

Does Artificial Intelligence Affect Actual Learning Experience Among University Students?

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Abstract

Development of technology has been rapidly increased, in general, most technology has been able to assist humans in any way, from industry workers to academicians, the role of technology can be seen everywhere nowadays. One of these common technologies can be seen in academic field, which is an artificial intelligence, which has the purpose to provide scientific information as the user requested. However, this form of technology, despite providing very useful information, also has the potential to provide false sources. Despite this, many university students have learned the way to use this form of technology, which has the potential to weaken, and decrease their creativity in thinking, moreover, in writing. Further, this form of technology can hinder the actual learning experience students can have during their college years. This paper serves the purposes to explore the use of AI in university, using qualitative methods, and deductive reasoning, this paper will use empirical research and data, as its main source of material, from this information, this paper will provide result, and findings, that are relevant to the theme of this paper. The result of this paper, indicate that, even though technology may have provided convenience among students, the lecturer has cautious toward this change, and provide a correct way to use AI, this method has strengthened the ability of the students to use AI more correctly, which gives them ability to use AI to their advantage without hindering learning experience.

Keywords: *Artificial Intelligence, Education, Learning Experience*

1. Introduction

The improvement of technology, the on-going digitalization, and many form of new invention, brought human race to digital era, in which illustrated as an era where human and technology co-exist in order to achieve more efficient, and effective process. One of the many technologies nowadays allowing human to command and it will be executed automatically, in general, this form of technology known as Artificial Intelligence (AI). AI known as a machine with the ability to detect, adapt, and solve the given problems, similar to human being, this technology is smart and capable of improvising the situation it faced, based on its program, this form of technology is specifically designed to mimic human cognition and action, allowing it to provide answers and solutions (X. Chen et al., 2020). There are various forms of AI, in education AI also takes important role, the existence of AI in

education capable of providing ease of access and independent learning, removing limitations in education. Intelligent tutors, assessment systems, and educational robots are a form of AI in education, further, technology such as computer vision, natural language processing, and adaptive learning also a form of AI in education (Huang et al., 2021). Cognitive abilities and problem-solving, is what AI are equip with, AI technologies provide opportunities for realization of personalized learning to meet the needs of its user, due to its ability to adapt and automatically personalize, this realization can be define as technology fusion, maximizing knowledge and technology, resulting in innovation, which are capable of providing more idea and creativity, although its capabilities, AI have numerous potential to be explored, namely in the field of education (L. Chen et al., 2020).

Artificial intelligence in education are explain in empirical research, divided in three paradigm, first paradigm explain that AI represent knowledge models and direct cognitive learning, in which learner act as recipients of AI services, second paradigm define AI as

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tools, which supported learner to enhance their performance in the context of education, and lastly, the third paradigm functions AI as an empowerment translating the user as leader, and this paradigm stated that AI supposed to contribute and not only used but also explored as it may posses the hidden potential, and possible improvements, many have yet to discover (Ouyang & Jiao, 2021). AI is an advanced technology and provided many advantages, however, this form of technology also bring challenges as well as opportunities, the comfort that AI brings upon learners distracting the true purpose of AI, this indicates that some individuals aren't using AI for the better, however they use it as a tools, and doesn't seek to explore and improve any of its hidden potential (Roll & Wylie, 2016). In past research, AI potential were research on, the function of AI were to assist, however, it also used by teacher and lecturers to reflect and to understand their potential, other than to assist, the potential of AI can also provide human with information, in which this information can be used to improve, and discover innovations, in which this can enhance the creativity, and the teacher ability to adapt toward the modern era of digitalization (Lameras & Arnab, 2022).

Artificial Intelligence in education have been often use in many activities, however, AI literacy can't be used for the children in elementary school, this are due to the fact that AI can create comfort, and instead of improving children ability, for older children, AI can become the origin of laziness, due to its ability to instantly answer and provide solutions for its user, this result in consideration to whether implemented AI literacy in curriculum or not (Sanusi et al., 2022). Many of past research doesn't provide any real implementation of AI, it also lacks analysis in crucial aspect such as privacy concern, ethical conductions, and digital divide making it harder for AI to be successfully integrated in education process (Feng & Law, 2021). Although education start at early age, education become more and more influencing, especially adolescent, at this age, learner often embodies bad habit of lazy reading, although some develop reading as hobby, some other feel lack of motivation to learn, therefore decreasing their ability to obtain knowledge effectively, further, the presence of technology may also bring harm, due to potential exposure of pornographic and explicit content, in which alter the adolescent behavior and habits (Xie et al., 2022). Therefore, AI requires further exploration of its potential and challenges, especially in this modern era.

