

THE ADAPTATION OF ARTIFICIAL INTELLIGENCE IN EDUCATION AND ITS CHALLENGES TO THE EDUCATION STUDENTS GEARING TOWARDS BETTER LEARNING

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Abstract

Background: Artificial Intelligence has been seen as a breakthrough in the realm of education over the past fifteen years. Teachers and students alike now rely on apps in their daily lives. However, the Horizon Report 2019 Higher Education Edition (Educause, 2019) anticipates that AI applications related to teaching and learning are predicted to increase even more significantly than this throughout the period of 2018-2022.

Purpose of the Study: The purpose of this study was to identify the obstacles and adaption of artificial intelligence to the education students. This also provided data on the various ways of schools in adapting AI education in terms of personalize education, academic activities, grading system, and school technologies.

Research Methods: A descriptive correlational methodology was used in this study. Consequently, a particular outcome has been selected and is currently being implemented for the study's beneficiaries, namely the education students in the said setting.

Conclusion: The adaptation of artificial intelligence education has an effect in the challenges to the students which could also affect their learnings towards better education. The academic activities of the students are mostly conducted through online or with the use of technologies or AI-driven tools.

Keywords: Artificial Intelligence, Education Students, Adaptation, Universal Access.

Introduction

According to Smutny and Schreiberova (2020), artificial intelligence (AI) research in education has concentrated on creating chatbots, robotic systems, and intelligent tutoring systems. There is still a disconnect between modern technical capabilities and their use in education, even with the growing number of papers and methodologies describing the use of big data and AI in education. Data analysis tools and artificial intelligence applications that might not follow accepted theoretical frameworks or empirical findings in educational psychology have emerged as a result of the rapidly growing area of education. There is a significant gap between the adoption and application of technology in education as a result of rapid technical progress and gradual educational acceptance (Macfadyen, 2017).

The digital divide in education needs to be addressed. Various points of view are presented, together with the contentious issues they bring up, recent studies, and anticipated advancements in big data and artificial intelligence in education that served as inspiration. According to the following research, technological advancement and educational disparity are controversial (Luan et al., 2020). AI and big data will bring about a paradigm shift in education. BlackBerry was the most popular smartphone in 2010. Ten years hence, 75% of people in Sub-Saharan Africa own a cell phone (GSMA Intelligence, 2020).

Therefore, the need and/or desire for adoption outweighs the technological prerequisites. The COVID-19 epidemic proved it. The demand for continuous education and social distance coincided with the implementation of online and e-learning (United Nations, 2020). The digital divide between underprivileged pupils and developing countries has gotten worse in this age of increased knowledge and artificial intelligence. Instead of replacing or impeding human learning, new technology will enhance the transfer and acquisition of knowledge (Azevedo et al., 2019).

Research Question

1. How did the adaptation of artificial intelligence education and its challenges to the students can create a better education for the new generation?

Purpose of the Study

The purpose of this study was to identify the obstacles and adaption of artificial intelligence to the education students. This also provided data on the various ways of schools in adapting AI education in terms of personalize education, academic activities, grading system, and school technologies. Furthermore, it also provided data on how challenging the adaptation of AI for the education students in terms of accessibility, adaptive learning,

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dependability, and data protection. This was undertaken with the intention of determining and comprehending innovations geared toward enhancing education for the next generation.

