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Assessing the Pros and Cons of AI-Supported Learning in Education (Position Paper)

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Abstract:

This study aims to analyze the applications of artificial intelligence (AI) in education, starting from the challenges related to improving teaching and learning processes alongside the significant transformative potential offered by this field. The study adopted a literature review methodology, with data collected from peer-reviewed academic journals, books, and research reports, which were then systematically classified into key themes, including the role of AI in enhancing learning experiences, educational management, and ethical considerations. The findings indicate that there are two prominent types of AI: "classical AI," which focuses on data processing and decision-making, and "generative AI," which creates original content. This distinction is essential for understanding how these technologies can be effectively employed in educational contexts. The study concludes that AI provides tangible benefits, such as improving the efficiency of educational systems, enhancing data management, and offering personalized learning. However, it also raises major challenges related to privacy, security, fairness, and the risk of job displacement. Therefore, the study emphasizes the need for a balanced approach that integrates technological advancement with ethical and practical considerations to ensure the effective and sustainable use of AI in education. The originality of this study lies in presenting a comprehensive and systematic analysis that balances the technical potential of AI with its ethical and social challenges in the educational sector. Rather than merely reviewing benefits and drawbacks, it offers a critical and balanced perspective grounded in recent literature, thereby opening new avenues for scholarly debate on how to integrate AI effectively into education while preserving values of equity, fairness, and the quality of the learning process.

Keywords: *Personalized Learning; Ethical Challenges; Enhancing Educational Processes; Data Analysis.*

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تقييم إيجابيات التعلم المدعوم بالذكاء الاصطناعي في التعليم وسلبياته (ورقة موقف)

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ملخص:

تهدف هذه الدراسة إلى تحليل تطبيقات الذكاء الاصطناعي في التعليم، منطلقة من التحديات المرتبطة بتحسين عمليات التدريس والتعلم، جنبًا إلى جنب مع الإمكانات التحويلية الكبيرة التي يقدمها هذا المجال. اعتمدت الدراسة على منهجية مراجعة الأدبيات، حيث جُمعت البيانات من مجلات أكاديمية محكّمة، وكتب، وتقارير بحثية، ثم صُنفت بشكل منهجي وفق محاور رئيسية، شملت: دور الذكاء الاصطناعي في تحسين تجارب التعلم، الإدارة التعليمية، والجوانب الأخلاقية. وقد أظهرت النتائج أن هناك نمطين بارزين من الذكاء الاصطناعي: "الذكاء الاصطناعي الكلاسيكي" الذي يركز على معالجة البيانات واتخاذ القرارات، و"الذكاء الاصطناعي المُولِّد" الذي يبدع محتوى أصيلاً، وهو تمييز جوهري لفهم كيفية توظيف هذه التقنيات في السياقات التعليمية. خلصت الدراسة إلى أن الذكاء الاصطناعي يوفر فوائد ملموسة، مثل: تعزيز كفاءة أنظمة التعليم، تحسين إدارة البيانات، وتقديم تعلم مخصص، إلا أنه يطرح في الوقت ذاته تحديات بارزة تتعلق بالخصوصية، والأمن، والعدالة، فضلاً عن مخاطر فقدان الوظائف. ومن ثم تؤكد الدراسة ضرورة اتباع نهج متوازن يجمع بين التقدم التكنولوجي والاعتبارات الأخلاقية والعملية لضمان توظيف فعّال ومستدام للذكاء الاصطناعي في التعليم. تكمن أصالة هذه الدراسة في تقديمها تحليلاً شاملاً وممنهجاً يوازن بين الإمكانات التقنية للذكاء الاصطناعي وتحدياته الأخلاقية والاجتماعية في قطاع التعليم. فهي لا تكتفي باستعراض المنافع والعيوب، بل تطرح رؤية نقدية متوازنة تستند إلى الأدبيات الحديثة، مما يفتح آفاقاً جديدة للنقاش العلمي حول كيفية دمج الذكاء الاصطناعي بفاعلية في التعليم مع الحفاظ على قيم العدالة والإنصاف وجودة العملية التعليمية.

