THE ETHICAL IMPLICATIONS OF ARTIFICIAL INTELLIGENCE IN EDUCATION

Donatus, Uzoma Okwara, Ph.D
Directorate of General Studies
Federal University of Technology Owerri, Imo State, Nigeria
&
Obinna, Victor Obiagwu, Ph.D
Directorate of General Studies
Federal University of Technology Owerri, Imo State, Nigeria
&
Samuel, Ugochukwu Obasi, Ph.D
Directorate of General Studies
Federal University of Technology Owerri, Imo State, Nigeria
&
Odera, Cosmas Udogu, Ph.D
Department of Philosophy
Seat of Wisdom Seminary, Owerri, Imo State, Nigeria
&
Nkechi, Fidelia Okorie
Department of Business Administration and Management
Kingsley Ozurumba Mbadiwe University, Ideato, Imo State, Nigeria
obinnaobiagwu71@gmail.com

Abstract
The integration of artificial intelligence (AI) technology in education has introduced numerous possibilities and benefits. However, it also raises ethical concerns that demand careful consideration. This research work explores the ethical implications associated with the implementation of AI in education. The work examines key ethical dimensions, including privacy and data protection, equity and bias, and the impact on the teacher-student relationship. The findings highlight the importance of transparency, accountability, and fairness in AI design and deployment. The work proposes a comprehensive framework to guide ethical Artificial intelligence implementation in education, emphasizing the need for robust policies, algorithmic transparency, and addressing biases. By proactively addressing these ethical considerations, educational stakeholders can ensure a responsible and inclusive educational environment that harnesses the potential of AI while upholding ethical principles. Artificial intelligence (AI) has revolutionized various sectors, including education. Its integration into educational systems has raised ethical concerns regarding privacy, autonomy, bias, and accountability. This paper delves into the ethical implications of artificial intelligence in education through philosophical perspectives. Drawing on the works of notable philosophers, it examines the moral considerations inherent in the use of artificial intelligence   technologies in educational settings.

Keywords: Artificial intelligence, Education, Ethics, Implementing AI, Revolutionized

Introduction
The use of Artificial Intelligence for a vast range of purposes has become increasingly popular. From self-driving cars to creating award-winning pictures, analyzing billions of tweets, and (ironically) writing entire articles. No one can deny that the growing production of digital data

and the advancements in computational power have changed our daily lives and the way we think about intelligence. Some scholars have referred to artificial intelligence as one of the radical technologies that will forever change human interactions. In recent years, the field of education has witnessed a rapid transformation, primarily driven by advancements in artificial intelligence (AI) technology. Artificial intelligence has the potential to revolutionize various aspects of education, ranging from personalized learning experiences to efficient administrative systems. However, as educational institutions increasingly integrate AI into their practices, a crucial aspect that demands careful consideration is the ethical implications of such implementations.

While these technological advancements bring promising benefits, they also raise significant ethical questions that need to be addressed to ensure a responsible and inclusive educational environment. The ethical implications of AI implementation in education extend beyond mere technical considerations. They encompass issues related to privacy, fairness, transparency, accountability, and the broader impact of AI on educational outcomes. For instance, the collection and analysis of vast amounts of student data by AI systems raise concerns about data privacy, security, and potential misuse. Moreover, the use of AI algorithms in decision-making processes, such as student place mentor teacher evaluation, may introduce biases or reinforce existing inequalities if not carefully designed and monitored.

Furthermore, the role of teachers and their interaction with AI technologies becomes a focal point of ethical analysis. As AI systems assume certain teaching functions, questions arise about the implications for the teacher-student relationship, the development of critical thinking skills, and the human touch in education. Striking the right balance between AI-assisted instruction and human guidance becomes paramount to ensure that the educational experience remains nurturing, empowering, and sensitive to individual needs. To comprehensively examine the ethical dimensions of artificial intelligence implementation in education, this research work will delve into the ethical principles that should guide the design and deployment of artificial intelligence systems in educational settings, emphasizing the importance of transparency, accountability, and fairness. This paper aims to critically analyze the ethical implications of artificial intelligence in education, employing philosophical arguments to explore the complex moral terrain surrounding its implementation.

