ETHICAL CONSIDERATION AND VALUE OF EDUCATION IN APPLICATION OF ARTIFICIAL INTELLIGENCE (AI).

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Abstracts

There has been a lot of moral debate regarding the fast development and widespread use of artificial intelligence (AI) in many fields, including medicine, banking, schools, and government. The importance of education and ethical concerns around the proper use of AI technology are discussed in this study. Data privacy, algorithmic bias, responsibility, openness, and the possible replacement of human workers by machines are important ethical considerations. The role of education is critical not only in mitigating these risks but also in fostering an informed society capable of understanding, developing, and governing AI systems ethically. Equipping individuals with AI literacy empowers them to critically assess AI-driven decisions, advocate for fair use, and contribute to the design of inclusive technologies. The paper concluded that embedding ethics and interdisciplinary learning into AI education is essential for cultivating future professionals who prioritize human well-being, equity, and social justice in the deployment of intelligent systems. By emphasizing the moral and societal implications of AI, education serves as a cornerstone for building a more ethical and sustainable digital future. It was recommended that educational institutions should create spaces for ethical experimentation, such as innovation hubs and think tanks, where ethical AI applications can be prototyped, evaluated, and refined in collaboration with stakeholders.

Keywords: Artificial intelligence, Ethical Consideration, Value Education and AI Application.

Introduction

With the advent of AI and its widespread use, a new age of technological transformation has begun, bringing with it serious ethical questions and underscoring the importance of education in teaching people to responsibly use this technology (Martin Nunez & Lantada, 2020). The moral and societal consequences of AI deployment must be addressed immediately due to the growing autonomy and influence of these systems in decision-making across industries including healthcare, banking, education, security, and even government. According to Khan et al. (2022), some of the ethical considerations related to artificial intelligence include privacy, accountability, openness, and the possibility of abuse, especially in situations where algorithmic processes replace human judgement. These worries highlight the need for a solid ethical framework to guide the creation, use, and oversight of AI systems. Equally significant is the role of education in fostering informed citizens, developers, and policymakers who can engage critically with AI systems, understand their potential impacts, and contribute to their ethical stewardship.

Education not only equips individuals with the technical knowledge required to build and interact with AI but also instils values such as fairness, responsibility, inclusivity, and human dignity. Through the incorporation of ethics into AI curricula and the promotion of interdisciplinary learning, educational institutions have the potential to play a role in ensuring that artificial intelligence is used for the purpose of empowerment rather than exploitation. Consequently, this will assist in bridging the gap between innovation and the well-being of society. In the study conducted by Gedrimiene et al. (2020), it was found that education and ethical considerations are not just additional but rather essential for the equitable and long-term incorporation of artificial intelligence into human existence.

The term "artificial intelligence in education" (AIED) refers to the phenomena that occurs when computers are trained to resemble human cognition in order to fulfil educational objectives. This is

made feasible by technical breakthroughs that provide digital systems the capacity to carry out actions that are often associated with sentient beings with the ability to communicate with one another. According to Hill and Barber (2014), the two most important aspects of educational evaluation are pedagogy and the assessment of the curriculum. The study of the current state of the art in artificial intelligence and education (AIED) that was conducted by Chaudhry and Kazim (2022) reveals that assessment is one of the four major subdomains. The other core subdomains are learning personalisation, smart learning environments, and automated learning systems. An evaluation, judgement, or appraisal of performance or work is regarded to be an assessment in a school environment (Sadler, 2019). This includes any sort of review or evaluation.

Over the course of the last several years, there has been a massive increase in the use of AI in assessments. According to studies on digital education assessments in higher education, the utilisation of artificial intelligence and adaptive learning technologies has risen by a factor of three between the years 2011 and 2021. This area is expected to become more significant than immersive learning technologies in the near future, according to current estimations (Lim, Gottipati, & Cheong, 2022). There is consensus among all parties concerned that artificial intelligence will make grading more fair and comprehensive. According to Luckin (2017), this method would be characterised by value-added evaluations of student performance that are both evidence-based and longitudinal assessments.

Statement of the Problem

When it comes to decision-making, service delivery, and the development of information, artificial intelligence (AI) has changed all of these areas thanks to its rapid advancement and extensive integration across a variety of businesses. However, this widespread adoption raises critical ethical concerns and challenges, particularly regarding fairness, transparency, accountability, and privacy. At the same time, there is a growing recognition of the pivotal role that education plays in shaping responsible AI development and usage. Despite this, there exists a noticeable gap in embedding ethical frameworks and educational values into AI systems and their implementation processes.

