Advantages of Artificial Intelligence and Its Relevance in Improving Educational Quality

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Abstract:
Artificial Intelligence (AI) is a nascent and transformative technology that has the potential to permeate and modify many aspects of our existence. It has developed as a recent phenomenon in the realm of education. This research specifically examines the difficulties and advantages associated with Islamic Education in the contemporary digital era. The objective of this study is to offer a comprehensive analysis of the present condition of Islamic education in the Islamic World. The study technique involves performing a comprehensive library search and collecting data from written sources about the stated subjects. The descriptive-analytical method is used in the discussion method to clarify and elaborate on the key concepts pertaining to the subjects covered. The results show that AI education (AIED) is an emerging field of scientific research for more than 30 years. It is aimed at preparing students with the ability to think critically and solve problems, being able to develop interpersonal communication well, creatively, and, of course, collaboratively, and change the mindset of teachers and other education stakeholders to be more adaptive to technological developments in learning. It is essential to equip students with virtuous values, particularly Islamic values, in order for them to mature into faithful Muslim individuals who possess everlasting faith and reverence towards Allah SWT and demonstrate an outstanding character in their personal, social, national, and state endeavors.

Keywords: Artificial Intelligence, Education, Technology

Introduction

Nowadays, we are continuously connected globally and have countless communications through the digital world all day. 5.18 billion people are connected to the internet, with more than 6 hours daily time spent using the internet (We Are Social, 2023). In the aftermath of the Industrial Revolution, we are in an era of technological development. Digital devices have become more innovative and continually updated and have affected various sides of human existence, like Artificial Intelligence, which has become a new trend. They consequentially bring significant advancement and challenges, no exception in the educational sector. According to reports, digital technology is the one element having the most significant impact on the global education system at the moment. (Putrawangsa & Hasanah, 2018).

Islamic Educational sector has been one of the disciplines that have been forced to adapt; we are all aware that Islamic Education plays an essential role in keeping, caring for, and developing human nature with all resources belong him toward shaping a qualified creature that is suitable to

Islam norms and becoming faithful servants of Allah and are able to act as caliph in the earth (Achmadi, 2008). Thus, we must comprehend the difficulties and possibilities of Islamic Education in the modern digital age today. The world of education is currently starting to be busy preparing a generation that is able to survive in the competition in the industrial era 4.0. (Ismail et al. 2020)

The Digital Age and Industrial 4.0 are inseparable things and highly correlated. According to the KBBI, the Industrial Revolution is defined as a rapid production process (Asfiati, 2020). The term "Industrial Era 4.0" describes a period characterized by the integration of technology to the extent that the distinctions between the physical, biological, and digital realms become indistinguishable (Schwab, 2017). The Fourth Industrial Revolution is now a reality of modern life, requiring us to use technology for all aspects of our daily lives. As technology advances, human tasks can become more efficient and quick (Haidir et al., 2021). For example, two people can instantly exchange information with each other through digital assistance even when they are not present in the same place at the same time. Artificial Intelligence (AI) and data digitization are pervasive in many aspects of human life (Lase, 2019). They make all things more effective, easy to reach and minimize waste.

We will discuss how the advancement of technology can improve the quality of education; students should be able to distinguish between good and bad values in order to make the right choices that will enhance their social and personal well-being. However, in fact, we must acknowledge the ongoing problem that affects the Islamic education learning process. According to several researchers, the main problem is the low quality of educational stuff that affects wider society (Ahmadi, 2008); other problems such as ideologic problems, the dualism of the educational system, language barriers, and methodological study issues (Lestari et al., 2010). The development of educational values is the challenge that Industry 4.0 presents to the educational sector. Due to the quick advancement of technology, students are becoming more and more carefree and averse to taking accountability, which is resulting in a decline in morality and an increase in student crime (Tajudin et al., 2020).

In the age of globalization, Islamic education confronts the following challenges: To promote sustainable development, the initial measure is to enhance added value, which refers to increasing national labor productivity alongside economic growth and equity. Additionally, there is a pressing need to address global competition by improving the nation's capacity to produce exceptional creative works through the application of concepts, innovations, and expertise in the fields of science, technology, and the arts. Furthermore, the research focuses on the intricate aspects of the Reformation era's inception and the transformation of the social framework from a conventional agrarian culture to a contemporary industrial society. In the domains of science and technology, the realms of politics and economics are witnessing a shift from traditional invasion and colonialism to the emergence of innovations and colonialism. This transition presents various obstacles. (Nuryana, 2019).