الكلمات المفتاحية: *التعلم الشخصي؛ التحديات الأخلاقية؛ تعزيز العمليات التعليمية؛ تحليل البيانات.*

1. Introduction

In academic and pedagogical circles, artificial intelligence (AI) has become a disruptive force in modern education, provoking both strong support and significant criticism. Advocates claim that artificial intelligence (AI) has the capacity to completely transform teaching and learning methods by enabling customized instruction, increasing administrative effectiveness, and yielding meaningful insights through advanced data analysis. For instance, sophisticated algorithms are used by AI-powered platforms like Khan Academy and Coursera to tailor educational content to each learner's performance and preferences (Zohuri & Mossavar-Rahmani, 2024), Some of these applications may contribute to improving the ability of the teacher or parents to deal with children or evaluate and improve their learning and monitor their levels of academic development, which helps to make future decisions to deal with any academic delay or to deal with each case separately according to the individual differences of the students (Merino-Campos, 2025)

Using artificial intelligence, study information can be perceived in new ways of visualization, simulation, and web-based study environment. Learning content updates: Moreover, AI also helps in preparing the content of lessons, keeping the information up to date, and making it adaptable according to different learning curves (Chiu et al., 2024). Some of the most typical AI applications in the educational field involve know-edge representation, intelligent tutoring, natural language processing, autonomous agents etc (Chiu et al., 2023).

One key benefit of AI is its capacity to customize educational content based on each students' unique needs. By analyzing data, on students learning preferences, performance levels and styles AI can generate learning materials and assessments. This personalized approach ensures that students are kept at a learning pace without feeling overwhelmed by difficulty or bored by simplicity (Na et al., 2022).

AI offers effective support for online learning and teaching including personalized learning for students, automated instructions, routine tasks, and powering adaptive assessments. Robotics with AI can be used to support, assist, and augment the teaching professionals (Merino-Campos, 2025). AI can dramatically improve the efficiencies of our workplaces and can augment the work humans can do. AI helps teachers in both learning and teaching by enabling personalized learning for students, automating instructional processes and routine tasks, and powering adaptive assessments. Additionally, AI-powered robotics can be used to support, assist, and augment teaching professionals (Reddy et al., 2023).

On the other hand, detractors draw attention to a number of issues regarding the incorporation of AI in educational environments. The most pressing concerns are those pertaining to data security and privacy, as AI systems require large-scale data collecting and processing, increasing the possibility that private student data may be compromised. According to this AI Bill of Rights, AI poses many threats to society, which include latent biases, breaches of privacy, and violations against humanity as a result of rendering false information. After declaring American independence from AI, the statement proposes ways to mitigate these threats through the responsible design and use of this technology. This includes proposals for safe and effective systems, protections against algorithmic discrimination, and human alternatives and safeguards (Kim & Lee, 2018).

Furthermore, there are concerns that an excessive dependence on AI may compromise the human elements of education, such emotional support and interpersonal relationships, which are essential to students' overall growth. Moreover, the significant monetary expenses linked to the creation and upkeep of artificial intelligence technologies will potentially worsen the current

discrepancies between educational establishments with enough funding and those with inadequate resources.

New research has shed more light on the intricacies of AI-supported learning. According to research, artificial intelligence (AI) can greatly improve the efficiency of administrative and grading work, but its application needs to be properly regulated to prevent any biases that may arise from algorithmic decision-making (Lee, 2023). Furthermore, compared to solely AI-driven techniques, hybrid models—which combine AI with conventional teaching methods—seem to be more successful in fostering student engagement and improving learning outcomes, according to empirical data. In 2024, new research clarifies these intricacies.

According to research, artificial intelligence (AI) can improve administrative duties and grading efficiency, but its application requires careful supervision to prevent the biases that come with algorithmic decision-making (Salem, 2025). Furthermore, compared to fully AI-driven systems, hybrid educational models that combine AI with conventional teaching techniques have demonstrated greater efficacy in fostering student engageme0nt and learning results.

These results imply that improving educational outcomes requires a balanced strategy that makes use of AI's advantages while minimizing its drawbacks. In order to provide a comprehensive knowledge of the impact of AI-supported learning on the educational landscape, this study aims to investigate the many ramifications of this technology, examining both its possible benefits and inherent drawbacks.

2. Methodology

This paper employs a systematic literature review methodology to explore the role of artificial intelligence (AI) in education by analyzing previous studies that have examined this topic. A systematic literature review is an effective method for synthesizing existing research, as it helps identify trends, gaps, and areas for further investigation (Snyder, 2019). This approach allows for a comprehensive understanding of the benefits and challenges associated with AI integration in educational settings by consolidating and critically analyzing prior research.

