

The Re-examination of the Dangers and Implications of Artificial Intelligence for the Future of Scholarship and Learning

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Abstract. Technology is rapidly developing, and integrating artificial intelligence (AI) into education has become a topic of great interest. While it promises to revolutionise how we learn and acquire knowledge, some significant downsides remain. From reducing human interaction to potentially losing jobs for educators, the impact of AI in education is far-reaching. In this article, we will explore the downsides of artificial intelligence in education and its effect on future generations. The study shows that the dangers inherent in integrating AI into scholarship and learning are multi-faceted. From the potential loss of human judgment and unintended consequences in education delivery to fostering dependency and narrowing research avenues, these risks emphasise the need for an informed and cautious approach. As the academic community embraces the benefits of AI, it must navigate these challenges to ensure that the core values of scholarship and learning remain intact and resilient.

Keywords: Artificial intelligence; scholarship; learning; dangers; students.

INTRODUCTION

Artificial intelligence (AI) has emerged as a transformative force, revolutionising various aspects of human society, including education, research, and learning [1]. As AI technologies evolve, they promise to unlock new possibilities and efficiency in scholarship and teaching [2]. Using text-generative AI such as ChatGPT, Bing, Bard, Co-Pilot, and the like has become a mounting concern within academic environments.

While AI offers numerous benefits, such as increased efficiency and personalised learning experiences, it raises concerns regarding data privacy, ethics, accessibility, and loss of human creativity. This paper delves into the dangers and implications of AI for the future of scholarship and learning, aiming to encourage informed discussions and strategies for addressing these challenges.

However, the apparent unbridled integration of AI into academic settings around the globe, especially in higher education, raises critical concerns about the potential dangers and far-reaching implications it might have for the future of scholarship and learning [3].

In recent years, AI has been integrated into various educational contexts, from virtual tutoring assistants and automated grading systems to AI-driven research tools and personalised learning

platforms. These applications have undoubtedly shown great potential in streamlining educational processes, improving access to information, and enhancing learning outcomes. However, the power and complexity of AI algorithms also introduce significant risks that must be carefully addressed to ensure that the benefits of AI come at a manageable cost.

The central inquiry of this study revolves around understanding the specific dangers posed by AI in the academic domain. One critical concern is the potential degradation of human intelligence and necessary thinking skills as reliance on AI increases [4, 5]. As AI takes over routine tasks and decision-making processes, there is a risk of reduced cognitive engagement among students and scholars, potentially hindering their ability to think critically, solve complex problems, and engage in creative endeavours [6].

Moreover, integrating AI into educational systems necessitates an examination of the underlying algorithms' ethical implications. Despite their computational prowess, AI algorithms are not immune to bias and discrimination, and their use in grading, admissions, and other decision-making processes could perpetuate societal inequalities. Ensuring fairness and transparency in AI decision-making becomes imperative to mitigate these biases.

Therefore, this paper aims to re-examine the dangers and implications presented by the ever-expanding role of AI in education and academia and then proposes strategies for mitigating these perceived dangers.

RESULTS AND DISCUSSION

Understanding Artificial Intelligence

The term "artificial intelligence" was first used by computer science professor John McCarthy. As described, it is the process of carrying out a task by employing computers and other technology to simulate human intellect. Artificial intelligence software performs numerous functions, including social media monitoring, fraud detection, speech and image recognition, and natural language processing. Our smartphones, social media accounts, email clients, and search engine operations use AI. Because there is so much data all around us, AI systems do a detailed job. The results are precise, reliable, and are quickly provided. For this reason, an argument can be advanced that AI-powered tools should continually be integrated into education to speed up performance and cut down on time spent on data-intensive jobs. According to the market research engine organisation, the global Artificial Intelligence in Education market is expected to be around \$12 Billion by 2027.

Overview of AI technologies and their capabilities. According to [7], AI refers to "robots, computers, and other machines with a human-like ability to reason and solve problems". Artificial intelligence is the theory and creation of computer programs that can do tasks that people traditionally perform, such as speech recognition, decision-making, and language translation. A machine powered by artificial intelligence can accomplish human-like tasks, learn from past errors, and adjust to new inputs. Deep learning and natural language processing are incorporated into most AI applications today, including self-driving cars and chess-playing computers. According to [8], AI, also known as machine intelligence (MI), is "intelligence displayed by machines in contrast with the natural intelligence (NI) displayed by humans and other animals" (p.2).

AI refers to a digital computer's or computer-controlled robot's ability to do tasks usually associated with humans. It is a technology that can reason and solve problems.

