A Study of Artificial Intelligence in Education System

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Introduction:

Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress towards SDG 4. However, rapid technological developments inevitably bring multiple risks and challenges, which have so far outpaced policy debates and regulatory frameworks. UNESCO is committed to supporting Member States to harness the potential of AI technologies for achieving the Education 2030 Agenda, while ensuring that its application in educational contexts is guided by the core principles of inclusion and equity.

UNESCO's mandate calls inherently for a human-centred approach to AI. It aims to shift the conversation to include AI's role in addressing current inequalities regarding access to knowledge, research and the diversity of cultural expressions and to ensure AI does not widen the technological divides within and between countries. The promise of "AI for all" must be that everyone can take advantage of the technological revolution under way and access its fruits, notably in terms of innovation and knowledge.

Keynote : Artificial Intelligence, Personalize Learning, Advantage and Disadvantage of AI, Reduction of Human Error etc.

Uses of AI in Education:

1. **Personalized Learning:** AI tutors adapt to individual student needs, offering tailored Guidance, instant feedback, and customized learning paths to address gaps in knowledge Effectively.

2. **Scalability and Cost-Effectiveness**: AI makes high-quality tutoring accessible at scale By Automating repetitive tasks and generating customized learning materials, reducing Reliance on one-on-one instruction.

3. **Enhanced Student Engagement:** AI fosters interactive and engaging learning experiences through tools like simulations, mock debates, and adaptive exercises,Promoting critical thinking and active participation.

4. **Equity and Accessibility:** AI has the potential to democratize access to high-quality Education, but equitable implementation is essential to bridge gaps in technology access for underserved communities.

5. **Personalized Support:** AI was used in an after-school program to provide students with immediate feedback and tailored guidance based on their individual performance.

6. **Improved Outcomes:** Students who participated in the AI-supported program achieved better results in their end-of-year exams compared to their peers, highlighting the effectiveness of AI in bridging learning gaps.

7. **Scalable Learning Solutions:** The program showed promise for addressing educational challenges in resource-constrained settings by offering scalable, cost-effective tutoring solutions.

8. **Student Engagement:** The application of AI fostered interactive learning, helping to keep students motivated and engaged with the material.

Role of AI in Education:

There are so many ways AI can help students, from identifying early signs of struggle to creating a more interactive and personalized learning plan. There are six ways it can positively impact education.

1. Product generation:

Online education is an industry that has monetized the service of learning, and at the core of

that industry lies digital products. The Leap is a new digital platform that helps online creators monetize their knowledge by selling online education and more.

This AI tool can generate comprehensive outlines for digital guides, coaching sessions, tutorials, e-books, mini-courses, and more. From there, you fill in the gaps using your own expert knowledge, creating a one-of-a-kind asset that can drive leaders or generate revenue—you get to decide.

The beauty of AI product generation is that it saves you time. As you'll see in most AI use cases, time savings are what make AI so valuable; saving 15 hours in e-book creation means you can spend that time elsewhere.

2. Personalized learning:

AI generates lesson plans in seconds. While it's designed for in-classroom educators, this tool can benefit educators of all kinds.

After feeding the generator a topic and giving it some context, you'll receive a well-developed lesson plan complete with an:

- Objective
- Assessment
- Guided practice
- Individual practice
- Homework
- Opening and closing

Because the platform is designed for traditional, schoolroom teachers, it asks for standards and grade level. We recommend using "U.S." in place of standards, and selecting a grade level between 8 and 12. Writers often target an 8th grade reading level when creating content and copy, so this grade level should prompt a similar level of content in your lesson.

By using a tool like this for online education, you'll save the time you would normally use in this initial planning phase. You can reallocate that time to creating more content for smaller segments of your audience or fo diving deeper into areas you wouldn't have been able to cover otherwise.

3. Customized feedback :

It is an industry-leading platform designed to connect two different entities online. Think of it like that one friend who seems to know all the right people. They help you by connecting you with their contacts. Where AI comes in is, no surprise, in one of these integrations.