The data for this study were gathered from peer-reviewed academic journals, books, and research reports, with a focus on recent studies published within the last five years to ensure relevance and accuracy. The literature was systematically categorized based on key themes, including AI's role in enhancing learning experiences, improving educational administration, and addressing ethical concerns (Tranfield et al., 2003). A systematic literature review is particularly valuable in fields experiencing rapid technological advancements, as it enables researchers to structure existing knowledge and assess emerging patterns.

This study does not include empirical data collection such as surveys or field experiments. Instead, it relies on an extensive review of existing literature to identify common trends and insights related to AI-supported learning. Given the evolving nature of AI in education, literature reviews provide a foundation for further empirical studies and help in framing future research directions (Snyder, 2019).

2.1 Rationale for the Methodology

A literature review was chosen as the primary methodology due to its ability to provide a broad yet in-depth analysis based on previously established research. This approach ensures that the discussion is well-informed and supported by existing evidence, allowing for a critical synthesis of AI's impact on educational practices while also identifying areas requiring further exploration. The use of a systematic literature review strengthens the study by ensuring a rigorous and structured evaluation of

available knowledge, which is essential for fields characterized by continuous technological advancements (Tranfield et al., 2003).

3. Definition and Historical Background of Artificial Intelligence

3.1 Definition of AI

Artificial intelligence can be defined as the ability of digital machines and computers to perform specific tasks that mimic those performed by intelligent beings. Such as the ability to think or learn from previous experiences and other processes that require mental practices. The learning process depends on processing large amounts of data collected **(**Lee, 2020**)**.

The ability of a digital computer or computer-controlled robot to carry out actions typically associated with intelligent beings, such as reasoning, learning from experience, comprehending complex content, and interacting naturally with the environment, is known as artificial intelligence (AI).

3.2 Historical Background

3.2.1 Early Development:

The study of artificial intelligence (AI) dates back to the middle of the 20th century. John McCarthy first used the term "artificial intelligence" at the Dartmouth Conference in 1956. Many people believe that AI as a topic of study originated at this conference (Russell & Norvig, 2016).

3.2.2 Key Contributions:

The works of Alan Turing, especially the Turing Test, had a great impact on the early development of artificial intelligence. Turing (1950) proposed that a machine could be deemed intelligent if it could trick a human into thinking it was a human through conversation. Further investigation into neural networks, machine learning, and symbolic thinking was sparked by this fundamental concept.

3.2.3 Evolution:

AI has developed through several theoretical frameworks and real-world applications over the years. Symbolic AI, sometimes known as "Good Old-Fashioned AI" (GOFAI), was the main emphasis of early AI research. It processed data and solved issues using clear rules and logic. In the 1970s and 1980s, expert systems were created as a result of this strategy, imitating the decision-making processes of human experts (Russell & Norvig, 2016).

Machine learning, in which systems identify patterns from data instead of depending on pre-established rules, became popular in the late 20th and early 21st centuries. The creation of new methods, the availability of massive datasets, and improvements in computing power all contributed to this change. One of the most significant developments of this era has been the development of deep learning models, which use multi-layered neural networks to accomplish cutting-edge results in tasks like speech and picture recognition.

These developments are made possible by AI technologies such as computer vision, which enables machines to interpret and comprehend visual data; speech-to-text, which translates spoken language into written text; and natural language processing (NLP), which makes it easier for computers and human language to communicate (Reddy et al., 2023).

Virtual assistants, predictive analytics, autonomous cars, and medical diagnosis are just a few of the many uses for these technologies. Artificial Intelligence has been developing at a rapid pace in the last few years, and big breakthroughs are expected in 2024. For instance, the incorporation of AI into educational systems has improved student engagement and learning outcomes through individualized learning (Snyder, 2019). Furthermore, AI-driven healthcare applications have enhanced patient care management and diagnostic accuracy, demonstrating AI's potential to transform a number of industries.

Generative AI is a noteworthy recent development in AI that concentrates on producing new material as opposed to only evaluating pre-existing data. Realistic visuals, coherent text, and even musical compositions have been produced by generative AI models, including Transformer-based models like GPT-4 and Generative Adversarial Networks (GANs). According to Goodfellow et al. (2014) and Brown et al. (2020), these models create new instances that are statistically similar after learning the fundamental patterns and structures of the input data.