While digital technology has focused on making various things more accessible, the educational world needs to prepare learners with virtuous values, especially Islamic values. Facing the modern world and Industrial Revolution 4.0 that at least marked the presence of four things, like cyber systems, AI, manufacturing collaboration, and supercomputers (Arif, 2020), educators are necessary to organize several things. First, creating a more creative learning system is one of the priorities. Second, new institutional policies for education that are flexible and responsive must be created. The third step is to get ready with dependable, flexible, and responsive human resources. Fourth, updating infrastructure and creating infrastructure for innovation, research, and education (Choli, 2020).

Our goals for higher Islamic education in the Muslim world and our vision of new technology need to be updated in response to change. The wake of globalization is multi-dimensional. Artificial Intelligence is a new development that dramatically benefits society. AI can do those tasks because of its capacity for learning, but only if world conservatives are willing to change and make this a possibility (Ali, 2011). Inevitably, today, the life of the world human being is faced with lots of new prospects in all sectors and, all at once, gives birth to complicated and complex challenges. As a stage of the technological revolution, Industry 4.0 modifies the scope, depth, intricacy, and evolution of human endeavors. Humanity will survive even in a condition of worldwide uncertainty. Therefore, individuals need to plan for the future that is changing quickly (Anwar, 2019).

Research Method

The research method used in this paper is a qualitative research method with a literature study approach. The researchers gathered the data from supporting articles, books, and research publications. The study technique is to conduct a library search and gather data from writings (literacy) on the subjects mentioned (Zed, 2004). The descriptive-analytical method is used in the discussion method to clarify and elaborate on the key concepts pertaining to the subjects covered. The author first selected some of the data that had been gathered, and then the researcher began categorizing the data based on the topic and conversation. Since this study uses qualitative methods for data processing, different search results from primary and secondary sources are critically analyzed, compared, and interpreted.

Result and Discussion

Artificial Intelligence (AI) comes from a conference called the Dartmouth Conference in 1955, and the person who pioneered it was John McCarthy (Russell & Norvig, 2016). AI can be defined as a system's capacity to accurately analyze external data, acquire knowledge from that data, and utilize that knowledge to accomplish specific objectives and activities by means of adaptable adjustment (Kaplan & Haenlein, 2019). Artificial Intelligence (AI) is extensively employed in various domains of our everyday existence, encompassing computer games, automated mass transit, personal assistants, facial recognition at passport control, speech recognition on virtual assistants, driverless cars, companion robots, and more (Sadiku, 2022).

Learning takes place continuously, especially for younger people. Though historically rigid, traditional educational systems are currently evolving to keep up with the rapid advancements in technology. Artificial Intelligence (AI) is one important technology that has the potential to revolutionize education. For both teachers and students, implementing AI offers a number of advantages. (Dadhich, 2020). Digitizing education brings about significant changes. Studying is not limited to in-class settings. A university can exist in the virtual or digital world. During the Fourth Industrial Revolution, artificial Intelligence is currently replacing many jobs. AI technology is enabling a level of personalization and flexibility in education that was previously unattainable. It is transforming classrooms and schools, greatly simplifying the work of educators. AI can automate grading and assess students. It is poised to revolutionize education (Sadiku, 2022).

For over three decades, the application of artificial Intelligence to education (AIED) has grown to be a recognized area of science. The term AIED describes the use of AI technologies to

support decision-making, teaching, and learning in educational environments. It is one of the emerging fields in educational technology. AIED is mainly concerned with the development of "computers which perform cognitive tasks, usually associated with human minds" [Chen, 2020; Hwang, 2020]. AI has much potential in the future, and educators who seize the chance to learn about it and engage in dialogue with students can help shape that future. Numerous AI applications exist for teaching and learning. Distance education, higher education, mathematics education, robotics education, language education, computer science education, medical education, STEM education, science education, and musical education are popular fields in which AI technologies are being used to support students' learning (Chen & Hwang, 2020).

Artificial Intelligence has been the subject of public and scientific scrutiny since its inception. Despite all of its advantages, at least three obstacles remain for AI researchers to overcome. The first is human employment, which is a hotly debated topic regarding AI because machines can replace people; Second, skeptics of technology fear that artificial Intelligence will overcome humans, curtail personal liberty, and obliterate privacy; Third is regulation; the quick development of AI technologies makes it difficult to create laws governing AI because the field involves many different technologies and because enforcing regulations may impede the advancement and development of AI (Wang, 2007; Fjelland, 2020).

When we look from an Islamic perspective, we are never prohibited from developing science and technology. Instead, it can become a recommendation to improve the quality of human beings. However, guidelines and ethical factors still must be considered in searching for AI that is based on the religious side that can take care of the Islamic community. This issue is connected with five Islamic principal values in order to take care of and protect human rights: hifz al-din (religious protection), hifz al-nafs (soul protection), hifz al-aql (mind protection), hifz al-nasl (descendant), and hifz al-mal (material security). We are convinced that these approaches can be a big deal in various contemporary issues, including AI trends that have an impact on the moral and ethical aspects (privacy, equality, safety, trustworthiness, etc) (Nawii et al., 2021).