This study addresses lack of balance and structured approach that emphasizes both ethical considerations and educational values in the design, deployment, and governance of AI technologies. Many AI systems are developed without sufficient input from ethicists, educators, and diverse stakeholders, resulting in applications that may perpetuate bias, erode human dignity, or lack social responsibility. Furthermore, educational institutions often lag in equipping students and professionals with the ethical literacy and critical thinking skills necessary to navigate AI's complex implications. It is based on the backdrop that the researcher seeks to examine ethical considerations and value of education in application of artificial intelligence (AI).

Aim and Objectives of the Study

This study aims to examine ethical considerations and value of education in application of artificial intelligence (AI). Specifically, the objectives were to

- Assess how educational systems can prepare individuals and institutions to understand and address the ethical implications of AI.
- Explore the role of value-based education in fostering AI innovation and its application across various sectors.
- Evaluate current educational curricula and frameworks that incorporate AI ethics and digital responsibility.

Significance of the Study

Because it addresses the ever-increasingly urgent need to establish a connection between the rapid development of artificial intelligence (AI) and ethical principles and educational objectives, this study is absolutely necessary. In light of the fact that artificial intelligence technologies are becoming more and more integrated into essential facets of society, such as healthcare, governance, education, and employment, it is imperative that the ethical implications of their design, deployment, and use be thoroughly investigated. This research demonstrates how crucial it is to have an ethical framework that

is founded on education in order to ensure that artificial intelligence systems continue to promote justice, openness, responsibility, and human rights.

In addition to this, the study sheds light on the ways in which education has the potential to shape persons who utilise artificial intelligence, policymakers, and developers into responsible individuals. It explores how educational institutions can play a central role in fostering critical thinking, ethical literacy, and a values-based approach to technology. By linking ethical considerations to the foundational goals of education, the research promotes the idea that AI should serve humanity, enhance well-being, and reduce inequalities rather than reinforce biases or undermine autonomy.

Ultimately, this study contributes to ongoing global discussions about the responsible governance of AI by advocating for an interdisciplinary and values-driven approach. It provides insights for educators, technologists, ethicists, and policymakers who are working toward a future in which AI is developed and applied with integrity, compassion, and social responsibility.

Conceptual Clarifications

Artificial Intelligence

According to Božić (2023), artificial intelligence (AI) is a discipline of computer science that focusses on the development of computers that are capable of performing tasks that are often associated with human intelligence. In addition to learning, thinking, perceiving, and comprehending language, these responsibilities also include communicating with others. The holy grail of artificial intelligence (AI) is the creation of machines that are capable of taking in data, evaluating it, and continuing to function either alone or with little supervision from humans.

Borenstein and Howard (2021) made the observation that the use of artificial intelligence for a wide variety of objectives has become more common. The use of artificial intelligence has started to be used in a broad variety of applications, such as the production of celebrated artwork, the assessment of enormous quantities of tweets, the synthesis of whole articles, and the operation of autonomous cars. There is no doubt that the exponential expansion of digital data and the exponential rise of computer power have brought about remarkable changes in our day-to-day lives as well as our perceptions of intellect. Some members of the academic community believe that artificial intelligence (AI) is a game-changing technology that will permanently change the manner in which humans interact with one another or with other individuals. Artificial intelligence (AI) advancements have been a significant driving factor behind the rapid transition that has been taking place in the education sector over the course of the last few years. There are a multitude of ways in which artificial intelligence (AI) has the potential to change the educational environment. Two of these approaches include the creation of more efficient administrative operations and the customisation of learning experiences. However, as educational institutions gradually increase their use of artificial intelligence in their operations, it is imperative that serious consideration be given to the ethical implications of such implementations.