The Concept Education
Etymologically, the word education is derived from the Latin word "educare" which means to train or to form or from the related Latin words "ē" which is "out" and "dūcĕre" which is to lead, then bringing them together we get "ēdūcĕre" which literally means "to lead out."[1] According to Ayo Fadahunsi, education is a method through which people are lead out of ignorance. It creates awareness of what is not previously known in the mind of people. Fasanya defined education as the art of training the intellectuality, morality and physicality of a person. [2]Education is a process of enrichment, acquisition of informed experience and skills for the realization of human potentialities and capabilities so as to confront meaningfully the challenges arising from human existence and society for adequate human development.[3]

---

[1]Randall Currew, "Philosophy of Education. Ethical and Political Issues in", 360, in Donald M. Borchert

(gen. ed.), *Encyclopedia of Philosophy*, VII, 2ⁿᵈ ed., New York: Thomson Gale, 2006, pp.360-364.

[2]Ayo Fadahunsi, *Philosophy. An Anthology*, Ikeja: Ark Publishers, 1998, p. 300

[3]Okewu Michael Peter, 'The Concept of Education' in *Philosophy of Education: Introductory Note*, Owerri: Rosarian Publication, 2022, p. 58.

Meaning of Artificial Intelligence

Artificial Intelligence (AI) is a branch of computer science dedicated to creating systems capable of performing tasks that typically require human intelligence. These tasks include learning, reasoning, problem-solving, perception, language understanding, and interaction. The aim of AI is to develop algorithms and models that enable machines to process information, make decisions, and act autonomously or semi-autonomously. AI can be categorized into two main types:

Narrow AI (Weak AI):

This type of AI is designed to perform a specific task or a narrow range of tasks. It does not possess general intelligence and cannot perform functions outside its predefined capabilities. Examples include facial recognition systems, language translation tools, and recommendation algorithms.

General AI (Strong AI): This is a theoretical form of AI that possesses general cognitive abilities, akin to human intelligence. General AI can understand, learn, and apply knowledge across a wide range of tasks. While narrow AI is prevalent today, general AI remains a long-term goal of research and development.

AI encompasses various subfields, including machine learning (ML), natural language processing (NLP), computer vision, robotics, and expert systems. Each of these areas contributes to the broader objective of creating intelligent systems capable of complex behaviours.

Philosophical Foundations

1. Immanuel Kant's Categorical Imperative: Kant's moral philosophy emphasizes the importance of treating individuals as ends in themselves, rather than as means to an end. Applied to AI in education, this principle underscores the necessity of respecting learners' autonomy and dignity. It prompts us to consider whether AI-driven educational systems prioritize students' interests and facilitate their moral development.

2. John Stuart Mill's Utilitarianism: Mill's utilitarian perspective evaluates actions based on their consequences, aiming to maximize overall happiness or utility. When applied to AI in education, utilitarianism prompts us to assess whether the benefits of AI-driven learning platforms outweigh potential harms. Moreover, it raises questions about the distribution of educational resources and the implications of AI algorithms perpetuating societal inequalities
.
3. Aristotle's Virtue Ethics: Aristotle's virtue ethics focuses on cultivating moral character and flourishing as individuals within a community. In the context of AI in education, this framework encourages us to reflect on the development of virtues such as critical thinking, empathy, and intellectual curiosity. It challenges us to consider whether AI technologies support the holistic growth of learners or hinder their moral and intellectual development.

Artificial Intelligence and the Philosophy in Education

The educational philosophy of John Dewey places an emphasis on hands-on experience and making connections between classroom learning and real-world situations. His philosophy of education focuses on the value of experiential and hands-on learning in preparing learners for civic engagement. Artificial intelligence (AI) in education, on the other hand, has the potential to individualize instruction and expand students' access to course materials, but it has also been

linked to a decline in student-teacher contact. Experiential learning and making connections between classroom instruction and real-world problems and challenges are central to the progressive pedagogy that John Dewey championed. AI could be utilized in this setting to give students access to simulations and VR settings that are both realistic and interesting to them. Constructivism, which places an emphasis on the student's active participation in the learning process, may find a friend in AI in the form of individualized learning algorithms that can be tailored to each learner's specific requirements.

Arguments for AI in Education

Personalized Learning
AI algorithms can analyze students' learning styles, preferences, and performance data to tailor instruction to individual needs, fostering personalized learning experiences that maximize student engagement and achievement.

Efficiency and Accessibility
AI-powered educational platforms can automate administrative tasks, provide instant feedback on assignments, and offer accessible learning resources, thereby increasing efficiency and widening access to quality education, especially in remote or underserved areas.

Data-Driven Decision Making
AI analytics can generate insights from large datasets, enabling educators and policymakers to make data-driven decisions about curriculum design, instructional strategies, and resource allocation, leading to continuous improvement in educational practices.