After the disruptive innovation phenomenon, education is expected to enter the digitalization phase of the educational system, bringing about a complete transformation in the nature of learning activities. A more innovative, interactive, varied, and comprehensive learning experience can be had by transforming the classroom into a digital learning environment (Suharto, 2019). Moreover, the educational world shall be designed to prepare individuals to have life competence, problem-solving, critical thinking, creativity, communication skills, social network and collaboration, also perform innovation for producing noble character and high competence students (Al Qurtuby, 2021)

The goal of education, particularly Islamic education, must be fulfilled in order for graduates of educational institutions to contribute to development without leaving a noble character (Luluk, 2018). Islamic education seeks to cultivate students' faith, understanding, admiration, and engagement with Islam, enabling them to develop into devout Muslims who possess a deep belief in and reverence for Allah SWT and exhibit virtuous conduct in their social, personal, national, and civic spheres (Zakir, 2019). Islamic education, according to Adnan (2022), is character-building or coaching for students to ensure that they follow instructions and refrain from forbidden things in line with Islamic teachings.

In order to embrace the era of Industrial Education 4.0, specific preparations need to be executed: 1) Preparing students with the ability to think critically and solve problems, being able to

develop interpersonal communication well, creatively, and, of course, collaboratively; 2) Change the mindset of teachers and other education stakeholders to be more adaptive to technological developments in learning. This, of course, needs to be complemented by debriefing in the form of training skills in the use of technology adequately; 3) The need for curriculum adjustments to equip students with big data, artificial Intelligence, and digital society in general; 4) Provide digital learning content that is easily accessible to all students. The provision of facilities such as learning houses that are already running well can be adopted and developed. Entering the learning house feels like an inspirational virtual class; 5) Using interactive learning methods with exciting media. With the enrichment of Islamic values and the treasures of Islamic historical wealth, the digital visualization of Islamic Education is compelling and inspiring (Saihu, 2021).

The innovation phenomenon may decrease classroom necessity. Teachers will dramatically change roles as mentors, motivators, and models. Educational learning is not confined just to the confines of a classroom but instead can be undertaken at any given moment, in any location, and on any available medium. It can be more personal, which can help develop teacher-student relationships, the fairness of the performance assessment process, and the adaptation of the learning experience to the adapting needs of students. Technology 4.0 produces new skill sets while disrupting old competencies that are no longer relevant because machines and AI replace them. Appropriate preparation, strategy and anticipation steps are needed in anticipating the era of artificial Intelligence in its implementation in the world of education. Nuryadin (2017) said that we need strategic ways to deal with educational problems, such as the rejuvenation of digital technology-based infrastructures, the development and improvement of human resources and the utilization of learning digital media.

We want to dive into what AI can do to accelerate and amplify educational quality based on the book Artificial Intelligence in Education, written by Matthew Sadiku:

1. Classroom Activity: AI can enable teachers to receive support about grading assignments in the AI system so that teachers can spend more time with their students. Since teachers can only be present for learners periodically, additional mentors or tutors are necessary. Cooperating with an AI system and tutor can be beneficial for both learners in the learning process (Sears, 2018);

2. Personalized Education: AI is able to differentiate instruction so that each student receives it in a way that is unique to them. AI can assist in creating a customized study plan for every student, meeting their needs in the process. Students with learning disabilities now have more opportunities to interact with one another. Personalized learning expands the scope of the process, boosts accessibility, and increases efficiency (Setareh, 2021);

3. Administration: AI can streamline and expedite administrative tasks. It can streamline the administrative chores of instructors and academic institutions. Technology can be utilized to automate the process of grading assignments that involve several tests. Consequently, educators would be able to allocate more time to their students instead of devoting extensive hours to grading their work (Sadiku, 2022);

4. Universal Access to Global Classroom: AI can enable universal access to education by removing geographical barriers, allowing individuals to learn any subject from any location and at any time. AI technologies have the potential to enable global classrooms for all students, regardless of language proficiency. There will be a broader range of lessons available online, and students will be learning globally with the help of AI. (Marr, 2018)

5. Education 4.0: It becomes a response to the need for Industry 4.0. where man and machine work together to enable new possibilities, it places the learner at the center of the ecosystem, allowing him to engage in experiential learning. Education 4.0 necessitates new ways of thinking for both teachers and students. Being a good teacher necessitates the development of a wide range of interdisciplinary skills. The modern student is a digital native who is at ease with mobile and computing devices. New skills, curricula, teaching, learning, and training, as well as educational flexibility, are required. Education 4.0 is regarded as the future of education and is expected to alter information consumption (Sadiku, 2020).