Generative AI has a wide range of applications, from content creation and the creative industries to improving automated processes and customizing user interfaces. This state-of-the-art technology is a major advancement that underscores the continuous development and growing possibilities of artificial intelligence. On the other hand, the journey of integrating AI into education is fraught with challenges. Ethical considerations, including transparency and biases within algorithms, loom large. Stable Diffusion allows users to generate photorealistic images given a text input. While the integration of generative AI in educational environments holds promise it is not devoid of challenges. These hurdles span logistical, ethical and societal realms necessitating thorough deliberation and strategic planning for resolution (Lee, 2020).

It is imperative to establish robust ethical frameworks for AI usage and ensure transparency in algorithms (Pavlik, 2023). Understanding the distinctions between generative AI and standard AI seems to be becoming more and more important as artificial intelligence develops. We will explore these distinctions in further detail in the ensuing sections, which should help readers gain a better grasp of the latest advancements in artificial intelligence and its possible uses.

4. The difference between generative and traditional AI

Within the subject of artificial intelligence, generative AI and classical AI are two different methods, each with its own goals, processes, and uses. Recognizing these distinctions is essential to understanding the strengths and weaknesses of each strategy. The goal of generative AI is to produce original material, including writing, photos, music, and other types of data. To produce outputs that resemble the input data it was trained on, this kind of AI uses models like Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs).

One well-known example of generative AI is Open AI's GPT-3, which can generate writing that resembles that of a human depending on the instructions it is given. Because of this capabilities, generative AI can be applied creatively to tasks like writing essays, making music, and creating images (Brown et al., 2020). Generative AI is particularly good at activities that push the envelope of creativity and innovation by producing unique and varied results.

By contrast, the main focus of classical AI is data analysis and decision-making or prediction based on that analysis. Conventional artificial intelligence models, such neural networks, decision trees, and support vector machines, are made to recognize patterns, categorize information, and predict results. Applications such as fraud detection, medical diagnosis, and recommendation systems make extensive use of these models (Russell & Norvig, 2016). Traditional AI, in contrast to generative AI, focuses on comprehending and acting upon preexisting data to solve certain issues rather than producing new information.

Furthermore, there are major differences between the approaches used by generative and standard AI. Unsupervised or semi-supervised learning approaches are frequently used in generative AI, where the model learns to generate data by being exposed to big datasets lacking explicit labels. In order to ensure that the content created is cohesive and contextually appropriate, this procedure usually involves significant computational resources and fine-tuning (Goodfellow et al., 2014).

Conversely, supervised learning is a typical technique used in classical AI, where the model is trained on labeled data in order to produce precise predictions or classifications. The success of feature extraction and selection as well as the quantity and quality of the training data are critical components of this methodology. These two AI paradigms' applications emphasize their distinctions even further. In creative fields like entertainment, design, and content creation—where the capacity to create unique content is highly prized—generative AI finds its footing.

On the other hand, classical AI is more common in industries like finance, healthcare, and engineering that demand strong data analysis and decision-making capabilities. The differences between the two types of AI highlight the various ways that artificial intelligence can be applied to tackle a broad range of problems and chances.

In conclusion, while both generative AI and traditional AI are powerful tools within the realm of artificial intelligence, they serve different purposes and operate using distinct methodologies. Generative AI's ability to create new content stands in contrast to traditional AI's focus on data analysis and decision-making. Understanding these differences enables better application and development of AI technologies across various domains. Better application and development of AI technologies across diverse fields is made possible by an understanding of these distinctions.

5. Assessing the Pros and Cons of AI in Education:

With its creative approaches to improving teaching and learning, artificial intelligence (AI) has become a game-changing technology in education. But AI-supported learning has its own set of benefits and drawbacks, just like any other technology. For educators, legislators, and other stakeholders to make well-informed decisions regarding incorporating AI into educational settings, they must be aware of these benefits and drawbacks. The main issues surrounding the application of artificial intelligence are discussed here, along with some advantages and difficulties as perceived by supporters and detractors.

5.1 Personalized Learning

The promise of personalized learning to customize educational experiences to each student, considering their specific requirements and learning preferences, has attracted a lot of interest. Proponents contend that by creating individualized learning pathways for each student, customized learning increases student understanding and engagement. When compared to traditional learning approaches, studies like those by Silva and Silveira (2020), Davis and Marcus (2015) have demonstrated positive links between individualized learning and enhanced completion and success rates among students.

Opponents of individualized learning, however, voice doubts about its capacity to produce noticeable and long-lasting advantages. They express doubts regarding the feasibility of implementing personalized learning on a large scale and about its propensity to worsen inequality and maintain biases in educational results.