Adaptive Assessment
AI-based assessment tools can dynamically adjust the difficulty and content of assessments based on students' performance, providing more accurate and timely feedback to support learning progression and identify areas for improvement.

Innovative Teaching Methods
AI technologies, such as virtual reality simulations, chatbots for tutoring and interactive learning platforms, offer innovative teaching methods that enhance student engagement, creativity, and critical thinking skills.

Arguments against AI in Education

Dehumanization of Learning
Over-reliance on AI-driven educational systems may lead to the dehumanization of learning experiences, diminishing the role of human teachers and interpersonal interactions essential for holistic development, empathy, and social-emotional learning.

Threats to Privacy and Security
The extensive collection, analysis, and utilization of student data by AI algorithms raise concerns about privacy infringement, data breaches, and unauthorized surveillance, compromising students' autonomy, confidentiality, and digital rights.

Algorithmic Bias and Discrimination
AI algorithms can perpetuate and amplify biases present in training data, resulting in algorithmic discrimination, unfair treatment, and systemic inequalities in educational outcomes, particularly

for marginalized or underrepresented student populations.

Loss of Control and Accountability

The opaque nature of AI decision-making processes and the lack of transparency in algorithmic design raise challenges in understanding, auditing, and holding accountable the responsible parties for errors, biases, or unintended consequences in AI-driven educational systems.

Socioeconomic Divide

The adoption of AI technologies in education may exacerbate the socioeconomic divide by widening the gap between affluent students with access to advanced AI tools and resources and disadvantaged students who lack equitable access to technology and personalized learning opportunities.

In weighing these arguments, it is essential to engage in informed discourse, consider diverse perspectives, and address ethical concerns to ensure that AI technologies are harnessed responsibly to enhance, rather than detract from, the quality and equity of education for all learners.

Contemporary Philosophers Regarding AI in Education And Its Ethical Implications

Nick Bostrom

Nick Bostrom is a Swedish philosopher known for his work in the fields of existential risk, decision theory, and the ethics of artificial intelligence. He is the founding director of the Future of Humanity Institute at the University of Oxford, where he conducts research on the long-term impacts of emerging technologies, including AI, biotechnology, and nanotechnology, on human civilization.

Bostrom, in his work on Existential Risks and Super-intelligence, explores the potential benefits and risks of AI in education. He argues that while AI has the capacity to revolutionize learning experiences and improve educational outcomes, it also poses existential risks if not aligned with human values. Bostrom emphasizes the importance of designing AI systems in alignment with ethical principles to ensure their beneficial impact on education.[4]

Bostrom gained widespread recognition for his book Super-intelligence: Paths, Dangers, Strategies, published in 2014. In this seminal work, he explores the potential consequences of the development of super-intelligent AI and argues for the importance of ensuring that such systems are aligned with human values to prevent catastrophic outcomes.

Bostrom's research also extends to topics such as simulation theory, anthropic reasoning, and global catastrophic risks. He is known for his rigorous and interdisciplinary approach to addressing complex philosophical and ethical issues arising from technological advancements and their implications for humanity's future.

Susan Schneider

Susan Schneider is a philosopher known for her work in the philosophy of mind, cognitive science, and the ethics of artificial intelligence. She holds the positions of Distinguished Scholar at the Library of Congress and the Baruch S. Blumberg NASA/Library of Congress Chair in

---

[4]Bostrom, *Existential Risks and Super-intelligence*, Oxford University Press, 2014, 9.
.

Astrobiology. Schneider's research focuses on the nature of consciousness, the implications of AI for society and humanity, and the ethical challenges posed by emerging technologies.

She argues that while personalized learning algorithms can enhance educational experiences by catering to individual needs and preferences, they also raise concerns about privacy, autonomy, and algorithmic bias. Schneider emphasizes the need for robust ethical guidelines and regulatory frameworks to govern the responsible development and deployment of AI technologies in education.[5]

Luciano Floridi
Luciano Floridi is a philosopher known for his pioneering work in the philosophy of information, ethics of artificial intelligence, and the concept of the info-sphere. He holds the positions of Professor of Philosophy and Ethics of Information at the University of Oxford and Director of the Digital Ethics Lab at the Oxford Internet Institute. Floridi's research explores the ethical implications of information and communication technologies, the nature of digital identity, and the moral challenges posed by the increasing digitization of society.