Due to this reflection based on its functions explained in several empirical evidence, this paper has the least illustration of Artificial Intelligence, and the

explanation of its potential, challenges, and possible steps to approach on in order to improvement the usage and utilization of AI. With its advance, AI provide numerous contributions, however, the effectiveness of AI stills depends on its user, therefore it's a possible question that AI are effective in general, especially in the field of education, the highlighted of its potentially misused direction, and the possible misconduct of finding information, to provide new information that are potentially able to measure and visualize the effective use of AI in education, a research is urgent, especially in this never ending era of digitalization, and the never ending improvement and development of technology, with the behavior of human being which are directed in both positive and negative outcome, the effectiveness of technology in general also resulting both, and possibly future technology may also not far different or even decrease the expected outcome which are formulated in the beginning.

2. Method

This paper serves the purpose to understand Artificial Intelligence, further, to explore its utilization in education, it is become questionable that with its capabilities and ability to provide automatic answers and improvise conditions, whether the rise of AI in education can lead to improvement or the opposite. Therefore, the need for further research is a must. Using qualitative and deductive reasoning, this paper will use empirical data and research as its main sources of data, deducting from this, the sources will be formulated to provide research findings, highlighting the importance of AI and how its realization have affect learning experiences, leading to two ways main outcomes. However, the result of this will be reflected from empirical evidence, this may provide possible visualization on AI in education, and how it can be utilized to its full potential to guarantee learning experiences. Main sources of data will also be used to form conclusions and provide possible improvements for future research.

3. Results and Discussion

After performing this research, there are several findings that this paper manages to discover. Artificial intelligence isn't rare to find in this modern era, not only limited to one field, but AI can be found anywhere, from education, industries, to nation system. AI had helped assist human in their field of expertise. However, without the knowledge and skills required to operate this technology, it may lead to ineffective results, and further leaving this technology to be unused. In a logical sense, technology and education illustrated causal

relationships, in which, technology needs human, but human is the origin of technology development, and overtime, technology becomes more advanced, returning back to its need, where advanced technology can only be operated optimally by high quality human resources, which are obtain through education, and practice. In modern era, education have also assisted by technology, rising a potential, but also not limited to positive impact only, misused of technology can result in ineffective result, and hinder its potential, in the context of education, technology or more specifically AI, can reduce true learning experience by providing comfort and convenience of automatic system, potentially form laziness and lack of motivation to improvement and development in the learning process.

a. AI in Education

Artificial intelligence improves throughout the year. With improving research and studies, AI have developed to the form where it is able to provide assistance and even consider to be co-existed with human. Education has the potential to be revolutionized by Artificial Intelligence (AI). Machine learning (ML), a subfield of artificial intelligence, enables systems to learn from data, recognize patterns, and make judgments with minimum human input. AI may be used to automate administrative processes, allowing educational institutions to spend less time on things like grading and admissions and allowing educators to spend more time connecting with students. Similarly to a human tutor, AI may be utilized to construct intelligent tutoring systems that deliver tailored education and feedback to pupils (Dunjko & Briegel, 2018). One of its greatest advantages is that it facilitates student collaboration and mass individualization in large student groupings. AI can adapt learning materials and give timely support for students with specific needs. It can also benefit students with disabilities and special needs. AI can also enhance the efficacy and caliber of education. AIED prioritizes research to match the quality and effectiveness of one-on-one human tutoring in technology-enhanced learning environments. AI can also connect students to one another and their teachers to facilitate learning (Humble & Mozelius, 2022). The creation of intelligent tutoring systems is one of the key uses of AI in education. These methods are intended to provide students with individualized training that adapts to their distinct learning styles and demands. In automated essay scoring, machine learning algorithms are utilized to evaluate and mark student essays. This not only decreases teachers' effort but also provides quick feedback to pupils, allowing them to improve their writing skills more effectively. Through the analysis of data acquired from a variety of educational activities, AI

can assist educators in understanding and enhancing learning processes, as well as making educated instructional strategy selections (Doroudi, 2022).

In term of education, AI have lots of contribution, namely to the students learning process, for teacher, tutor, and lecturer, AI assist their improvisation, it provides not far different for students, since the functions aren't altered, but work in different ways and methods. AI systems are capable of analyzing a student's performance and adapting the material, pace, and method of instruction to fit their individual learning requirements. It can also function as an intelligent tutor, providing students with extra support and guidance outside of class time. Additionally, has a vital role in evaluation and feedback. It can automate the grading process, provide instantaneous feedback to students, and boost student involvement with the learning process. Through the use of virtual reality and augmented reality, it can make learning more dynamic and engaging (Lu et al., 2018). The use of AI increases student motivation. By tailoring content, artificial intelligence accelerates learning and increases brain activity. In addition, students receive 24/7 virtual education and immediate feedback. AI facilitates the creation of individualized courses for students, hence developing novel teaching and learning methods. AI simulates human listening, speech, observation, thinking, learning, and action, providing customized educational paths. It helps analyze students' knowledge and learning engagement approaches to construct personalized learning paths and provide supported solutions throughout schooling. AI-powered digital tools and virtual learning platforms facilitate innovative and practical instruction (Tapalova & Zhiyenbayeva, 2022). Another perspective on AI contribution, AI often used to create an improved student experience by helping students track previously taken courses and apply this information in course-planning. Due to its capabilities to understand the student learning result, AI can assist students to take suitable courses for future improvement. Further, AI is used to develop learning materials, and instruments, and finally, it is also used in qualitative assessment to measure student performance based on Knowledge-Based System (KB) and Supervised Machine Learning (Kumar, 2019).

