

ARTIFICIAL INTELLIGENCE ENHANCED PEDAGOGY: A PREREQUISITE TO FOR EDUCATIONAL DEVELOPMENT

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Abstract

Artificial intelligence has been used in a wide range of field including industry, business and education. AI has been the subject of optimism which has suffered setbacks and today, has become an essential part of technology industry, providing the heavy lifting for many of the most difficult problem in computer science and other subject areas. Artificial intelligence which enhanced pedagogy has to do with how instructors do to influence the learning of learners. Knowledge of pedagogy with AI enables the teachers to impart the thorough understanding on the subject among the students and help the learner in applying those learning in their daily lives outside of the classroom. The importance of AI enhancing pedagogy is numerous which include improved quality of teaching, encouraged co-operative learning environment and also eliminate monotonous learning. In conclusion, embracing AI in educational frameworks in pedagogy promises a dynamic, inclusive and innovative future for the practice of teaching for educational development and it was recommended that educators should indulge in the use of AI as it offers innovative solutions and strategies that cater for the need of individual and harness support and amplify pedagogical practices for policy makers, curriculum planners for educational development.

Keywords: Artificial Intelligence, Pedagogy, Educational Development

Introduction

Artificial intelligence is the ability of a digital computer or computer – controlled robot to perform tasks commonly associated with intelligence being. These tasks require the ability to reason, discern, discover meaning and learn from past experience. AI is taught to learn and adapt by developers, gathering from data. It can function to solve problems, answer questions, make predictions and even offer strategy. Some AI matches human abilities for specific tasks, and others, work faster or more efficiently than humans at tasks. From your phone to your car, smart TVs to kitchen appliances, and countless areas in between, AI is involved in much of what we do. However, no existing AI can perform the same extensive range of tasks that humans can.

More so, AI technology has been applied to education within the recent twenty years. The Intelligent Tutoring Systems (ITS) covers all major AI topics (e.g., data illustration, machine learning, tongue, planning, reasoning, explanation), and therefore the system has shaped a motivating test-bed to formalize psychological feature theories and to experiment with their operationalization. Artificial Intelligence in education has been applied to numerous domains, like physics, programming, writing essays, and reading yet because the development of educational systems. the foremost typical AI applications within the academic field involve data illustration, intelligent tutoring, tongue process, and autonomous agents. AI in education has created powerful learning environments and positive interactive experiences for college students over the decades.

Furthermore, AI has the potential to revolutionized the way we learn and teach, making it more personalized, engaging and efficient. (Alneyadi, Wardat, Alshannag, & Abu- Al-Aish, 2023). The potential benefits of using AI in education are significant. Personalized learning, one of the most significant advantages of AI in education, can lead to better student outcomes for educational development, as students can learn at their own pace and in a way that suit their learning style. Intelligence tutoring systems, chatbots, and automated grading and assessment can increase efficiency, save teachers' time, and provide more accurate and consistent feedback. This paper therefore discusses the role of AI enhanced pedagogy as a tool for educational development.

History of AI in Education

From calculator to cell phones, the introduction of AI and its potential impact on education and learning is often hotly debated, spurring conversations around both potential and risks. No where you stand, understand the basics and adapting to ever – evolving tech is critical for both you and your students. While the AI debate may seem

new to many us, AI has actually been around for decades. The first AI program was written in 1951, with a focus on teaching a computer to checkers. By the following year, the computer was able to play a game of checkers at a reasonable speed.

As AI began to evolve, so too, did the need to understand and evaluate it. British logician and computer pioneer Alan Turing began exploring machine intelligence in the 1930s. In the 1950s, he questioned whether a machine has the ability to think and introduced central concept of AI.

Today, Turing is considered the father of artificial intelligence and modern cognitive science, and the Turing Test remains the criterion for evaluating computer intelligence. In subsequent decades, technology continued to advance globally, making its way into the classroom. With each new tool came unparalleled possibilities- if the tech was implemented right. Most recently, the internet and smart phones have permanently altered the educational environment. AI is on track to do the same.