Ethical Considerations of AI in Education

The question of whether or not AI algorithms include bias is a significant ethical challenge in the field of AI education. The potential for artificial intelligence to internalise and reinforce any preconceptions that are present in the data that is used to train it is a problem that arises when it is deployed in educational settings. Consequently, this has the potential to worsen existing discrepancies in educational opportunities and outcomes, as well as to result in unfair treatment. Take, for instance, the possibility that the achievement gap would widen if an educational technology driven by artificial intelligence were to favour certain demographics while disadvantageous others (Stahl et al., 2022). A significant ethical consideration that must be taken into account while teaching AI is privacy. The lives and achievements of their students, both academic and otherwise, are meticulously documented by colleges and universities during the course of their existence. Artificial intelligence algorithms sift through this data in order to personalise instruction for each individual student and to carry out specialised interventions. On the other hand, there are concerns over the potential for privacy infringement when sensitive student information is used. It is conceivable that unauthorised access,

exploitation, or manipulation of this data might result in the violation of people's rights to privacy and the loss of confidence in educational institutions.

Moreover, accountability is essential in order to ensure the development and use of artificial intelligence technology in the classroom in an ethical manner. Given that artificial intelligence (AI) systems have the capacity to influence the learning paths of students, it is of the utmost importance to put in place procedures that will ensure individuals who are engaged in the process of developing, implementing, and regulating AI interventions are held responsible for the results their actions produce. There is a possibility that emphasis on accountability could result in unintended repercussions, such as unjust treatment or wrong judgements, and that there may be no obvious methods to settle the differences that you are experiencing. In the classroom, it is essential to conduct research into the potential ethical repercussions of utilising artificial intelligence for a number of reasons. Initially and foremost, it safeguards the rights and well-being of students by regulating the use of artificial intelligence in a manner that is equal, fair, and respectful of the autonomy of individuals. Second, increasing the amount of transparency and trust in academic communities via the use of ethical inspections encourages the usage of artificial intelligence systems. Thirdly, it is vital to proactively manage ethical issues in order to limit the risk of suffering damage and to guarantee that educational interventions facilitated by artificial intelligence correspond to societal norms and values (Taddeo, 2018).

Additionally, ethical criticism has a propensity to speed up the creation and enhancement of artificial intelligence education. Researchers and practitioners have the potential to improve the efficiency and moral stability of AI-powered educational systems (Tiago et al., 2022). This may be accomplished by identifying and resolving ethical problems, developing robust privacy protections, and putting accountability mechanisms into place. In order to ensure that artificial intelligence technologies improve education, conform to ethical standards, and protect the rights and dignity of students, it is vital to investigate issues of prejudice, privacy, and accountability.

Overview of AI technologies commonly used in Education

As artificial intelligence (AI) technology becomes more integrated into educational settings, there are exciting new opportunities to tailor learning, improve educational outcomes, and enhance learning experiences. These possibilities are made possible by the growing integration of AI technology. For the purpose of ensuring that applications of artificial intelligence in education comply to the principles of fairness, transparency, confidentiality, and responsibility, it is vital to conduct an in-depth investigation of the ethical concerns that are associated with these benefits.

i.) Artificial intelligence (AI) teaching systems personalise courses to each student by assessing their prior performance and current knowledge. These systems examine student data in order to alter classes, make feedback, and monitor improvement. As a result of its use, ethical concerns about the dependability and fairness of algorithmic interpretations have been brought to light. Furthermore, there is a possibility that these algorithms may exacerbate any biases that are already present in the data (Diakopoulos, 2016).

ii) The work that students turn in for assignments, quizzes, and examinations is extensively examined and scored automatically by grading systems that are powered by artificial intelligence. It is possible that these algorithms may not possess the subjective judgement or contextual knowledge that human evaluators do, despite the fact that they do offer some advantages, such as efficiency and potential for scaling. According to Grover and Pea (2013), individuals are concerned that they are unable to guarantee elements such as truth, fairness, and accountability.

iii) Adaptive learning platforms: These platforms use artificial intelligence algorithms to personalise educational materials and tasks for each individual student. This is accomplished by taking into account the student's specific needs, interests, and preferred learning techniques. These platforms have the best of goals, which are to improve learning outcomes via the use of individualised teaching;

but, they also raise ethical problems around transparency, data privacy, and algorithmic bias of the platform.

iv) Chatbots and virtual assistants powered by artificial intelligence: These technologies are beginning to make a huge impression in classrooms, assisting students and teachers in speaking more effectively with one another and providing instant responses to enquiries. There is a possibility that algorithms for natural language processing include inherent biases, and there are ethical concerns with the collection and use of student data.

v) Educational Data Mining and Learning Analytics: We may be able to find trends, patterns, and predictors of academic achievement by using AI technologies such as data mining and learning analytics to huge databases that include information on students and their behaviour. Even while these technologies provide beneficial insights for improving educational practices, they also raise ethical problems around data privacy, informed authorisation, and the security of student information (Taddeo, 2018). These questions emerge in connection to the technology.