Learning communities are extremely important in online education. At a minimum, students expect to learn valuable information in a course. But by developing an exclusive online community, you help them build a helpful network, problem-solve, and learn collaboratively, all within your learning environment.

Unfortunately, managing these learning communities can be a huge challenge for educators with little time on their hands. Zapier helps by connecting Chat GPT with Face book. So, even if you aren't comfortable having Chat GPT auto-respond to group posts on Face book, you can still have it generate a response privately, helping you engages with your students more efficiently when you're ready.

4. Tutoring :

Sometimes, students need extra help, and AI tools like Tutor Ocean allow you access to on-demand tutoring without an actual in-person or live Zoom tutoring session. Because AI uses algorithms to adapt, it can quickly shift to cover the areas where students need the most support.

Much like a human tutor would adapt to a student's learning abilities, AI tutoring systems are quite sophisticated. They can focus on areas of strength and improvement to deepen individual students' education.

AI-based tutoring technology's major advantage is its ability to help students understand complicated, sophisticated terms and concepts on a mass scale.

5. Predictive analysis:

An emerging area of AI in education is predictive analytics. Predictive analytics refers to AI's ability to analyze data and predict which students may struggle more than others and where.

Whether you're an online creator or an in-person educator, predictive analytics in an educational context means you can spend less time reviewing assessments and more time supporting those who need it most.

Ultimately, early intervention means students who may have otherwise "failed" now have the opportunity to become successful students.

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For online education businesses, this means happy customers; for classroom teachers, this means better report cards.

6. AI-Powered gamification :

One way AI is used in education is to enhance teaching methods. And one of our favorite techniques is incorporating gamification. Centrical was created specifically for digital gamification. While it's made for employers and their employees, it's ultimately designed to engage online learners of all kinds.

By leverasging the power of AI and gamification, online educators can create a more engaging learning environment, personalize learning pathways faster, and adapt to student segments quickly.

Advantages and Disadvantages of AI :

Artificial intelligence provides numerous benefits such as reducing human errors, time saving capabilities, digital assistance, and unbiased decisions. However, the disadvantages include emotional intelligence, encouraging human laziness, and job displacement.

An AI program is capable of learning and thinking. It is possible to consider anything artificial intelligence if it consists of a program performing a task that we would generally assume a human would perform.

While artificial intelligence has many benefits, it also has drawbacks. Let's begin with the positives of AI.

Advantages of Artificial Intelligence :

1. Reduction in Human Error

One of the most significant benefits of Artificial Intelligence is that it can significantly reduce errors and increase accuracy and precision. The decisions taken by AI in every step are decided by information previously gathered and a certain set of algorithms. When programmed correctly, these errors can be reduced to null.

Example:

Robotic surgery systems are an example of AI reducing human error. These systems can perform complex procedures with precision and accuracy, reducing the risk of human error and improving patient safety in healthcare.

2. Decision-Making

On of the noted pros of Artificial Intelligence is decision-making. AI enhances decision-making by leveraging vast data to identify patterns and trends often invisible to humans. Machine learning algorithms can analyze historical data and predict future outcomes, allowing businesses and individuals to make informed decisions quickly and accurately. AI's ability to process information at high speeds reduces the time required for decision-making, thus providing a competitive advantage in dynamic environments.

Example:

In the healthcare industry, AI assists doctors in diagnosing diseases. For example, AI algorithms can analyze medical images, such as X-rays or MRIs, to detect early signs of conditions like cancer. This not only helps in providing timely treatment but also reduces the likelihood of human error in diagnosis. By augmenting doctors' decision-making processes, AI improves patient outcomes and more efficient healthcare delivery.

3. Zero Risks

Another significant benefit of AI is that humans can overcome many risks by letting AI robots do them for us. Whether defusing a bomb, going to space, or exploring the deepest parts of oceans, machines with metal bodies are resistant and can survive unfriendly atmospheres. Moreover, they can provide accurate work with greater responsibility and not wear out quickly.