Notwithstanding these misgivings, supporters of personalized learning persist in promoting it as a way to maximize students' learning capacity and give them a sense of empowerment, while detractors urge cautious assessment of the difficulties and constraints involved in putting it into practice. Further studies by Aydogdu and Güyer (2019) Steiner (2015) offer more information about the implications and efficacy of individualized learning strategies in many educational contexts. While opponents urge careful evaluation of the difficulties and constraints related to its implementation, supporters of personalized learning persist in promoting it as a way to maximize students' learning capacity and empower them. In order to address the issues expressed by detractors, a balanced viewpoint recognizes the potential advantages of personalized learning while

simultaneously emphasizing the need for continued study, ethical considerations, and practical implementation tactics.

5.2 Ethical Dilemmas

AI ethics are the principles and values that govern the behavior and development of artificial intelligence technology (Reddy et al., 2023). These ethics aim to ensure that AI is used in ways that are consistent with ethical and legal principles, protect the rights and safety of humans and promote the public interest (Na et al., 2022). Many researchers in the ethics of artificial intelligence have pointed out that the current technological revolution is completely different, because it is the first of its kind that includes the possibility of replacing humans in intellectual tasks, and this matter could create a permanent unemployment problem for human workers (Chiu et al., 2024), as it is expected that the use of artificial intelligence **i**n the workplace, it has led to a reduction in the number of jobs, as automated systems can currently complete more than half of the work done by humans faster and more efficiently (Merino-Campos, 2025).

Therefore, the potential impact of artificial intelligence on the labor market and jobs must be considered so that measures are taken to protect the rights of workers and ensure their presence in the future labor market **(**Falloon, 2020). Developers must maintain the privacy of users and their data when using AI (Pavlik, 2023). You must follow data protection and cybersecurity principles to ensure that users' privacy is not violated or their data is stolen (Jarrah et al., 2023). AI must be designed to be secure and protected from cyber threats and hacks (Hu, 2022).

Users should critically evaluate and verify the information provided by AL, especially in critical or sensitive contexts, this because AL strives to generate accurate and relevant responses, there may be instances where it provides inaccurate or unreliable information. This can occur due to the complexity of the input provided by users (Reddy et al., 2023).

AI may come up with incorrect, inaccurate, or incomplete information depending on the questions asked. One reason is it doesn’t generate answers by looking for the information in a database, as would a Google search, but rather it draws on patterns it learned in its training. There are some considerations particularly in privacy, consent, and potential misuse surrounding the use of AL (Lee, 2020). users should implement robust privacy and data security measures to protect user data from unauthorized access or misuse (Kim & Lee, 2018).

This includes encryption, data anonymization, and adherence to relevant data protection regulations (Merino-Campos, 2025). Artificial intelligence must be used in ways that ensure equality and non-discrimination between individuals (Jarrah et al., 2023). Artificial intelligence must avoid giving rise to racial, gender, religious or other forms of discrimination (Reddy et al., 2023). AI must be designed and programmed to be fair and unbiased, and regularly tested and evaluated to ensure there are no unintended biases (Hu, 2022).

AL may generate responses that are inappropriate, offensive, or harmful (Lim et al., 2023).The use of AL must comply with relevant laws, regulations, and policies governing AI technologies, data privacy, and online content (Falloon ,2020), especially when given AL’s access to vast amounts of data, there’s a risk that this data could be compromised, either through hacking or by other means (Lee, 2020), in addition to that safeguarding confidential student data by adhering to regulations and implementing stringent security measures is paramount.

While AI has the potential to augment educators' abilities, apprehensions regarding job displacement and skill erosion persist. AL may also show a preference for certain topics it considers more important than others. The presence of bias can have serious implications for the reliability of

the outcomes generated (Na et al., 2022). AL can yield less helpful, more generalized responses to complex topics. AI technology is moving so fast that any tool is likely already out of date (Reddy et al., 2023). These detectors may not be accurate because some are being introduced before they have been widely vetted and may not be reliable to distinguish between AI-generated responses and human-generated content (Hu, 2023).

In conclusion, even if AI has the ability to simplify tasks and produce better results, its ethical ramifications and potential effects on society must be carefully considered. To fully utilize AI while reducing its risk, these variables must be balanced by strict regulation and moral standards.