Despite the revolutionary potential that artificial intelligence technology has for the field of education, we must carefully evaluate the ethical implications of this technology. It is vital that educators, policymakers, and tech corporations collaborate in order to ensure that uses of artificial intelligence in education promote equality, justice, and student well-being. This is necessary in order to address issues about privacy, discrimination, transparency, and accountability.

Opportunities of Integrating AI in Education

A number of studies, like those conducted by Chen et al. (2020), Pedro et al. (2019), and Alam (2021), shed light on the enormous capacity of artificial intelligence (AI) and its potential to change the educational system. Through the use of artificial intelligence (AI), educators have access to a plethora of tools that may help them enhance student outcomes, administrative responsibilities, learning environments, and the overall quality of interactions with students. In this section, these potential outcomes are investigated in further detail.

According to Qushem et al. (2021), Chen et al. (2022), and Ahmad et al. (2020), one of the most significant advantages of incorporating AI into educational settings is the ability to provide students with individualised educational experiences or experiences. It may be challenging for traditional, one-size-fits-all strategies to accommodate the various learning styles and rates of development that students exhibit (Lopez and Schroeder, 2018; Mustafa, 2015). According to the findings of Gligorea et al. (2023), adaptive learning systems that are powered by artificial intelligence are able to analyse huge quantities of data on student preferences and performance. This makes it possible for instruction to be tailored to the specific needs of each individual student.

Learning materials may have their content, speed, and difficulty dynamically modified by these systems in response to real-time feedback. This allows for more effective learning. All of the students will get the assistance they need while also being presented with challenges that are tailored to their own needs. Researchers Song et al. (2012) and Zakaria et al. (2024) found that students who had personalised learning experiences reported better levels of engagement, motivation, and success than students who did not have such experiences. Because of this, students who participate in these programs have a greater sense of support and empowerment throughout their educational journey.

It is possible for all students to get high-quality, customised instruction via the use of personalised learning, which contributes to the reduction of the performance gap and the promotion of equality (Pape & Vander Ark, 2021). There is the potential for artificial intelligence to significantly increase both the academic achievement of students and their level of engagement in the learning process by creating learning environments that are more immersive and engaging. Chatbots and virtual tutors that are driven by artificial intelligence, for example, have the potential to imitate the sort of useful interactions that students would have with human professors. These interactions include holding in-depth conversations with students, responding to their questions, and offering rapid feedback (Chen et al., 2023; Labadze et al., 2023). This individualised support has the potential to improve students'

self-confidence, desire, and persistence, which in turn may lead to an improvement in the students' academic accomplishment.

Ethical Issues of AI in Education

The algorithms that are used in artificial intelligence (AI) are having an expanding influence on a broad variety of educational technology, ranging from automated evaluation systems to personalised learning platforms. In spite of this, there is a substantial cause for worry over the use of AI in educational settings due to the possible biases that are inherent in these algorithms. The word "bias" is used to characterise artificial intelligence systems that make errors or omissions in decision-making and treat individuals unjustly due to a variety of characteristics, including but not limited to characteristics such as colour, gender, financial background, or disability.

If artificial intelligence technologies are used in a biassed manner, it might have far-reaching impacts on educational equity and inclusion. The attempts to promote educational equality, which is defined as providing all students with access to the required resources and opportunities for academic achievement, are undermined when artificial intelligence systems either continue to maintain current inequities or worsen those that already exist. On the other side, "inclusive" refers to the process of establishing a classroom atmosphere that recognises and respects differences, as well as provides every child with an equal opportunity to succeed. Many academic investigations have indicated that artificial intelligence algorithms that are utilised in schools have a component known as partiality. In the algorithms that are used to automatically assess essays, there is racial discrimination, as stated by Diakopoulos and Koliska (2017). The data revealed a trend in which students belonging to certain racial or ethnic groups generated essays that received consistently lower marks than other students for the same essay.