Example:

One example of zero risks is a fully automated production line in a manufacturing facility. Robots perform all tasks, eliminating the risk of human error and injury in hazardous environments.

4. 24x7 Availability

One of the key benefits of AI is round the clock availability. Many studies show humans are productive for only about 3 to 4 hours daily. Humans also need breaks and time off to balance their work and personal lives. But AI can work endlessly without breaks. They think much faster than humans and perform multiple tasks simultaneously with accurate results. They can even handle tedious, repetitive jobs easily with the help of AI algorithms.

Example:

An example is online customer support chatbots, which can provide instant assistance to customers anytime, anywhere. Using AI and natural language processing, chatbots can answer common questions, resolve issues, and escalate complex problems to human agents, ensuring seamless customer service around the clock.

5. Digital Assistance

Digital assistants are employed by some of the most advanced companies to interact with users, reducing the need for human personnel. Many websites use digital assistants to deliver content based on user requests, enabling us to have conversational searches. Some chatbots are so sophisticated that it's difficult to tell whether we're communicating with a human or a machine.

Example:

We all know that businesses have a customer service crew that must address patrons' doubts and concerns. Businesses can create a chatbot or voice bot using AI to answer all of their client's questions.

6. Unbiased Decisions :

Emotions inherently drive humans, while AI operates without emotional influence, maintaining an efficient and rational approach. One significant advantage of Artificial Intelligence is its lack of biased views, leading to more accurate and objective decision-making.

Example:

An example is AI-powered recruitment systems that screen job applicants based on skills and qualifications rather than demographics. This helps eliminate bias in the hiring process, leading to an inclusive and more diverse workforce.

7. AI in Risky Situations :

One of the main benefits of artificial intelligence is this: By creating an AI robot that can perform complex tasks on our behalf, we can overcome many dangerous restrictions humans face. It can be utilized effectively in any natural or man-made calamity, whether going to Mars, defusing a bomb, exploring the deepest regions of the oceans, or mining for coal and oil.

Example:

For instance, the explosion at the Chernobyl nuclear power facility in Ukraine. As any person who came close to the core would have perished in a matter of minutes, at the time, there were no AI-powered robots that could assist us in reducing the effects of radiation by controlling the fire in its early phases.

8. Bias and Fairness :

AI can help identify and mitigate bias in decision-making processes, promoting fairness and equality. By analyzing large datasets, AI can uncover patterns of bias and provide insights into how they affect outcomes. Additionally, AI algorithms can be designed to minimize biases, ensuring that decisions are based on objective criteria rather than subjective or discriminatory factors.

Example:

AI tools screen resumes and conduct initial candidate assessments in the hiring process. These tools can be programmed to ignore irrelevant factors such as gender, race, or age, focusing solely on qualifications and experience. For instance, an AI system can rank candidates based on their skills and achievements rather than demographic characteristics, promoting a fairer hiring process and increasing diversity within the organization.

Disadvantages of Artificial Intelligence :

While artificial intelligence offers numerous benefits, it also presents some disadvantages. Here are few cons of Artificial Intelligence:

1. Creativity :

Artificial Intelligence (AI) often lacks the intrinsic creativity of humans, which stems from emotional depth, abstract thinking, and imaginative processes. While AI can mimic creativity by generating art, music, or writing based on existing patterns, it doesn't possess genuine originality or the ability to think outside the box.

AI's creative outputs essentially recombine pre-existing data, limiting its capacity for true innovation. This reliance on patterns and data constrains AI, making it challenging to match human creativity's nuanced and unpredictable nature, which thrives on intuition and emotional intelligence.

2. Emotional Intelligence :

The next disadvantage of AI is that it lacks emotional intelligence as it involves recognizing and managing one's own emotions, as well as empathizing with others and handling

interpersonal relationships judiciously and empathetically.

