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AI KNOWLEDGE EXPLORATION IN CLASSROOM

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Abstract

Evolution of technology has contributed an impact to various industries and aspect of life including education. Educators and learners have experienced a breakthrough during the teaching and learning thus shown that Artificial Intelligence (AI) as a prevalent force in a learning environment. AI classrooms appeared to have strong personalization, interactivity, flexibility and responding to fast results. Development of future teaching has started with exploration of new technology with the support of high-technology equipment, systems, teaching materials, tools and approaches. AI knowledge exploration has its own benefits and challenges. Whatever it takes, human thought and action are still required in making educational practice in place.
Keywords: Artificial Intelligence, Knowledge, Classroom, Technology, Learning

INTRODUCTION

AI has transformed various sectors and industries including education. Integrating AI in the classroom can revolutionize the process of teaching and learning. The involvement of algorithms that allow computers to perform tasks that require the simulation of human intelligence is basically what AI does. The tasks cover learning, reasoning, problem-solving, understanding natural language and recognizing patterns. Educators have recognised that intelligent teaching setting and support can actually meet the learning objectives and needs of the learners thus improved teaching quality (Wang, 2023). This is supported by Tsai et al. (2012) that mentioned on learners' learning environmental preferences during the software and hardware development stage that stimulate effective learning environment design.

Lai (2021) has found out in a study on exploring university students' preferences for AI-assisted learning environment that learners preferred personalized learning modes in AI learning environments with the support of relevant instructional guidance that include course content, teaching materials and life applications. Within this context, learners anticipated robot or social learning companion to be with them during the learning process. This is prevalent as learners should be offered with AI-assisted learning for them to explore more and enhance their creativity and innovativeness as far as educational transformation is concerned.

AI classrooms represent the development of artificial intelligence technology and the demand for educational reform, representing innovation and progress in the field of education(Xu Hongkai & Xie Jie,2023). The new nature of learning using AI has significantly become an effective tool with its own distinctive values that include intelligence, automation, personalization and at the same time boost creation, innovation and motivation. These values can enhance physical and mental health and improve teaching quality among the educators to the learners. In essence,

AI has revolutionized the way educators teach and learners gain their knowledge.

AI in CLASSROOM

Interestingly, this is excerpted from Cope et al. (2020, p.3): "artificial intelligence" was created in 1955 by John McCarthy, then an assistant professor at Dartmouth College, in the title of a workshop proposal for the Rockefeller Foundation. Here, McCarthy defined artificial intelligence as "making a machine behave in ways that would be called intelligent if a human were so behaving" From the start, the problem has been whether, in such a definition, digital computers be intelligent in ways that make them like humans, and if not, what are their differences?

As highlighted earlier, AI uses intelligent software and machines to support, enhance and automate aspects of the learning environment. Here, learning environment is defined as the physical environment, the people involved like the educators/teachers and learners/students, the teaching and learning process, objectives, materials, modules, tools, approaches and the tasks/assignments that learners need to complete (de Kock et al., 2004). Looking at technology kind of environment, learners gain knowledge and use to e-learning and mobile environments. Chuang and Tsai (2005) have highlighted that learners were seeking on negotiation, inquiry learning, reflective thinking, relevance, ease of use and challenge in Internet-based learning environments.

AI classroom has sensor, network, rich media, artificial intelligence and other high developed technology in the information age to support the teaching and learning process. If compared to multimedia, AI is more advanced in enhancing the multimedia to the next level with evolution to it. The learning environment using AI is distinctive and exclusive where it has the ability to elevate the presentation of teaching delivery, enable access to learning resources, encourage interactive classroom activities, prompt findings, quick search and other immediate assistance and support (Huang et al., 2012).

BENEFITS of AI EXPLORATION in CLASSROOM

Educators and learners can gain various advantages on AI exploration in classroom. Learners' interest can be stimulated, enhanced their creativity and innovativeness, encouraged problem solving abilities, developed critical and analytical skills and improved their global and ethical way of thinking. The benefits of AI exploration in classroom are listed below.

1. Personalized Learning

AI allows personalized learning experience by adapting content and teaching methods to individual learner needs. This type of adaptive learning platforms analyze student performance in real-time, adjusting the difficulty of tasks and providing targeted support where needed. Learners can acquire the knowledge at their own pace and in a way that suits their learning style as every individual has different needs. Massive online courses, digital classrooms and e-learning platforms have served much support in the learning process.

2. Enhanced Educator Support

AI can assist educators by automating administrative tasks such as grading, attendance, and even creating lesson plans. This allows educators to focus more on teaching and interacting with learners. AI-powered tools can also provide educators with insights into student progress, helping to identify those who may need additional help. Intelligent tutoring system is also an AI computer system that emulate human tutors and can offer instant feedback and instruction to learners without the involvement of a human educator. Virtual AI tutors can assist learners with homework, offering explanations and guidance. AI can analyze students' strengths, weaknesses, and learning styles, providing personalized learning paths and resources tailored to individual needs.

AI-powered virtual tutors can provide students with instant feedback and support outside of classroom hours. These tutors can answer questions, explain concepts, and guide students through complex topics. Virtual

assistants can also help students stay organized by reminding them of deadlines and helping with time management.