Literature Review

A new style of education based on artificial intelligence has emerged and schools are adapting to AI-driven tools as a result. This shift necessitates modifications and adaptations on both sides. In this study, they were contrasted and compared based on the many literatures that provided support for the data that was being determined for the students. Even if nations spend enormous sums of money, it is crucial that kids have access to AI-powered learning tools at home and at school. Because some children would not be able to meet the requirements of the educational system, this issue might lead to a digital divide among pupils, which would generate disparities in academic quality and inhibit school growth. In addition, protecting someone's safety is essential since it can lead to social, emotional, and mental health issues. For this reason, maintaining user data safety is crucial. In as much as artificial intelligence (AI) is intelligent and advanced enough to provide advanced information and services to individuals, there may be a downside in the form of a threat to data protection due to the fact that we are providing AI with personal and confidential information. This is because AI is intelligent enough to provide advanced information and services to individuals. This problem may be a challenge to a student, and if it does, it may have an effect on their academic achievement. This study provided information that could be helpful to school administrators and teachers regarding the areas of adaptation that children find difficult to meet, such as accessibility, a variety of hazards, and others; also, educators should also use properly the benefits they derive from AI-driven tools in order to enhance the standard of instruction and quality of lessons they provide their students. This will have the direct effect of preventing academic quality loss and preventing any student from falling behind. Since kids are the future and AI has the potential to enhance people's lives in every way socially, economically, environmentally, and in any other way imaginable it is quickly becoming the educational technology of the future. If we want to safeguard the futures of students, education, and society as a whole, we must provide many possibilities for adjusting to AI.

Methodology

A descriptive correlational methodology was used in this study. Consequently, a particular outcome has been selected and is currently being implemented for the study's beneficiaries, namely the education students in the said setting. The framework of this study made it easy to match the survey

questionnaires used to collect data on the dependent variables of the study; more particularly, the AI education adaptation and its challenges to the respective students

Analysis

The research instrument used in this analysis was self-formulated and three specialists checked the accuracy of the survey questionnaire instrument which was also put through a round of pilot testing. Through information accumulation, it was segmented as follows:

Part I of the instrument is a checklist intended to gather data of the demographic profile of the secondary students as the respondents of the study. This includes (1) Age and (2) Type of Enrolled School.

Part II of the instrument consists of another checklist to determine the ways education schools adapt artificial intelligence education in terms of (1) Personalize Education, (2) Academic Activities, (3) Grading System, and (4) School Technologies.

Part III of the instrument is a checklist determining how challenging the adaptation of artificial intelligence for the education students in terms of (1) Accessibility, (2) Adaptive Learning, (3) Dependability, and (4) Data Protection,

Discussion

The teaching tool based on artificial intelligence may adapt to a learner's cognitive pace and deliver increasingly difficult activities to expedite his or her education. Therefore, students can progress at their own rate, regardless of how quickly or slowly they learn. A study from Hwang, Xie, Wah, & Gasevic (2020) added that One of the most important goals of AI in education is indeed the providing of individualized learning assistance or support to students on the basis on their cognitive status, preferences, or other personal traits. The statement with the highest mean in this section shows that students are capable of recognizing their strengths and honing their skills, with the majority of them adjusting to individualized instruction or learning using artificial intelligence. Designing and creating more successful technology-enhanced learning environments and applications has become possible with the use of AI in education (AIED). This also suggests that AI has increased the chances for both teachers and students to broaden their fields of learning. This would broaden and improve both the educators' and students' methods of instruction and learning (Hwang, Xie, Wah, & Gasevic, 2020).

In an educational setting, the automated grading system is a professional computer program that uses artificial intelligence to grade student assignments in

a manner similar to that of a teacher. It assesses students' understanding, examines their answers, offers comments, and develops customized training programs. Numerous applications for teaching artificial intelligence use this program. The software automatically creates an evaluation score for the student based on the assessment of learning. This strategy can assist teachers in gaining a better understanding of their students' learning circumstances, while students gain a greater awareness of their degree of learner performance and cognitive comprehension. In this section, the statement that received the highest mean indicates that AI is being utilized in conducting and checking examinations in which the related study has proven. The grading system is also advancing as it makes the jobs of the teachers easier by not manually checking them anymore, (Shang, 2019). The trend in artificial intelligence (AI) research is shifting from applications focused on enhancing output and performance to those focused on enhancing human intellect with intelligent machines. In this section, the statement that received the highest mean indicates that AI adaptation already exists in their school in conducting educational learnings and activities (Yang, 2021).

Tools driven by AI make learning accessible to all students, at any time and in any location. Every student is learning at his or her own pace, and around-the-clock access enables it for students to discover what works without having to wait for an educator. Furthermore, students from all around the world have access to advanced education without enduring transportation and residential fees. In this section, the statement that received the highest mean indicates that most students have an access in their internet and technology which would enable them to adapt in their academics (Karandish, 2021).