While AI can be programmed to recognize specific emotional cues and respond in a predetermined way, it doesn't possess genuine empathy or the capacity to navigate complex human emotions. This limitation can hinder AI's effectiveness in roles requiring emotional sensitivity, such as counseling, human resources, or any field where interpersonal interactions are critical.

3. Encouraging Human Laziness :

The increasing reliance on AI for tasks ranging from mundane chores to complex decision-making can lead to human laziness. As AI systems take over more responsibilities, individuals might become less inclined to develop their skills and knowledge, relying excessively on technology.

This dependency can diminish critical thinking and problem-solving abilities, as people might defer to AI solutions without questioning their validity or exploring alternatives. Over time, this could lead to a less capable workforce.

4. Privacy Concerns :

AI systems often require vast amounts of data to function effectively, which can lead to significant privacy concerns. Personal data collection, storage, and analysis can be intrusive, exposing sensitive information without individuals' consent.

AI-driven surveillance systems and data mining practices can erode personal privacy, leading to potential misuse of data by corporations, governments, or cybercriminals. Additionally, there is a risk of data breaches and leaks, which can compromise personal and financial information, leading to identity theft and other forms of exploitation.

5. Job Displacement :

The rise of AI and automation technologies poses a substantial risk to employment, particularly in industries reliant on routine and repetitive tasks.

Jobs in manufacturing, retail, customer service, and even specific professional sectors like legal research or medical diagnostics are increasingly being automated, leading to significant job displacement.

While AI can create new job opportunities, the transition period can be challenging, with many workers requiring retraining and up skilling. The economic and social impact of widespread job displacement can increase unemployment rates and social inequality if not managed effectively.

6. Over-dependence on Technology :

As society becomes increasingly reliant on AI, there is a growing risk of technological dependence. This dependence can reduce human skills and capabilities as individuals and organizations rely more on automated systems for decision-making and problem-solving. In critical situations, over-reliance on

AI can be beneficial if systems fail or produce accurate results. Moreover, the complexity of AI systems can make it difficult for users to understand or question AI-driven decisions, potentially losing autonomy and control over essential processes.

7. Algorithms Developments Concerns:

The rapid development of AI algorithms raises concerns about the pace and direction of technological advancement. There is a risk that algorithms are being developed and deployed faster than regulatory frameworks and ethical guidelines can keep up.

This can lead to unintended consequences, such as the misuse of AI technologies, lack of accountability, and insufficient safeguards against harmful applications. Additionally, the proprietary nature of many AI algorithms can limit transparency and public scrutiny, making it challenging to assess their fairness, accuracy, and overall impact on society.

8. Environmental Issues :

The development and deployment of AI technologies can have significant environmental impacts. Training large AI models often requires substantial computational power, which demands considerable energy consumption. This can contribute to increased carbon emissions and exacerbate climate change.

Data centers, which house the infrastructure for AI systems, require constant cooling and maintenance, further adding to their environmental footprint. As AI technology grows, finding sustainable and energy-efficient solutions becomes crucial to mitigating its environmental impact.

9. Lack of Common Sense :

Despite their advanced capabilities, AI systems often need more common sense reasoning.

They can process and analyze vast amounts of data but need help understanding context, making intuitive judgments, or adapting to new and unforeseen situations. This limitation can lead to errors or inappropriate actions in scenarios that require nuanced understanding and flexibility.

Unlike humans, AI lacks the innate ability to grasp everyday knowledge and social norms, which can result in logically correct decisions but are practically or ethically flawed.

Conclusion

Now that you understand the advantages and disadvantages of AI, one thing is certain: AI holds massive potential for creating a better world. However, humans must ensure that the development and implementation of AI remain under control. Despite the ongoing debates about its pros and cons, AI's impact on global industries is undeniable. It continuously drives sustainability for businesses, highlighting the importance of AI literacy and upskilling to thrive in numerous emerging job roles.

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