This several reflections, provide insight and highlight the importance of AI, and how AI contributes to education in general, other important contribution of AI can also be seen in student learning process, it assistance, helped students to design their learning outcome, adaptive system of AI, also capable of improvising the student learning, provide information, automatic learning, and feedback for student to receive,

possibly act same as human. The possible outcome of learning, however, needs to be evaluated by teacher, in which there are several logical sense or condition, that can only be interpret by human being, provide us with the duty to perfect the role of artificial intelligence.

b. Artificial Intelligence and Learning Process

AI can contribute to learning process, as other enhancement media and tools, to achieve its maximal potential, AI need to be used effectively, the need for high quality human capable of generating innovation, and thus able to utilize AI for the need of students. The improvement of AI can be reflected in several ways, which is AI can serve as a creative and cooperating partner in collaborative activities, making unique contributions in terms of ideas, processes, artefacts, and search results. Assist in guiding reform activities in higher education and help educators improve teaching and learning. extract subtle, hidden patterns of an individual's learning behaviour from trace data captured by information systems, and make personalized recommendations that stretch the learner's knowledge and capability boundaries and suggest the next best strategic moves by applying machine learning to user attributes and activity data (Gibson et al., 2023). In online learning environments, such as Massive Open Online Courses (MOOCs), machine learning algorithms can track learner actions to enhance performance. Further, AI can overcome challenges faced in online distance education and optimize teaching and learning processes (Dogan et al., 2023). AI provide advantages, it can assist to shape a clever cybersecurity system based on machine learning and deep learning to forecast security threats and design smart systems that can perceive uncommon and suspicious situations or attacks and neutralize suspicious network activities. Further, AI can support teachers and students in avoiding troubles related to malicious links, saving educational institutions money and time spent on clearing machines (PCs, smartphones, tablets) from viruses and similar malware (Todino et al., 2022).

Artificial Intelligence can create several disadvantages, and some of it may hinder actual learning experience. One of the main issues is the lack of human-computer interaction. AI provides the information taught to the students mechanically according to pre-defined teaching processes, and students are completely passive in using the AI courseware for learning. Another issue is that the teaching process can become overly reliant on the teachers' instruction with relatively little time for students' independent thinking, moreover, in the actual teaching process, teachers can only operate according to

the pre-designed processes of the courseware, and human-computer interaction has not been adequately realized (Liu et al., 2022). Aligning with this finding, another research stated that AI have several disadvantages, which is lack of human interaction, dependence of technology, privacy become a concern, limit student and teacher creativity, accessibility and equity, potential technical issue, and finally, required cost. AI is a technology, the limit of this technology often found in cost, and its equity, not all students can access this easily, also not every school can adapt AI, which make it sometime exclusive (Mangera et al., 2023). Other than this issue, the over-reliance on technology may also be potentially negative effect on misuse of AI, moreover, the lack of personal interaction, AI only serves as program, which they lack emotional detector, AI cannot detect emotional state of the student, and therefore it can't provide solutions based on emotions input. However, the use of AI are useful for learning process in general, but, the dependence of technology may cause or hinder actual learning experience and decrease student ability to be creative and innovative, and make them unable to improvise many conditions, especially in decision making situations (Ali & Frimpong, 2020).

The introduction of Smart Coaching Systems is one way in which AI is applied. Using multiple algorithms for natural language processing and neural networks, these systems can enhance individual mentoring by deriving solutions for the student's learning curve, content interaction, and involvement with the cognitive learning process. Additionally, AI can be utilized to build an interactive learning environment. Intelligent Virtual Reality (IVR) is utilized to engage and direct students in authentic virtual reality and game-based learning environments. AI can also aid teachers in the learning and teaching process. A hybrid recommendation system of pedagogical patterns, for instance, can aid instructors in streamlining their teaching-learning strategies based on the circumstances of a certain class. In addition, AI can be utilized to assess student comprehension of a subject through their interaction with a visual learning environment. Using machine learning algorithms and scoring algorithms that function with a limited number of participants, this is accomplished. It can also be used for institutional and administrative purposes, including counseling, entrance confirmation, department confirmation, and library services (Sowmia & Poonkuzhali, 2020).