3. Smart Content Creation

AI can generate and curate educational content, such as quizzes, flashcards, and even interactive simulations. Quizizz and Kahoot are examples of AI game based approach that are exciting and interactive. Incorporating AI into educational games can make learning more engaging, offering personalized challenges and rewards based on student performance. This helps to create a more encouraging and effective learning environment. AI can also update content dynamically, ensuring that it remains relevant and up-to-date. AI can recommend articles, videos, and other resources relevant to the topics being studied, ensuring that students have access to a wide range of high-quality materials. AI can track student progress and provide encouragement or adjustments to keep students motivated and on track.

4. Data-Driven Insights

AI systems can analyze vast amounts of data to provide insights into student behaviour, learning patterns, and outcomes. This data-driven approach helps educators to make informed decisions about curriculum design, teaching strategies, and resource allocation. AI can analyse data for future references that include identifying learners who are having problems and requiring support during learning process, recognizing learners who excel and providing them with assistance to further their studies. Not only that, data driven by AI can also look into forecasting resource needs for the next intake.

5. Global Learning Access

AI can break down geographical and linguistic barriers, providing access to quality education for students around the world. AI-driven translation tools, for example, can allow students to access educational content in their native language, making learning more inclusive. Global classrooms can be made available to all learners including to those who might have visual and hearing impairments and speak different languages. One of the AI tools is a presentation translator that creates subtitles in real time for what the educator is saying. AI tools can support students with disabilities by providing text-to-speech, speech-to-text, and other accessibility features.

Integrating these approaches can make AI education both engaging and impactful for students, preparing them for a future where AI plays an increasingly significant role and serves a lot of benefits. Some of the benefits in education are on efficiency where AI automates routine tasks, allowing educators to focus more on personalized instruction and student engagement. Another benefit is on scalability as AI tools can serve a large number of students simultaneously, making it easier to provide quality education at scale. Data-driven insights can make AI analyses vast amounts of educational data to provide insights into student performance, helping educators make informed decisions. Finally, on engagement where AI-driven interactive tools and gamified learning experiences can increase student engagement and motivation.

CHALLENGES of AI

While AI offers numerous benefits, it also raises ethical concerns such as data privacy, bias, and the potential for over-reliance on technology. Ensuring that learner data is protected is crucial when implementing AI tools. Data privacy is at risk as far as machine intelligence is concerned. It is to note that, AI systems are trained on immense amounts of data and biases might arise as it become fixed in AI algorithms and show unfair result. AI systems can inadvertently perpetuate biases present in the data they are trained on, which requires careful monitoring and adjustment.

Transparency and accountability are another issue as AI systems often operate in a “black box,” where these systems offer limited interpretability of how they work and how they arrived at certain decisions. Creativity and ownership are another adding concerns when intellectual property is involved. When a sculptor finishes a sculptor art, it belongs to the maker, but when someone develops a piece of digital art into an AI education system that was

initiated or programmed by a separate entity for example, it is still unclear who owns it, who can commercialize it, who is actually making infringement and who has the rights to the invention or innovation. It is essential for educators and policymakers to address these issues to ensure that AI is used responsibly in education.

Another challenge is on educator training. Educators need training to effectively integrate AI into their teaching strategies. Numerous exploratory tools can be offered to learners during teaching and learning and educators need to know them first before teaching. Simulations and virtual labs is an AI powered simulations that allow learners to experiment with concepts in a virtual environment, exploring different scenarios and outcomes. Another tool is on AI driven research where AI can assist learners in exploring large datasets, conducting research, and even discovering patterns or insights that might be difficult to find manually. All of these must be explored, learned and practiced by the educators so as to make the educators feel at ease while imparting knowledge.

CONCLUSION

AI is reshaping education by making learning more personalized, efficient, and accessible. As AI continues to evolve, its role in the classroom is likely to expand, offering new opportunities and challenges for educators and learners alike. Embracing AI in education can enhance the learning experience, but it is crucial to do so thoughtfully, considering both the benefits and the potential risks. Integrating AI into classroom settings for knowledge exploration can greatly enhance the learning experience.

Classroom with AI facilities has the potential to revolutionize how learners explore knowledge, making learning more personalized, engaging, and accessible. However, careful implementation and ongoing evaluation are essential to maximize the benefits and mitigate potential risks. AI has the potential to significantly enhance the educational experience by providing personalized, efficient, and data-driven learning opportunities. However, its successful implementation requires careful consideration of ethical, practical, and equity-related factors. As AI continues to evolve, it will play an increasingly important role in shaping the future of education. Within this context, several approaches with AI have been highlighted and discussed to make teaching and learning more advanced, creative and innovative.

It cannot be denied that to meet the goals in an education setting, it needs commitment and participation from every organisation members (Mahmod et al., 2006). It is being reiterated that progress towards the achievement of goals can be monitored by looking for the signs of a healthy learning organisation. Syed Marzuki (2003) has emphasized on a well-balanced education that should embrace analysis and the acquisition of knowledge. It must also include the exercise of creative skills, the competence to undertake and complete tasks and the ability to cope with everyday life and also doing all these in co-operation with other stakeholders.

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