Concept of Pedagogy

Pedagogy is the systematic study of teaching. It can also be defined as the art or science of teaching. Pedagogy is the term that tells us how to teach in both theory and practice. Pedagogy can be two types of teacher- centered Pedagogy and learner-centered pedagogy. Pedagogy refers to that study of teaching approaches and how they affect learners for educational development. Pedagogy directs the teacher regarding the teaching strategies employed by the teacher to deliver the content in class to enhance the expected learning outcomes. Pedagogy is concerned with the teaching processes. All the teachers in all levels need to ensure that their teaching materials and strategies would contribute in a notable manner in promoting the learning of the students.

Pedagogy is concerned with that process how the instructors do to influence the learning of the learners. Knowledge of pedagogy enables the teachers to impart the thorough understanding on the subject among the students and helps the learners in applying those learning in their daily lives outside of the classroom. Pedagogy refers to the study of teaching and learning in alignment with the predefined goals of education. In the teaching learning process, there are two entities involved- the teacher and the learner. Pedagogy acts as a bridge of communication between the two. It involves the methodologies to be adopted by the teacher to deliver a lesson and the techniques to assess the learner's responses to the information being imparted. Pedagogy defines the methods adopted for conducting teaching learning sessions using various strategies and approaches adopted by teachers to ensure the fulfillment of the predetermined objective. Pedagogy is highly influenced by educational psychology and child psychology. The primary objective of pedagogy is to develop effective learning experience among learners.

Significance of Pedagogy

1. Improves quality of teaching: If a well-thought pedagogy is implemented in the classroom, the quality of education can show a drastic improvement. This will benefit the students by helping them thoroughly understand the learning material and thereby improving the learning outcomes.
2. Encourage cooperative learning environment: The implementation of pedagogy in education encourages the learners to work together towards completing a task and learn together.
3. Eliminates monotonous learning: Pedagogy is not complete without child psychology. It helps the learners to analyzing, creative thinking and evaluation.
4. Students can follow their ways of learning: It caters to the learning abilities of different students. Students can follow their preferred ways of learning.
5. Convenient learning approach for all: Students with different abilities needed different ways of learning. Applying pedagogy learning can be the best for every student.
6. Improves teacher-students communication: The teacher understand the students in a better way and focus on the student's weaknesses and guide them accordingly.
7. Pedagogy is essential in enabling students to learn more effectively: Pedagogy helps the learners to learn more effectively by following the learner centered approach.
8. Giving Consideration to the voice of the learner: the need of the learner is foremost priority according to pedagogy.
9. Performance and Conduct of the teachers: Pedagogy helps the teacher to provide best of his teaching. As a result learning outcome of the learner's is high.
10. Knowledge and understanding of the teacher: Pedagogy helps the teacher to know the learner first than the content part.

Artificial intelligence and Pedagogy

Artificial intelligence is poised to revolutionize the field of education, offering new methods for teaching and enhancing learning experiences. As educators and institutions explore the integration of AI in education, there is a growing need to understand how this technology can be harnesses to support and amplify pedagogical practices. With its ability to personalize learning, provide immediate feedback, and automate administrative tasks, AI has the potential to address some of the most pressing challenges faced by educators today.

The role of AI in education extends beyond merely a facilitator of information; it also can transform traditional teaching methodologies. By analyzing vast amounts of data, AI systems can identify gaps in knowledge and cater to students' individual needs, providing a more tailored and practical learning journey. Incorporating AI into the educational sphere encourages a fluent collaboration between technology and traditional teaching, promising to make education more accessible and inclusive.

However, the integration of AI within teaching and learning also raises essential considerations regarding ethics, privacy, and the future role of educators. Stakeholders must engage in discussions about these challenges to ensure that AI deployment will benefit teachers and learners without compromising human values. As the AI landscape within education evolves, a balanced approach that respects this technology's possibilities and limitations will be critical to its success

Foundations of Artificial Intelligence in Pedagogy

The deployment of artificial intelligence (AI) within educational settings is redefining the teaching and learning paradigms, marrying technology with pedagogical strategies.