Floridi, a leading figure in the field of philosophy of information and ethics of AI, offers insights into the ethical challenges of AI-driven education. He argues that AI technologies have the potential to democratize access to education, empower learners, and promote lifelong learning.[6] However, Floridi warns against the commodification of education, data exploitation, and the erosion of human values in the pursuit of efficiency and automation. He advocates for ethical AI design principles grounded in respect for human dignity, transparency, and accountability.

Kate Devlin
Kate Devlin is a prominent figure in the fields of artificial intelligence, robotics, and the ethics of technology. She is a Senior Lecturer in the Department of Digital Humanities at King's College London, where her research focuses on human-computer interaction, social robotics, and the impact of AI on society and culture. Devlin's work explores the ethical and societal implications of emerging technologies, with a particular emphasis on human-centered design, gender representation, and the future of intimacy in the age of AI.

She argues that AI technologies should complement, rather than replace, human teachers and mentors in fostering critical thinking, creativity, and social-emotional skills.[7] Devlin emphasizes the importance of human-centered design and interdisciplinary collaboration in harnessing AI to address educational challenges while upholding ethical principles of equity, diversity, and inclusion.

Maurice S. Johnson
Johnson, an ethicist and philosopher of technology, explores the ethical dimensions of AI-driven assessment and decision-making in education. He argues that while AI algorithms can offer valuable insights and support in evaluating student performance and guiding instructional interventions, they also raise concerns about fairness, transparency, and accountability. Johnson advocates for participatory approaches to AI governance that engage stakeholders in ethical

---

[5]Susan Schneider *Science Fiction and Philosophy: From Time Travel to Super intelligence*, Wiley-Blackwell, 2009, 14

[6]Luciano Floridi, *Ethics of Artificial Intelligence, and the Concept of the Info-sphere*, Oxford University Press , 2013, p.67.

[7]Kate Devlin, *Artificial Intelligence in Practice*, Cambridge University Press, 2021, 97.

deliberation, risk assessment, and policy development to ensure the ethical use of AI in education.[8]

Maurice S. Johnson's works focuses on the ethical implications of emerging technologies, including artificial intelligence, machine learning, and data analytics. He is known for his research on the intersection of ethics, technology, and education, exploring how advancements in AI impact educational practices, policies, and outcomes. Johnson's scholarship emphasizes the importance of ethical decision-making, equity, and social justice in the design and deployment of AI technologies in educational settings.

Ethical Implications

Privacy and Data Protection
The widespread use of AI in education necessitates the collection and analysis of vast amounts of student data. Philosophical arguments grounded in theories of privacy, such as those by John Locke and Alan Westin; highlight the importance of safeguarding individuals' autonomy and personal information. [9]Concerns arise regarding the ownership, access, and security of student data, as well as the potential for algorithmic discrimination and surveillance.

Autonomy and Agency
AI-driven educational systems have the potential to influence learners' choices, preferences, and decision-making processes. Drawing on the works of Jean-Jacques Rousseau and John Dewey, philosophical discussions on autonomy underscore the significance of preserving learners' agency and freedom of thought. [10]Ethical considerations arise regarding the design of AI algorithms, the transparency of decision-making processes, and the balance between personalized recommendations and intellectual exploration.

Bias and Fairness
AI algorithms are susceptible to biases inherent in training data and algorithmic design, leading to unequal treatment and opportunities for marginalized groups. [11]Philosophical inquiries into justice and fairness, such as those by John Rawls and Martha Nussbaum, shed light on the ethical implications of algorithmic bias in education. It calls for critical scrutiny of AI systems to mitigate discriminatory outcomes and promote equitable access to educational resources.

Ensuring responsible
Use of AI in a school environment involves establishing clear policies, educating staff, and prioritizing data privacy and security. Schools should develop comprehensive policies that address ethical considerations and communicate them to all stakeholders. [12]Training teachers and staff on its capabilities, uses, and risks are paramount to ensure responsible usage in the classroom. Regular monitoring and evaluation of AI usage, involving parents and guardians, and continuously reviewing and updating policies are also key steps to ensure responsible AI use in schools.

---

[8]Johnson, *Maurice S. Ethics and Education in the Age of Artificial Intelligence*, Routledge, 2021, p. 11.
[9]Westin, Alan F. *Privacy and Freedom*, Cambridge University Press, 2021, 97.
[10]Westin, Alan F. *Privacy and Freedom*, p.101.
[11]Johnson, Maurice S. "Educational Data Mining: A Case for Ethical Guidelines and Quality Assurance in Learning Analytics." *International Journal of Artificial Intelligence in Education*, vol. 29, no. 2, 2019, pp. 161-181.
[12]Johnson, *Maurice S. Ethics and Education in the Age of Artificial Intelligence, p.* 124.