AI primarily focuses on understanding and doing intelligent tasks such as thinking, learning new skills, and adjusting to new contexts and difficulties. It combines computer science, psychology, and philosophy (Mogali, Artificial Intelligence and its Applications in Libraries). It is a branch of science and engineering that looks into how to replicate a variety of challenges and mental processes. Artificial intelligence is used in many fields, including perception, recognition, reasoning, learning, natural language processing, machine translation, gaming, and chess.

AI is advancing quickly, from Apple's SIRI to self-driving automobiles. The term "AI" can refer to everything from Google's search algorithms to IBM's Watson to autonomous weapons, even though science fiction often depicts AI as humanoid robots. Robotics, driverless vehicles, web searches, and video games are just a few examples of cutting-edge technologies primarily relying on AI. AI technologies use sophisticated algorithms, or sets of instructions, to solve highly complicated problems [9]. While people use social media or shop online, specific AI systems work in the background to learn who and what they enjoy [9].

AI has several benefits in learning, including automation of routine tasks, enhanced efficiency and productivity, its impact on education, personalised learning experiences, access to vast information and data communications, transportation and several others. Despite these benefits, the use of AI in education also raises concerns about privacy and security, potential bias and other unintended outcomes.

Dangers of AI in Scholarship and Learning

Artificial intelligence has profound benefits and contributes to academic success in several ways. However, it also poses several challenges and potential disadvantages to education. We shall re-examine Some of these disadvantages.

Threats to human intelligence and cognitive abilities. The widespread integration of AI-driven tools in scholarship and learning could gradually decline human cognitive engagement and critical thinking skills. As AI systems increasingly handle tasks like data analysis and information retrieval, scholars and students might rely more on automated results, reducing their motivation to interact deeply with the subject matter. This over-reliance on AI-generated solutions could hamper

the development of essential analytical and problem-solving abilities.

Over-reliance on AI occurs when users begin to accept inaccurate AI outputs. This may result in problems and mistakes that ultimately cause people to lose trust in AI systems. An important goal of AI system design is to empower users to develop appropriate reliance on AI. Since users are the final defence against AI failures, policy-makers and practitioners are calling for greater human oversight, which is why this is significant.

Potential bias and discrimination in AI algorithms. Potential bias and discrimination in AI systems are significant concerns in artificial intelligence and machine learning. According to research, AI systems can unintentionally replicate societal prejudices in their training data. Authors [10], for example, discovered that commercial facial recognition algorithms demonstrated considerable gender and racial prejudice, with more excellent error rates for darker-skinned persons, particularly women. This bias can have significant repercussions, such as unjust treatment, systemic discrimination, and the perpetuation of existing inequities.

Ongoing initiatives focus on producing more inclusive and varied training data, increasing algorithmic fairness, and constructing robust evaluation frameworks.

Digital discrimination is the term used to describe unequal treatment brought on by automated choices frequently made by intelligent agents or other AI-based systems.

Credit scores and risk assessment programs for police departments are only two examples of the many domains where digital discrimination has been observed. As more and more decisions are made by systems using AI techniques like machine learning, numerical discrimination is becoming a critical issue [11]. Since the algorithms underpinning AI systems learn from historical data, they can inadvertently perpetuate societal biases present in the data [12]. When applied to tasks such as automated grading or student evaluations, these biases can reinforce inequalities related to race, gender, or socio-economic status, undermining the principle of fairness in education [13]. Such biases could compromise the integrity of scholarship and erode trust in educational institutions.

Ethical concerns regarding data privacy and security: The extensive data collection and analysis

inherent to AI-powered learning analytics raise ethical concerns regarding data privacy and security. In everyday interpersonal interactions, everyone can participate in the process of personality building by controlling the elements of information about themselves that they would like to disclose to others and those they want to hide. This happens due to a series of normative prohibitions against people seeking to obtain particular information about other people without their agreement (such as reading their diary or peering in through a window). The automatic data-gathering mechanism includes similar provisions for control or consent. Automated data collection systems make no effort to understand what information the theme is intended for; instead, they draw their own conclusions. An automated AI-powered data collection system is the generator and creator of the profile, not the data subject.

In education, the surveillance-like environment generated by these technologies could discourage students from expressing unconventional ideas due to fear of consequences [14]. This potential suppression of academic freedom could hinder open discourse and the exchange of diverse perspectives that are pivotal for scholarly growth.

Impact on critical thinking and creativity. AI's reliance on complex statistical processes for problem-solving could hinder the cultivation of necessary thinking skills among students around the globe. While AI systems might offer solutions, students may need help to grasp the underlying reasoning behind these solutions [15]. This scenario could lead to a generation of learners who possess a superficial understanding of problems but cannot engage in the deep analytical thinking essential for genuine scholarly exploration. At this stage, the central question is how AI will impact the growth of human knowledge and intellect. At this point, innovation and the human soul develop together. According to recent studies on brain flexibility, technology and inventions can affect how we think and our minds function. This begs the question of how AI developments have affected the human brain's structure.

