cortana these are intelligent voice recognition system helps to provide knowledge as well as enhance our decision making capability.

- In medical and health care field AI is used for symptoms mapping and predicting disease.
- AI used in manufacturing industries for performing complex tasks through drone robots.
- It is used to develop an Optimized and personalized healthcare treatment recommendations system.
- AI-based techniques are used in the advertising and marketing industries to develop conversational bots for providing efficient customer service.
- AI used to develop a Robo-advisors intelligent technique for inverters for providing advice for stock trading.
- An artificial intelligent agent can be implemented in Spam detection and filters on email.
- It is used to develop social media monitoring tools for tracking sensitive content or fake news.
- AI-based recommendation system provides appropriate recommendations for a particular Song or TV show for online entertainment applications.
- AI-enabled chatbots can be used to offers an instant response to better customer service.
- AI applications in education help students for better learning experience through one to one interaction with the teacher.
- Artificial Intelligent based smart home applications with the power of the Internet of things helps to control all devices in the house.
- Integration of AI with the shopping industry helps to personalized customer services like automatic notifications, alerts, information about new offers, deals, and services provided to the customer.

Artificial Intelligence and Education

Right from manufacturing, medical, e-commerce to education, and in every sector, AI plays an essential role in the automation of various activities. Artificial intelligent techniques help to transform learning by providing a personalized approach to the students. Artificial intelligence is real power is to store a large amount of data about learners and analyze it and provide personalized education as per individual needs. Artificial intelligence can fill up the gaps in the subject area in which teachers do not have particular expertise to understand individual learner's skills and interests Deep learning is a subfield of machine learning. Algorithms designed using machine learning help to analyze the brain's function using an Artificial Neural Network Deep learning is an intelligent technique to work on a considerable amount of data with better performance. It is used to build an intelligent computer system that can learn complex function mapping, the input to output directly from data without depending on crafted human features. A personalized e-learning system can be developed by implementing artificial intelligence-based techniques like Fuzzy rule-based systems and artificial neural networks.

The potential of using artificial intelligence in education to enhance learning, assist teachers and fuel more effective individualized learning is exciting, but also a bit daunting. To even have an intelligent conversation about AI in education, one must first push past imaginary science-fiction scenarios of computers and robots teaching our children, replacing teachers and reducing the human element from what is a fundamentally human activity. One of the leading writers on the benefits of artificial intelligence in education, Matthew Lynch ("My Vision for the Future of Artificial Intelligence in Education"), is careful to explore the potential pitfalls along with the benefits, writing that "the use of AI in education is valuable in some ways, but we must be hyper-vigilant in monitoring its development and its overall role in our world."

The ethical considerations are profound, as they are when it comes to using artificial intelligence in any type of setting. AI lacks a so-called "moral compass." So, by one way of looking at it, AI programming is "as ethical as its developer," according to Towards Data Science, in an article about AI ethics that prescribes two important recommendations moving forward:

1. We need to have ethics built into the idea of why a certain piece of technology, equipped with AI, is being developed.

2. We need to monitor/check/police the outcomes of that specific piece of technology in order to fully understand its behavior and make sure that it's not violating our (human) moral compass.

There is robust debate throughout the technology community and beyond about ethics in artificial intelligence and most university degree programs are integrating into their curriculum. There, now that we have identified the ethical in the room, let's about the exciting possibilities of AI in education.

The Potential Benefits of AI in Education

 "AI does not detract from classroom instruction but enhances it in many ways." summarizes five intriguing potential pluses of integrating AI in education:

Personalization: "It can be overwhelmingly difficult for one teacher to figure out how to meet the needs of every student in his/her classroom. AI systems easily adapt to each student's individual learning needs and can target instruction based on their strengths and weaknesses."

Tutoring: AI systems can "gauge a student's learning style and pre-existing knowledge to deliver customized support and instruction."

Grading: Sure, AI can help grade exams using an answer key; but it can also "compile data about how students performed and even grade more abstract assessments such as essays."

Feedback on course quality: For example, if many students are answering a question incorrectly, "AI can zero in on the specific information or concepts that students are missing, so educators can deliver targeted improvements in materials and methods."

Meaningful and immediate feedback to students: Some students may be shy about taking risks or receiving critical feedback in the classroom, but "with AI, students can feel comfortable to make the mistakes necessary for learning and receive the feedback they need for improvement." Much of the potential envisioned for AI in education centers on reducing time spent by teachers on tedious tasks to free up time for more meaningful ones. Automating administrative tasks is also one of five potential benefits spotlighted by Bernard Marr, an author, futurist and technology advisor who cites figures forecasting 47.5% growth from 2017-2021 in the use of artificial intelligence in education in the U.S.

Marr explains why he sees AI having a "massive impact" in education — emphasizing that "AI is not a threat to teachers; it is not there to replace teachers," but rather to deliver a better education to our children." He envisions a future hybrid model that is designed to "get the

best out of our artificially intelligent-enabled systems and our teachers." Marr outlines the potential of AI to help our education provide enhanced:

- Differentiated and individualized learning
- Automation of administrative tasks
- Tutoring and support outside the classroom
- Universal access for all students

Artificial Intelligence in Education has become a hot topic because it changes how we learn quickly. So what does this mean for children? Is there any shift for children due to AI being incorporated into their learning process? Artificial Intelligence in education has the potential to be a game-changer for every child. Many schools are already using AI across the country, and you must know how AI can benefit your child.