6. Teaching: AI has considerable potential to transform the traditional teaching and learning process through its advanced technology. AI not only works in the teaching process but also provides services such as instructing, tutoring, testing, grading, and feedback. While artificial Intelligence offers numerous benefits to students and teachers, it is unsuitable for substituting for teachers. It releases the teacher from repetitive tasks like student assessment and grading (Lindner & Berges, 2020). Education professionals can overcome their shortcomings with the aid of the AI software development system.

7. Learning: Determining a student's learning style is crucial in making learning adaptive to the student's needs. AI methods are considered valuable tools because they can improve and replicate the decision-making process adopted by students. Various AI techniques have been used in adaptive educational systems. These include fuzzy logic, neural networks, and genetic algorithms. (Baja & Sharma, 2018).

With all those advantages, humans still have some unique things that AI cannot be suitable for human characteristics, like love and the abilities regarding perception, emotion, feeling, and cognition that cannot replaced by machines or algorithms. Despite the remarkable potential of AI, several obstacles hinder its complete implementation in different educational institutions. Those challenges that mentioned former researches like privacy (many students do not want others to know their private information, such as learning style and learning capability); trust (AI can be abused or misused by humans such as the misues of the personal information to identify citizen sources which breach trust and human right); limited capability (AI tools cannot teach sympathy, empathy, and other such emotions, which are an integral part of the overall development of personality); cost (introducing AI-based methods may not be affordable by many public educational institutions); student's lack of experience (sometimes, AI is not presented appropriately for the background of the students, exceptionally high schools students.); ethical dilemma (the situation to which the human being is confronted when he opposes, on the one hand is morality or conscience and on the others, life.); AI literacy (it is necessary to promote artificial intelligence literacy in the society to enable the existing workforce to develop their artificial intelligence skills. AI literacy may be regarded as a person's overall level of knowledge, method, application, and evaluation of AI). (Zawacki-Richter, et. al., 2019; Kandlhofer, et. al., 2016)

Artificial Intelligence creates hesitation in humans when discussing the profound transformations that impact their lives. Technology capable of simulating human Intelligence will evolve, exhibiting abilities to perceive, comprehend, communicate, want, possess knowledge, and demonstrate Intelligence. Nevertheless, these innovative organisms lack liveliness and absolutely lack any soul. While technology may mimic the functioning of the human brain's nervous system, it

cannot attain the same level of complexity as the divinely created human brain by Allah SWT (Saihu, 2021).

An educational methodology that utilizes Artificial Intelligence/Robot technology to a limited extent is required. In order to achieve the objective of Islamic education, which is to develop individuals with noble character, it is imperative to engage in the process of transferring values and principles. Technology can enhance administrative functions, leading to increased efficiency and effectiveness in the learning process. However, it should be different from the crucial role of instructors in providing moral guidance and serving as role models (Saihu, 2022). This is the factor that renders the teacher's function indispensable in the face of any exceptional technology. This is because technology cannot promote the development of moral ideals or operate as a catalyst, motivator, or wellspring of imagination, creativity, or social empathy. However, teachers still need to possess the necessary skills and abilities in order to provide excellent instruction. (Zubairi, 2022).

Conclusion

We live in a fast-paced digital era that offers excellent opportunities as well as unprecedented challenges. Efforts have been made to evolve the educational system to the requirements and needs of students in the 21st century. Artificial Intelligence is a nascent technological advancement. That can pervade and alter every aspect of our lives. AI education (AIED) has become a new trend in education. Artificial Intelligence (AI) will significantly influence education in the domains of administration, instruction, and the development of tailored and personalized learning solutions. Artificial Intelligence in Education proposes to combine the significant aspects of human beings and machine learning for the benefit of students. The development of AI has given rise to educational tools that have garnered attention for their capacity to enhance educational standards and instructional approaches. Despite the irreplaceable importance of a teacher's presence, there will be multiple adjustments to their responsibilities. Education might be slower in adopting AI, but the changes will continue. Practitioners and academicians believe that artificial Intelligence is the future of our society. Given the inevitability of AI in the world, educational institutions must provide students with exposure to AI technology. AI skills must also be balanced with person-centered aspects of education to develop a more rounded leader of tomorrow. Artificial Intelligence technology can be used in functions that help humans administratively. However, it does not eliminate the role of humans in the potential for reason in solving life problems in various aspects of life, both in the world of work, business, and education. On the one hand, technology is God's gift to man to be a provision in order to answer God's challenges.

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