Loss of Human Judgment. Computers already make many of our day-to-day decisions, and at first glance, they do a great job. AI systems in businesses carry out financial transactions and assist the HR department in screening applicants. For example, some persons may rely on tailored

recommendations when purchasing online, tracking their physical health with wearable technology, and residing in houses with "smart" technology to manage our lighting, climate, entertainment systems, and appliances.

A critical evaluation of the use of AI systems shows an apparent error in judgment in the assumption that their increasing capability is primarily positive. Even while much of the current criticism of AI is still framed in science fiction, its application is becoming increasingly risky. This isn't because Google and Alexa are ineffective; instead, we increasingly rely on robots to make decisions and replace human judgment with data-driven calculations.

It threatens to change our morality in fundamental, perhaps irreversible ways. Judgment is about reasoning and capacities such as imagining, reflecting, examining, evaluating, and empathising. As a result, it has an inherent moral component. Conversely, algorithms use a combination of rule-based calculations, calculus, and reasoning to arrive at judgments after processing data [16].

According to [17], the issue is that after processing our data, the answers to these systems' responses are constrained by the specific goals for which they were created without considering any potentially harmful side effects, which is against our moral norms of justice and fairness.

This has been seen in the apparent racially biased, error-prone predictive analysis that several American judges use in sentencing [17]. In the Netherlands, some 40,000 families have suffered heavy financial and other losses because the tax authorities relied on a defective artificial intelligence system to determine potentially fraudulent use of a child benefit tax-relief program. The scandal forced the Dutch government to resign in January 2021 [18].

AI's ability to automate decision-making processes might diminish reliance on human judgment in academia. Tasks such as grading, admissions, and even research selection could be handed over to AI systems, potentially sidelining the human expertise that considers context, nuance, and subjectivity [19]. This over-reliance on AI decisions could undermine academic discourse and scholarship richness.

Unintended Consequences in Education Delivery. AI-driven personalised learning platforms might unintentionally reinforce students' pre-existing knowledge gaps. These platforms often use algo-

rithms to tailor learning experiences based on past performance, which could inadvertently result in an echo chamber of familiar content, limiting exposure to diverse perspectives [20]. This phenomenon may hinder holistic and well-rounded education.

Dependency and Unpreparedness. Using AI-powered learning tools requires access to modern technology, such as smartphones, computers, and the Internet. This can lead to greater reliance on technology, leading to poorer critical thinking and problem-solving skills among students.

Also, excessive reliance on AI tools could lead to a generation of scholars and learners unprepared to operate without these technologies. Should AI systems fail or face disruptions, scholars and students accustomed to AI assistance might struggle to perform tasks independently, weakening their resilience and adaptability [21]. This scenario underscores the need for striking a balance between AI integration and maintaining essential human skills.

Narrowing of Research Avenues. Using AI algorithms to identify research areas with high potential impact might lead to concentration efforts on popular or trending subjects, narrowing the diversity of research avenues [22]. This narrowing limits the exploration of unconventional or less immediately trending topics that hold significant academic value.

Dehumanisation of Education. The possibility that AI would replace human educators and teachers in the classroom is one of the main concerns regarding its use in education. AI-powered tools can replace teachers in crucial functions like grading and providing feedback. This can affect the demand for instructors and result in job losses. Over-reliance on AI tools might lead to a dehumanisation of the educational experience. As AI systems take over traditionally conducted by educators, such as providing feedback and interacting with students, the human connection between teachers and learners could be diluted, potentially diminishing education's emotional and motivational aspects.

Intellectual Property and Plagiarism Concerns. Using AI-driven content generation tools raises concerns about intellectual property and plagiarism. Also, there are concerns about data vulnerabilities, factual inaccuracies, and biases when authors use AI tools like ChatGPT to write manuscripts. Although the text written by ChatGPT ap-

pears to be trustworthy, it has been demonstrated that the information generated can be pure confusion, with a combination of factual data and fabricated knowledge or entirely fictitious pseudoscience documents. This is described as an artificial hallucination [23]. In the future, continuous or frequent updates of AI software could help alleviate this problem of the need for more knowledge about the software. Even with regular AI software training and updates, there can still be periods of lag. Bias in scientific interpretation and writing may also exist, which may be related to the training of AI algorithms.

As AI can generate text, images, and even code, distinguishing between original work and AI-generated content becomes challenging, potentially leading to accidental plagiarism or authorship disputes [24].

Reliability and Technical Challenges. AI technologies are not immune to technical failures and errors. Relying heavily on AI for critical educational functions like assessments or content delivery might expose scholars and learners to disruptions caused by algorithmic glitches, server outages, or technical malfunctions, compromising the consistency and reliability of the educational process [25].