The impact of AI on education

Technology has always played an important role in education, but its current use is more prevalent than ever thanks to the increased availability of smart devices and web-based curriculum. With the rise of Artificial Intelligence in education, there are many different ways it is being used to help students learn. Here are a few technologies with AI that are already affecting and will affect education in every way:

Chatbots

Chatbots are one example of AI educational apps that students might use soon. These are being increasingly implemented into classrooms where kids use iPads or laptops to chat with bots designed to help them understand specific topics such as math or reading comprehension. It's possible chatbot tutors could do more than just help students learn new concepts; there may even come whenever the analysis is needed. Chatbots are the future of all technical roots. It reduces the cycle of tasks assigned to teachers. Chatbots used in classrooms could also replace email communication between teachers and parents while parents meet also.

Learning Management System (LMS)

In this age of technology, one of the most important things is to stay up-to-date with advancements in education. One of these advancements is the use of Learning Management Systems. A learning management system provides a centralised, intuitive system for

managing all of a school's online activities. These tools can be used for a variety of purposes, but they are often utilised to achieve the following:

- Assign coursework

- Communicate with students and parents

- Track student progress

- Generate reports on student performance

These systems allow all aspects of a course to be contained within one space, from lessons and assignments to assessments and grading. This means that teachers can provide feedback on any assignment or assessment at any time. Students have instant access to their grades without waiting until the end of a semester. A lot of topics can be learnt by using these LMS with AI software. A learner can get help by using an AI-powered intelligent digital tutor, which helps them with their problems and provides them with the correct answer to solve their problem. With Artificial Intelligence, one can even build a learning management system that is able to understand how students are thinking and help them learn better. There are now LMS systems that can help teachers in creating content, helping parents in monitoring their child's progress in the system, and assessing them with an AI engine. This has helped teachers reduce classroom management time, assisting parents in understanding their child's progress better and lessening teachers' workload. LMSs are an invaluable tool for both teachers and students alike.

Robotics

Robotics with Artificial Intelligence in education has increased over the last few years. It is now being used for both teachers and students to help in education, which can be seen to improve student engagement and safety. With AI's current development, robotics in education is inevitable. Robots can be an excellent resource for learning for both students and teachers – a way to explore a topic in-depth without getting bored. For teachers, this means robots can provide a way to have more one-on-one time with students who need additional help. It also allows them to experiment with new ways of teaching, which is essential when trying to reach different types of learners. For students, it's a chance to teach themselves something new without the pressure of being the only person in class or having their peers judge them for making mistakes. Robots can offer that space where they don't feel embarrassed if they don't get something right away. Robotics is vital for students because they can teach them that engineering is more than just solving problems on paper or drawing

on a mat. They can see the outcome of their efforts and the final result. Teachers can also use robotics as an instructional tool to teach lessons about current events or even math concepts like fractions. As technology evolves, it will undoubtedly play an essential role in people's lives.

Challenges

The challenge of learning how to use technology is for the students and the teachers. In most cases, the problem is that teachers are not being trained on how to use the new technology in their classrooms. As a result, they have to figure it out themselves or find someone they already know. Teachers need help in understanding how these tools can be used in order to provide students with an engaging learning experience**.**

The Advantages and Disadvantages of Artificial Intelligence in Education

However, the advantages and disadvantages of AI in education are not so black and white. There are advantages to both sides, but there are disadvantages to each side as well. AI is replacing humans in an increasing number of fields, including education. It's not just teaching but also grading papers, writing essays, and making recommendations to students about what they should study next. The question is: should it be?

Advantages: Artificial Intelligence in education is a very controversial topic right now. People are torn on whether or not AI should be used to educate students. Many people argue that AI will replace teachers and take away the human element of education. However, there are many advantages to AI in education. AI can grade papers and essays much faster than a human can. This will give teachers more time to work with students on critical thinking skills and critical analysis skills. This would also allow teachers to focus on individual students who would benefit from their guidance. AI can also augment human teachers by providing insights about student learning styles and giving hands-on feedback for students who need more practice with specific topics or skills. AI doesn't get tiring, doesn't have mood swings, and doesn't have a life outside of education.

Disadvantages: However, there are some negative aspects to Artificial Intelligence in education as well. A robot might not be as good a teacher as a human can be. The disadvantage of AI in education is that technology may not always be successful in teaching. AI does not experience emotions. Students don't feel that they are being cared for by the AI when they are being lectured to or when they have a question, and when they do not get a

response from the AI. This is an emerging field, and it's being studied at universities worldwide where professors are working on developing AI technologies that improve our lives. Artificial Intelligence can also be used to provide students with adaptive learning where it adjusts the pace of instruction based on how each student is performing. On the flip side, some people worry about AI's impact where human interaction is receding.

CONCLUSION

AI will benefit parents who are always concerned about their children's social life. AI technology allows them to monitor their child's interaction online more closely than ever before. Schools use software that analyses data points such as how well different students comprehend material; then groups kids accordingly based on what they need. AI brings the ability to have 24/hr access to teachers and lessons anytime, anywhere. AI can be used as an educational tool that guides students towards their goals by providing personalized feedback on homework, quizzes etc., and based on AI algorithms. Artificial Intelligence has the potential to make everyone's life easier through automation as it can do menial tasks, so you don't need to spend time doing mundane activities like organizing emails or finding files. The future of education is here! AI is a crucial driver for change in education. There are so many benefits of AI. Every student will have equal access no matter their learning ability or disability; this makes a massive difference since not all children learn at the same pace or possess similar skill sets. With the help of AI, students can make their future bright.

CONFLICT OF INTEREST

The authors declare that there have no conflicts of interest.

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