Gradually, in adaptive learning, AI is used to gather and evaluate student learning data, define the learning styles and features from each student, and would then automatically alter the teaching content, mode, and rhythm to better fulfill their needs (Wu, 2019). The more data is collected over time, the "smarter" artificial intelligence will become and the more accurately it will adapt to students' learning. In this approach, a feedback loop will be created, resulting in an increase in the learning efficiency of pupils, the effectiveness of their efforts, and their confidence. Hwang, Xie, Wah, & Gasevic (2020) added that computer programming skills, adaptive learning systems can include approaches for imitating the intellect of human specialists. The statement with the greatest mean in this section suggests that the majority of pupils have already acclimated successfully to AI. Depending on how well they comprehend and apply AI, they may be able to improve their knowledge and abilities. But

according to the statement with the lowest mean, teachers are not very adept at adjusting to AI. Without learning qualities from the teachers using AI, students would not get learning efficiency.

In terms of the transition from technology to humans, artificial intelligence can increase human performance through technology. However, while seeking to improve human intellect with intelligent machines, AI designs must consider human situations and use a human-centric approach. In this section, the statement that received the highest mean indicates that students are losing interest because of AI addiction. It was stated that it could enhance human productivity, however, it was not aligned with the findings of this study as students do not have the match the perspectives from the related study, (Yang, Ogata, Matsui, & Chen, 2021). In addition to how to make AI education institutions theoretically and educationally sound, there are possible ethical issues to take into account. AI requires enormous volumes of learner data and frequently private information for model training. Notwithstanding the data security concerns, the statement in this section with the highest mean suggests that students feel secure and can guarantee their safety at their university.

In order to achieve the output, further enhancing the AI adaptation is needed. This approach is modified from Harper (2021). First, **smart content creation** deals with the category of Academic Activities with a category mean of 4.15 with a verbal interpretation of "agree" and the category of School Technologies with a category mean of 4.08 and the verbal interpretation of "agree". AI can aid in the creation of intelligent information that makes learning and teaching more pleasant for both teachers and students. Teachers are able to construct digital lessons (such as study aids and digital books), data visualization, and regular changes to learning content. This could widen the teaching approaches of the teachers and could let students learn in different ways. Second, **teaching the teacher** deals with the statement "*The educators in my school are knowledgeable with digital skills in using AI to provide the students a better-quality education.*" with a mean of 4.28 and the verbal interpretation of "strongly agree" and the statement "*The educators in my school have adapted very well to using AI.*" with a mean of 4.13 with a verbal interpretation of "agree". These statements indicate that even the educators are knowledgeable enough in utilizing AI-driven tools, they are still not adapted very well in using AI. Important in the field of education is that teachers not depend on their outdated knowledge. They must also educate the students more information. Not to neglect the fact that they learn and teach inside a limited area, and they still have much to learn. With artificial intelligence, educators