Implications of AI in Scholarship and Learning

Changing roles of teachers and scholars. Teachers have observed potential uses of AI outside of the classroom that could aid them in doing more routine activities at work. Although they are required for the proper operation of the school, grading, lesson planning, and other duties detract from the teacher's primary goal, which is to educate. Teachers can concentrate more on the actual content since artificial intelligence will take over these tasks. Therefore, AI may be better used as a complementary tool to support the work of teachers. Since using AI as a complementary tool has clear benefits in improving student and teacher productivity, we should consider using this technology in the classroom. Many schools offer online courses that track students and teachers using artificial intelligence. AI assists by providing teachers and students with helpful feedback. For instance, it enables teachers to identify areas where students have difficulty or need improvement.

Shifts in the education system and curriculum. In recent years, the use of robotics with artificial

intelligence has increased significantly in education. So, deploying robots will allow teachers to use robots to spend more face-to-face time with students who need extra help. It will also provide students with a learning environment free of judgment and self-doubt. They won't be embarrassed if they do not present something right before the robot. Over the next few decades, we will see a shift in the AI-influenced education system. AI can completely change even the most minor things we take for granted. AI will help all students have equal access, regardless of learning ability or disability, and help them have a bright future.

The need for interdisciplinary collaboration. Creating interdisciplinary alliances and collaborative settings is necessary for using AI in education. Different skills are needed to develop and apply AI-enhanced educational solutions efficiently. Possess the technical expertise required to create and develop AI, comprehend the demands of educators and students, apply pedagogical theories to content production and evaluation, and consider all moral and legal considerations.

Influence on research methodologies and knowledge production. AI can play a variety of roles in educational settings. The development of emerging computer technologies such as quantum computing, wearables, sensing and robotic devices, and the prevalence of 5G wireless and mobile communications technology are bringing new faces and opportunities to AI applications in teaching and learning design. It is necessary and exciting. Researchers need to think about how this might happen in practice. Therefore, many potential AIED research questions are raised.

Mitigating the Dangers and Maximising the Benefits

Ethical guidelines and regulations for AI use in scholarship and learning; Ensuring transparency and accountability in AI algorithms; Education and training for AI literacy and critical thinking; Balancing AI integration with human judgment and expertise.

Testing the data used to train them is essential to minimise the risk of bias in AI systems. The dataset must be diverse and representative of the student community. It is also necessary to test the results of the algorithms to ensure that they do not maintain existing biases.

To increase the transparency of AI systems, educational institutions should explain how algorithms work and the data they use. This will enable students and teachers to understand why specific courses or learning paths should be encouraged. Edtech platforms should strengthen their data protection measures. They must use encrypted and protected servers to protect student data from unauthorised access. In addition, institutions should implement policies and procedures to ensure student data is handled appropriately and ethically.

To ensure AI is used safely and effectively in education, students and teachers need to be educated about the risks and benefits of AI. Students should learn digital literacy skills, including how to use and interact with AI systems. Teachers need to be trained in using AI tools and understand their limitations and potential risks.

In the final analysis, it is essential to collaborate with experts in the field to ensure that AI is used safely in education. This includes data scientists, AI specialists, and education researchers. These experts can provide valuable insight into AI's potential risks and benefits in education and help develop effective strategies to mitigate those risks.

CONCLUSIONS

Although AI has the potential to change education and improve learning outcomes, there are also some drawbacks associated with it, which need to be carefully examined. These limitations include concerns about the absence of social interaction, the possibility of bias and discrimination, privacy and security concerns over student

data, and the potential to impair students' learning capacity.

Artificial intelligence, as it were, has undoubtedly opened new avenues for scholarship and learning. However, it is imperative to approach AI integration with caution and foresight to harness the benefits while addressing the associated dangers fully. Striking a balance between automation and human involvement, promoting ethical considerations, strengthening data privacy measures, and valuing human creativity will be vital in shaping a future where AI augments, rather than replaces, scholarship and learning. Continued research, interdisciplinary collaborations, and effective governance frameworks are essential in shaping a future that maximises the potential of AI technology without compromising the values and goals of education and research.

To ensure that the use of AI in education maximises its potential benefits while limiting its drawbacks, educators must adopt a balanced strategy that combines AI with other teaching methods that promote social and emotional growth, engagement, and motivation. In addition, steps should be taken to prevent prejudices, promote secrecy, and guarantee student data privacy. In this manner, we may employ AI to make learning more efficient and individualised for all students. The application of AI in education must be approached cautiously and sensibly. Addressing implicit biases in the AI system and improving student engagement and motivation may entail putting strict privacy and data security controls in place, promoting social and emotional learning through other teaching methods, and addressing these biases. By doing so, we can maximise the potential benefits of AI in education while minimising any potential risk.

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