According to the findings of study conducted by Virginia Eubanks (2018), predictive algorithms that are used in school punishment systems have a disproportionate impact on pupils of colour. This has resulted in the perpetuation of the loop of increasing the severity of disciplinary processes and sending more children to prison. The complicated nature of bias in artificial intelligence algorithms is a big cause for worry when it comes to educational fairness and inclusion. The first thing we should be concerned about is the possibility that biassed algorithms may consistently benefit particular student groups, which will exacerbate the educational achievement discrepancies that already exist. An adaptive learning platform that is powered by artificial intelligence that offers advanced curriculum to kids from wealthy families and remedial or less difficult courses to children from low-income families might potentially widen the achievement gap (Noble, 2018).

Furthermore, biassed artificial intelligence algorithms have the potential to further marginalise and reject under-represented groups in educational institutional contexts. A situation in which this happens is when facial recognition technologies that are used to monitor attendance have a tendency to make mistakes more often with children who have darker skin tones than with children who have lighter skin tones. According to Buolamwini and Gebru (2018), students who come from racial minorities may experience feelings of mistrust and segregation as a result of this.

Value of Education in Application of Artificial Intelligence (AI)

Education plays a critical and multifaceted role in the application of artificial intelligence (AI), serving as both the foundation for innovation and the compass for ethical and effective deployment. At its core, education equips individuals with the technical skills necessary to develop and operate AI system ranging from mathematics, computer science, and data analytics to advanced machine learning algorithms (Chima et al, 2024). Without a strong educational framework, the creation of intelligent systems would be impossible, as AI depends heavily on rigorous understanding and continuous research. Building artificial intelligence systems that are efficient, fair, unbiased, and aligned with values involves more than simply technical knowledge; it also requires the development of critical thinking and problem-solving abilities, which are best taught via formal education.

The authors Lu et al. (2021) emphasised that as artificial intelligence (AI) continues to permeate several fields, including healthcare, finance, agriculture, and education itself, professionals need to be taught to utilise AI in a responsible manner, taking into account both its capabilities and its limitations.

Moreover, education serves as a tool for demystifying AI for the general public, promoting digital literacy and reducing the fear and misconceptions surrounding intelligent technologies. It ensures that society is better prepared to engage with AI, whether as developers, regulators, or end-users, empowering people to adapt, innovate, and contribute to a future increasingly shaped by artificial intelligence. In essence, education is not just a prerequisite for AI advancement; it is the backbone of a future where AI can be harnessed for inclusive growth, ethical decision-making, and societal good.

Implications of AI in Value Education

Three of the most important ways in which artificial intelligence (AI) contributes considerably to value education are the enhancement of personalised learning, the promotion of ethical reflection, and the enhancement of critical thinking respectively. Using adaptive learning systems, artificial intelligence (AI) may customise lessons on morals and ethics, making them more fascinating and relevant to each individual learner. This is why AI is becoming more popular. It also creates interactive simulations and real-life scenarios that challenge students to apply values such as empathy, responsibility, and integrity. However, the use of AI in this context raises concerns about biases in algorithms and the need for human oversight to ensure that the values being taught reflect diverse cultural and ethical perspectives. Overall, AI serves as a supportive tool that, when guided by educators, can enrich value education and foster moral development in students.

Conclusion

It is imperative that we do not disregard the significant ethical problems that have been brought to light by the revolutionary possibilities that are given by the incorporation of artificial intelligence (AI) into society. Fairness, accountability, transparency, and respect for human rights are all essential components of the process of developing and implementing artificial intelligence technology. Education plays a critical role in this process by fostering informed citizens, equipping professionals with ethical frameworks, and guiding responsible innovation. A strong educational foundation empowers individuals to critically engage with AI, address its challenges, and harness its benefits for the greater good. Ultimately, a value-driven approach to AI, grounded in ethics and supported by education, is key to creating a future where technology serves humanity with integrity and equity.

Recommendations

Ethical education should be mandatory in technical programs to ensure that professionals are equipped to make morally sound decisions.

Educational programs should be developed to enhance public understanding of AI, especially its risks, benefits, and ethical concerns.

Educational institutions should create spaces for ethical experimentation, such as innovation hubs and think tanks, where ethical AI applications can be prototyped, evaluated, and refined in collaboration with stakeholders.

Education in AI ethics should emphasize the importance of diverse perspectives in data collection, model training, and system design.

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