5.3 Reshaping the Role of Educators

Artificial intelligence is a powerful tool that can be used to enhance the educational process (Lee, 2020). The teacher in the age of artificial intelligence is not a traditional teacher, but rather a learning engineer who designs personalized educational experiences for each student, and helps them achieve their fullest potential (Chiu et al., 2024). The skills of communication, empathy, and critical thinking are human skills that artificial intelligence cannot do.

It is one of the most important characteristics of a distinguished teacher (Falloon ,2020). The future of education will be an alliance between technology and human creativity, The age of artificial intelligence represents a golden opportunity to reformulate the role of the teacher, transforming him from a transmitter of information into an engineer of learning (Merino-Campos, 2025).

As technology advances and artificial intelligence develops, the role of the teacher in the education process changes (Brown et al., 2020). Instead of the teacher being the primary source of knowledge, his or her role becomes more focused on guiding and supporting students in absorbing information and developing their skills (Falloon ,2020). Instead of spending the teacher's time on routine tasks such as correcting assignments and tests, artificial intelligence can take over these tasks and save time and effort for the teacher to focus on more enriching roles for the educational process (Kim & Lee, 2018).

Using artificial intelligence techniques, artificial intelligence provides teachers with the opportunity to analyze the data collected from students' performance and understand their abilities. And their weaknesses (Hu, 2023). Through this analysis, smart educational programs can be designed based on data analysis and adapting content and activities according to the needs of each student (Pavlik, 2023). In this way, it can meet students' individual needs and enhance the learning process, analyze students' performance and identify their strengths and weaknesses (Chiu et al., 2023). It can also be used to develop various teaching strategies, improve the quality of educational materials used in classrooms, and improve students' individual learning experience (Jarrah et al., 2023).

We should also consider that training and qualifying teachers to understand and use AI-related tools and software requires additional costs (Merino-Campos, 2025). Therefore, financial resources must be allocated to achieve the desired effect of these technologies. Artificial intelligence technologies also face security challenges, as the system can be exposed to leakage of personal data, so strong security measures must be provided and data used in the context of smart learning be protected to ensure privacy and security (Falloon ,2020). However, these challenges can be overcome through good planning and the provision of financial and technical support (Pavlik, 2023).

The speed of artificial intelligence events, the resulting knowledge, and its software products that can be used in the educational process and professional development of individuals, if they are not kept up with them cognitively and performance, will accumulate and become a burden on the teacher, and thus we will reach the impossibility of following them up later (Na et al., 2022).

Lee (2020) pointed out that there are a number of obstacles that prevent the teacher from using this artificial intelligence and its applications in education as a result of language barriers, geographical monopoly, prices, and the lack of sufficient time for learning and training. Chiu et al. (2023) pointed out the necessity of a smart partnership between technology and human creativity because it will enrich the educational process and contribute in building generations prepared to face the challenges of the future (Brown et al., 2020).

In conclusion, even if AI has the potential to completely transform education by increasing effectiveness and personalization, its effective integration necessitates rigorous evaluation of the ethical ramifications, sufficient training, and strong cybersecurity safeguards. Teachers may equip students with 21st-century skills while upholding the fundamental principles of human interaction and creativity in the classroom by ethically and inclusively utilizing AI's potential.

5.4 AL and Socio-Cultural Factors

Artificial Intelligence is pivotal in changing the ways in which we live and interact with the world around us (Jarrah et al., 2023). AI can play an important role in achieving cultural benefit and promoting global understanding, but it also faces ethical challenges that require confronting and dealing with caution (Chen et al., 2020).

Artificial intelligence applications can contribute to translating languages and enhancing cultural understanding between different peoples (Chiu et al., 2024). Establishing a culture of trust, collaboration, and transparency is vital for fostering the acceptance and adoption of AI technologies among educators, students, and other stakeholders (Jarrah et al., 2023). Beyond its technical prowess, AI’s cultural impact is profound, influencing how we perceive ourselves, interact with technology, and construct our identities. From AI-generated content to its portrayal in popular culture, the intersection of AI and culture is reshaping the fabric of society (Falloon ,2020).

Therefore, even though AI has the capacity to innovate and enrich culture, careful handling of its ethical ramifications is still necessary to maximize its advantages and minimize any potential disadvantages.