have access to a wealth of knowledge at their fingertips. This enables people to remain educated in areas they are unfamiliar with or to enhance their prior knowledge. With this, they become more well-rounded and equipped with a deeper and broader knowledge foundation to compete with students of the 21st century. In order to achieve smart content creation in providing the students a broaden understanding in the curriculum, being well-adapted and well-knowledgeable should be included in the skills of the teachers. Third, **simplifying administrative tasks** deals with the category of Grading System with a category mean of 3.98 with a verbal interpretation of “agree”. AI has been utilized to automate jobs in several businesses and the same will be true in the education industry. Typically, professors and teachers must manage the classroom environment in addition to other organizational and administrative duties. Artificial Intelligence will simplify these activities, allowing teachers to devote more time to their primary responsibility of instructing. Teachers spend their time both on teaching and handling administrative tasks in which in some ways could interfere with their teaching approaches. AI adaptation can take over the tasks to lessen their work time and to prevent burnout among teachers for them to provide a better-quality teaching without compromising their health. Fourth, **personalized learning** deals with the category of Personalized Education with a category mean of 4.33 with a verbal interpretation of “agree”. Students already have access to adaptive learning tools, games, and activities. This application of AI is likely among its most essential in education, as it makes learning more pleasant and seamless and transcends individual knowledge. This technique stresses the individual needs of each student by emphasizing their weaknesses and repeating lessons they have not learned. This category indicates that students have assessed and learned their capabilities and strengths on their own with the help of AI. This would not only help them academically, but will also give them opportunities in developing the characteristics of the students and enhancing their knowledge and skills. Fifth, **identify students’ weakness** deals with the category of Adaptive Learning with a category mean of 4.32 with a verbal interpretation of “strongly agree” and the category of Dependability with a category mean of 3.62 with a verbal interpretation of “agree”. These categories indicate how well students are adapted and dependent in using AI-driven tools. Some students may still struggle in adapting with few reasons such as insufficient knowledge and skills or inability to afford having their own AI-driven tools that could be their practice in using it. On the other hand, some students may possibly dependent with AI that could lose their passion, skills and creative thinking. AI adaptation could be a positive or negative effect depending on how it is

being utilized, that is why identifying students’ weakness is significant in preventing such circumstances like these. Lastly, **universal access** deals with the category of Accessibility with a category mean of 3.96 with a verbal interpretation of “agree”. The statement “*I can access AI education using technologies and/or internet in our school.*” received the lowest mean of 3.54 with a verbal interpretation of “agree”. Schools, administrators, and educators must ensure the accessibility of each student to prevent educational gap among the students. In some circumstances that the school and educators are using technologies or AI-driven tools in their everyday teachings, technology difficulties could hinder the learnings even for a day.

Conclusion

The adaptation of artificial intelligence education has an effect in the challenges to the students which could also affect their learnings towards better education. The academic activities of the students are mostly conducted through online or with the use of technologies or AI-driven tools. Also, the students are well-adapted with utilizing AI. The researchers have given further information to identify the difficulties for the school administrators and educators to aid in solving the challenges and create an innovation to provide a better education for the new generation.

Conflict of Interest

There is no conflict of interest by the author in this manuscript. Results have been deduced objectively; nothing influenced this result by any individual, monetary, or institutional interests. In effect, utmost endeavors were in order to conduct a bias-free operation of gathering and analyzing the data into interpretation and producing a study based on merit, away from research inconsistencies.

References

1. Smutny, P., & Schreiberova, P. (2020). Chatbots for learning: A review of educational chatbots for the Facebook Messenger. *Computers & Education*, 151, 103862.
2. Macfadyen, L. P. (2017). Overcoming barriers to educational analytics: How systems thinking and pragmatism can help. *Educational Technology*, 31-39
3. Luan, H., et al. (2020). Challenges and future directions of big data and artificial intelligence in education. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.580820>
4. GSMA Intelligence (2020). *The mobile economy 2020*. London: GSM Association.
5. Azevedo, et al. (2019). Ending learning poverty: What will it take?
6. Hwang, G-J., Xie, H., Wah, B., & Gasevic, D. (2020). Vision, challenges, roles and research issues of artificial intelligence in education.

- Computers and Education: Artificial Intelligence*, 1. <https://doi.org/10.1016/j.caeai.2020.100001>
7. Yang, S. J., Ogata, H., Matsui, T., & Chen, N. S. (2021). Human-centered artificial intelligence in education: Seeing the invisible through the visible. *Computers and Education: Artificial Intelligence*, 2, 100008. <https://doi.org/10.1016/j.caeai.2021.100008>
 8. Karandish, D. (2021). 7 Benefits of AI in education. Retrieved from <https://thejournal.com/articles/2021/06/23/7-benefits-of-ai-in-education.aspx>
 9. Wu, B. (2019). Personalized education for graduate students driven by artificial intelligence and big data. *Teaching of Forestry Region*, (7).
 10. Harper, T. (2021). Top 7 Ways Artificial Intelligence is Used in Education. Retrieved from <https://trainingmag.com/top-7-ways-artificial-intelligence-is-used-in-education/>.