The Evolution of AI Technologies

Artificial intelligence has significantly progressed from basic algorithms to sophisticated **generative AI** and **large language models**. One notable advancement is **GPT-4**, a model that demonstrates an extraordinary capacity to understand and generate human-like text, making it a revolutionary tool for personalized learning experiences. Similarly, Google's counterpart, **BARD**, utilizes AI to foster interactive learning, providing students and educators with a powerful assistive tool. These technologies have gradually transitioned from supportive roles to integral components in educational systems.

AI Literacy in Education

Incorporating AI literacy into education ensures that learners are not just passive recipients but active participants in the AI ecosystem. AI literacy encompasses understanding the functionality of AI technologies, their practical applications, and the ethical considerations surrounding their use. Programmes aim to equip students with the skills to navigate and leverage AI, with a focus on critical thinking and problem-solving. For teachers, this entails embracing AI as a co-educator to augment traditional teaching methodologies.

AI Tools for Learning and Classroom Integration

Incorporating artificial intelligence into educational settings has been transformative, allowing for tailored curriculum development and enhanced assessment capabilities that address the needs of individual learners for educational development.

Applications of AI in Curriculum Development

Artificial intelligence offers many applications in developing curricula that align with specific learning outcomes. **AI tools** are adept at analyzing vast amounts of data to inform the creation of **syllabi** and **course materials**. Teachers harness these tools to design **lesson plans** that are comprehensive and adaptive to their students' unique learning paces and styles. This customization ensures that **student learning** is supported effectively at every stage for their development.

For instance, AI systems can evaluate current academic research or analyze trends in learning to suggest updates to the curriculum. Additionally, AI can support the generation of assignments that reinforce core concepts, enhance critical thinking and foster practical application of knowledge

AI-Enhanced Assessment and Feedback

The use of AI extends into the realm of **assessment** and **feedback**, offering a level of precision and personalization previously unattainable. Through tools like automated grading systems, instructors can provide timely and detailed **feedback** on **quizzes** and **examinations**. These systems relieve educators' administrative burden and standardize the grading process to ensure fairness. Beyond grading, AI in **education** systems can predict student performance, proactively identifying individuals requiring additional attention or resources. This capability enables educators to intervene effectively, promoting positive **learning outcomes**. AI-enhanced tools also offer students immediate feedback on their work, allowing them to understand their progress and areas for improvement instantly.

AI-Driven Content Creation and Tutoring

Integrating AI into pedagogy has led to the development of sophisticated tools for content creation and tutoring, reshaping how educational materials are produced and how students engage with learning for educational development.

Generative AI for Educational Materials

Generative AI tools like DALL-E have revolutionized the creation of digital educational content. They facilitate the quick production of customized images, diagrams and other visual aids that can enhance teaching materials and help explain complex concepts in a more accessible way. This saves educators time and allows for the tailoring of content to meet diverse learning needs.

Conclusion

Artificial intelligence as a powerful technological tool is poised to revolutionize the field of education offering new methods of teaching and enhancing learning experiences. Then since pedagogy is a systematic way of teaching or how to teach in both theory and practice, it is therefore important that AI which is a trending technology can harness, support and amplify pedagogical practices for educational development. Teachers equipped with AI tools can identify and address learning gaps more effectively, contributing to a more equitable educational experience for all students. The push towards AI-informed pedagogy necessitates ongoing professional development; ensuring educators are well-versed in emerging technologies

In conclusion, embracing AI in educational frameworks in pedagogy promises a dynamic, inclusive, and innovative future for the practice of teaching for educational development. Educators, policy makers, curriculum planners and individual who have interest in pedagogical practices can harness AI's potential to enrich education standard and support learners throughout their educational journey.

Recommendations

This paper therefore, recommends that:

- Educators should indulge in the use of AI as it offers **innovative** solutions and *strategies* that cater to the diverse needs of individual for educational development.
- When AI enhanced pedagogy is used, it will harness support and amplify pedagogical practices for educational development.
- Incorporation of AI enhanced pedagogy can lead to better student outcomes for educational development, as students can learn at their own pace and in a way that suit their learning style
- Through AI enhanced Pedagogy, tools for learning and classroom integration will be available to enhance assessment and feedback for effective literacy and content driven and tutoring.
- Educators, policy makers, curriculum planners and developers should harness AI's enhanced pedagogy potentials to enrich education standard and support learners to promote educational development.

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