5.5 Efficient Administrative Tasks

Administrative work efficiency at schools and colleges can be enhanced by the use of Artificial Intelligence (AI) through automating activities like scheduling, attendance monitoring and grading (Stone et al., 2022; Roll & Wylie, 2016). The automation allows teachers to spend more time on teaching and building relationships with students leading to a more focused and better quality of education. For instance, AI can provide quick feedback to students enabling them to identify areas for improvement faster than with traditional methods.

However, there are possible disadvantages in automating administrative tasks. The issue here is that the fairness and reliability of AI systems are in doubt. Automated grading may sometimes inadequately capture the nuances involved in student work such as essays or expressive projects that call for subjective assessment (Selwyn, 2019). Moreover, if AI systems have technological problems or make mistakes it could disrupt learning (Williamson, 2017). Additionally, there is a possibility of job displacement if administrative functions are handled by AI which would reduce demand for some categories of jobs and potentially harm employee morale.

To end with, artificial intelligence (AI) poses challenges on the fairness and correctness of automated systems as well as the potential for job losses and technological reliability issues, though it can simplify administrative tasks while freeing educators to focus on teaching. Careful

implementation and supervision are necessary in order to maximize the benefits and minimize the drawbacks of AI use in school management.

5.6 Equity Concerns with AI-Powered Learning Resources

AI technology in education with personalized learning could enhance students' performance and involvement (Gardner, 2021; Luckin & Holmes, 2016). According to supporters, AI can adapt learning experiences for individual learners, give immediate response and be flexible in teaching approaches that cannot be achieved by traditional means. This approach is mostly beneficial to students with different educational needs and preferences.

However, there is concern that introducing AI into education might amplify the already existing gaps. The availability of internet connectivity as well as access to technology among students or schools varies greatly hence affecting the utilization of AI effectively (Luckin et al., 2016; Williamson, 2017). Kids from impoverished households who can neither afford high-speed internet nor possess necessary appliances would not gain equal benefits from computerized training materials. Rather than reducing disparities in education, a digital divide poses a challenge to them.

To address these problems endeavors towards fair access are necessary. Ensure that every student has access to AI technology regardless of his/her social-economic background should be a key consideration for educators and policy makers (Roll & Wylie, 2016). Moreover, regulatory frameworks are required to supervise the moral application of AI in education, protecting against prejudices and guaranteeing equity in learning results.

While individualized learning and better student outcomes are potential benefits of AI-powered educational systems, equality remains a major problem. The lack of access to resources and technology continues to be a major obstacle that could make educational inequality already present worse. The development of regulatory frameworks to address biases, the prioritization of ethical issues in AI implementation, and guaranteeing fair access to AI technology are the key areas of focus for efforts aimed at maximizing the promise of AI in education while minimizing associated hazards (Shweiki et al., 2021).

5.7 Quality of Interaction

Regarding its effect on the caliber of student-teacher relations, artificial intelligence (AI) in education offers two different viewpoints. Effective teaching relies heavily on human interaction and empathy, which offer students the individualized advice and emotional support they need to grow (Roll & Wylie, 2016; Gardner, 2021). Teachers are emotionally intelligent enough to handle challenging situations in the classroom and build stronger relationships with their pupils (Tranfield et al., 2003).

In contrast, artificial intelligence (AI) provides advantages including faster response times and more scalability, which can improve student learning experiences by offering tailored and flexible learning resources (Berland et al., 2014; Kwet & Prinsloo, 2020).

Artificial Intelligence has the potential to supplement traditional teaching approaches due to its ability to manage massive volumes of data and give instantaneous responses in varied learning situations. Therefore, even while AI may not be able to completely replace human empathy and complex interactions, its integration has the potential to improve learning environments by providing new opportunities for individualized instruction and assistance.

5.8 Data-Driven Insights

Artificial intelligence (AI) holds great promise for the education sector as it can leverage data-driven insights to enhance learning results. AI is able to analyze vast amounts of student data by applying complex algorithms to identify performance trends and learning patterns that inform customized

teaching strategies. According to Means et al. (2014), teachers can enhance academic achievement and student engagement by tailoring education to the specific needs of each student.

Opponents argue that a heavy reliance on artificial intelligence (AI) for data analysis could overlook qualitative aspects of education, such as interpersonal skills and holistic student development, which are essential for effective learning. Maintaining a balance between the value of human-centered teaching and the advantages of AI-driven insights is still critical when integrating AI into educational procedures.