Several tactics are required to optimize AI for the optimal learning experience. Using AI to capture the emotional state of students in real-time during a virtual class session is one technique. This can be accomplished

through the use of neural networks, which can give teachers with insights into the perceptions and emotions of their pupils during class. This real-time feedback enables teachers to adapt their instructional tactics on the fly, resulting in a more effective and responsive learning environment. Another idea is to integrate AI directly into the curriculum. This can be accomplished, for instance, by integrating AI into business courses to improve pedagogy and learning results. This method not only equips students with vital abilities in a fast expanding sector, but also exposes them to the business uses of AI. Lastly, a computational psychometrics approach can be utilized to develop comprehensive learning and evaluation systems. This strategy employs AI to examine data from many sources, including student performance and engagement measures, to create a more thorough view of student learning. This data can then be utilized to personalize education and evaluations to the specific needs of each student, thereby boosting the overall learning experience (Masias et al., 2023).

This reflection provide insight on how AI is important in learning process, moreover, its crucial to fully understand the capability of AI before using it for individual needs, and further, implementing it to the public, or in this context, for student, the misuse of AI can bring negative impact on technology over-reliance and dependence, making less effort in studying, and also form lazy habit, reduce motivation, and worst case scenario, it can lead to inefficient use of technology in general, therefore, its important to note that AI is important, and provide us with many advantages, but it can only be efficient and effective with the right method of use, giving us duty as human being to utilize AI to its full potential, further to develop and invent new ideas or innovations for better future, especially in the era where machine are co-existed with human being.

4. Conclusion

The rise of Artificial Intelligence (AI) in education has the potential to both enhance and hinder the learning process. AI has become ubiquitous in the modern era, assisting humans in various fields, including education. However, without the necessary knowledge and skills to operate this technology, it may lead to ineffective results. Furthermore, the misuse of AI can potentially reduce true learning experiences by fostering laziness and a lack of motivation. Despite these challenges, AI can provide numerous contributions to education, but its effectiveness largely depends on its user. Therefore, it is crucial to fully understand the capabilities of AI before implementing it in the learning process. This understanding can help prevent over-reliance on

technology and promote the efficient and effective use of AI. Moreover, the potential misuse of AI and the possible misconduct of finding information highlight the need for further research, especially in this era of digitalization. This research can help measure and visualize the effective use of AI in education and provide possible improvements for future research. In the end, the role of AI in education is a double-edged sword. While it can provide convenience and assist in the learning process, it can also lead to a decrease in creativity and hinder the actual learning experience if not used correctly. Therefore, it is our duty as humans to utilize AI to its full potential and develop new ideas or innovations for a better future.

The implications of this paper are manifold and can be applied in various contexts. Firstly, in the field of education, the findings of this paper can be used to guide the implementation of AI in classrooms. By understanding the potential benefits and drawbacks of AI, educators can make informed decisions about how to best incorporate this technology into their teaching methods. This could lead to more effective and engaging learning experiences for students. Secondly, this paper can inform policy-making in the realm of education technology. Policymakers can use the insights gained from this research to develop regulations and guidelines that ensure the responsible and beneficial use of AI in education. This could help to prevent the misuse of AI and mitigate its potential negative impacts. Thirdly, this paper can contribute to the ongoing academic discourse on the role of AI in society. By providing empirical evidence on the effects of AI in education, this research can help to shape future studies and debates on this topic. This could lead to a deeper understanding of AI and its implications for human life. Lastly, the findings of this paper can be used by technology developers and AI researchers. By understanding the potential challenges and opportunities of AI in education, these professionals can work towards creating AI tools that are more effective, user-friendly, and beneficial for learning. This could lead to the development of AI technologies that are better suited to the needs of learners and educators.

Future research could focus on several areas to improve our understanding and utilization of AI in education. Which is (1) more empirical studies are needed to understand the effectiveness of AI in different educational settings and for different types of learners. This could involve conducting experiments or surveys in schools and universities that have implemented AI, to gather data on student performance, engagement, and satisfaction; (2) research could explore the ethical implications of using AI in education. This could

involve studying the potential risks and benefits of AI, such as its impact on privacy, equity, and the teacher-student relationship; (3) future studies could investigate the best practices for integrating AI into the curriculum. This could involve developing and testing new teaching methods that incorporate AI, to see which approaches are most effective; and, (4) research could focus on developing new AI technologies that are specifically designed for education. This could involve working with educators and students to understand their needs and preferences, and then using this information to design AI tools that are user-friendly, engaging, and beneficial for learning. In conclusion, future research on AI in education could focus on understanding its effectiveness, exploring its ethical implications, investigating best practices for its integration, and developing new AI technologies for education.

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