6. The Impact of Artificial Intelligence on Learners' Critical and Creative Thinking Skills

The world today is witnessing rapid development in the field of artificial intelligence, which has led to the emergence of many new applications in various fields, including education. This development has sparked significant interest in researching whether artificial intelligence can improve the quality of education (Kwet & Prinsloo, 2020).

Some believe that artificial intelligence increases students' creativity because it provides them with new tools to help them explore and generate new ideas and solutions in education. AI tools can help produce content quickly and efficiently (Falloon ,2020).

There are also AI-based platforms that enable the production of articles and the solving of assignments. While these tools may facilitate student learning and explore new possibilities, they may limit human creativity by restricting the range of ideas and expressions available to students.

Critical and creative thinking in AI is not just a skill; it is a necessity in an era of rapid technological transformation. By developing this skill, we can use technology in ways that enhance our capabilities without losing control over the decisions that shape our future, especially in education (Jarrah et al., 2023). Critical thinking in students includes the ability to analyze information, evaluate arguments, and make informed decisions based on evidence and logic **(**Parviz, 2024).

Given that AI systems are more concerned with tasks related to critical thinking, there is a risk that students will rely on these systems to make decisions without fully understanding their rationale. This will weaken creativity due to students' reliance on AI. Regarding creative thinking in students, reliance on AI may reduce students' opportunities to delve into thought, experimentation, and the creative process, which often leads to innovative solutions (Lin & Chen, 2024).

Obtaining quick answers from AI may make students completely dependent on its applications, rendering them unable to perform higher mental processes such as analysis, synthesis, evaluation, criticism, innovation, and creativity. A recent study has shown that overreliance on these tools may reduce the depth of student learning, leading to a gap between task completion and true understanding of the subject matter (Brown et al., 2020).

This also poses a significant challenge for educators, who are trying to strike a balance between integrating AI tools and enhancing students' deep understanding and critical analysis skills. Therefore, students can be guided away from relying solely on technology, helping them understand when they can rely on AI and when it is necessary to rely on personal reflection and self-analysis (Hutson, 2025). Students can also be raised to understand the importance of using AI as an aid, not a substitute, to enable them to more deeply comprehend the subject matter and develop their analytical skills. Learning tasks can also be designed that integrate AI tools rather than replace them, ensuring maximum benefit without compromising the quality of learning (Jarrah et al., 2023).

7. Conclusion

Artificial intelligence (AI) has the ability to completely transform education by improving administrative effectiveness, enabling tailored learning experiences, and yielding insightful information through sophisticated data analytics.

These benefits may result in a more efficient and customized learning process, improving student engagement and performance. AI's transformational potential is demonstrated by its capacity to personalize information, automate administrative duties, and work seamlessly with conventional teaching approaches.

However, there are a number of serious ethical issues with using AI in teaching. Data security and privacy are critical issues since the massive amounts of data required for AI systems may jeopardize student information. AI systems also need to be built without prejudices that could lead to unequal treatment based on racial, gender, religious, or other characteristics.

Additionally, there is a chance that administrative and teaching staff will lose their jobs, which begs the question of what the future holds for employment in the education industry.

The researchers stress the importance of striking a careful balance between taking use of AI's benefits and resolving any possible negatives. They contend that because AI can improve learning and operational efficiency, it is essential to the current and future state of education.

Nevertheless, ongoing study, cautious planning, and deliberate implementation tactics are needed to fully reap its benefits. To create strong rules and regulations that control the use of AI in education, policymakers, educators, and technologists must work together. To reduce risks and boost confidence in AI systems, these frameworks should place a strong emphasis on accountability, transparency, and fairness.

Furthermore, in order to give instructors and staff the skills they need to collaborate with AI technologies, educational institutions must engage in their professional development. Education professionals can stay on the cutting edge of technology and make sure AI enhances, not replaces, human education by promoting a culture of lifelong learning and flexibility. In order to guarantee that AI helps students at every step of their education, curriculum must also be modified to successfully and gradually incorporate technology into the classroom. This is especially crucial for educational programs that need to be updated to reflect new technology developments, like the curriculum in Palestine.

To sum up, incorporating AI into education has a lot of potential, but it also needs to be done carefully and thoughtfully. The researchers claim that it is critical to strike a balance between innovation and ethical responsibility. AI can be used to build a more productive, diverse, and dynamic learning environment by preserving this balance.

By maintaining this balance, it will be possible to fully utilize AI's revolutionary potential for the good of all parties involved in the educational ecosystem, making it an essential tool for both the present and the future of education.

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