Addressing Algorithmic Bias

When used in schools, algorithmic bias in AI tools can lead to unequal learning opportunities and misclassifying students' abilities. The bias can also reinforce harmful stereotypes, lead to unjust discipline. To ensure that these issues are accounted for, it's crucial to ensure the tools used are trained on diverse data representative of the people using it and to consistently monitor them for fairness and accuracy.

Promoting Digital Literacy

AI introduces potential risks to children's learning and digital literacy, including overreliance on technology, the digital divide, and the proliferation of misinformation. [13]Overreliance on AI tools may hinder the development of critical problem-solving skills, while the digital divide may exacerbate educational inequalities. AI-driven content recommendations could potentially spread misinformation, thus creating challenges for students in discerning credible information. To address these risks, schools should adopt blended learning approaches that combine traditional teaching methods with AI tools, ensuring a balanced learning experience. Additionally, schools must strive to provide all students with access to the necessary technology, helping to bridge the digital divide. Including digital and media literacy in their curriculum is also critical, as it enables students to critically evaluate online information, promoting better understanding and responsible use of AI and digital tools in the learning process.

Ensuring Equity and Inclusion

AI tools in education, if not properly designed or implemented, can potentially exacerbate educational inequalities, particularly for students with Special Educational Needs and Disabilities (SEND). For instance, if AI tools are not developed with accessibility in mind, students with different learning needs may find them challenging to use. Algorithmic bias can also occur, making AI tools more effective for mainstream students than for those with special needs. In addition, while AI has the potential to offer personalized learning, improperly designed tools may follow a one-size-fits-all approach, disadvantaging students who would benefit from more individualized attention. [14]Schools must emphasize accessibility and personalization when implementing AI tools. They should collaborate with AI providers to ensure tools are designed with accessibility features, making them usable for students with diverse learning needs. Personalization should be at the forefront of AI implementation, with tools catering to each student's unique learning pace and style.

Conclusions

The integration of artificial intelligence (AI) in education brings numerous opportunities and benefits, but it also raises significant ethical implications that must be carefully examined. This research work has explored the ethical challenges associated with AI implementation in education, focusing on the dimensions of privacy and data protection, equity and bias, and the impact on the teacher-student relationship.

Respecting privacy rights and ensuring user control over student data are crucial to maintain ethical practices. Safeguarding against biases and discrimination in AI algorithms is essential to promote educational equity and inclusivity. Furthermore, preserving the teacher-student relationship and the human touch in education is paramount, striking a balance between AI-assisted instruction and personalized guidance. To navigate the ethical implications of AI in education, it is imperative to establish comprehensive frameworks and guidelines. Incorporating

[13]Floridi, Luciano, *The Ethics of Information*, Oxford University Press, 2013, p.45.
[14]Kate Devlin, *Artificial Intelligence in Practice*, p.89.

ethical considerations in the design and development of AI systems is fundamental to ensuring responsible AI implementation. Stakeholders, including educators, policymakers, and researchers, should collaborate to establish robust policies and safeguards to protect student privacy, address biases, and promote equity.

Also, note, a teacher should not be replaced by the implementation of the artificial intelligence, as the technology does not have the finesse and the emotions that a pedagogue has after years and years of training in children character and psychology. Future research should, first and foremost, concentrate on creating and assessing AI-based educational apps and investigating the possible advantages and difficulties of utilizing this technology in various educational contexts and settings. Secondly, it is important to make sure that the technology is applied responsibly and morally. By using voice-activated interfaces like smart speakers or virtual assistants, ChatGPT can be used by young children in the early childhood education setting who are unable to read and write. Children can use voice commands or inquiries to interact with ChatGPT, and the AI model can answer with audio outputs. Children who are not yet able to read or write can nonetheless use technology and engage with it. To ensure safety and wellbeing, it is crucial to stress that young children should utilize AI technology under the close supervision and guidance of adults. ChatGPT and other AI tools won't go away, thus we need to make sure that we set up moral and pertinent boundaries for our students to use these technologies successfully. All educational organizations must purchase AI plagiarism toolkits. In order to guarantee that students are developing critical thinking and judgment abilities, educators must simultaneously adapt their teaching and curriculum strategies. As the purpose of education is to equip students with the necessary abilities to gain employment, as well as to solve business difficulties and problems that develop the organizations they are employed by, a judicious balance is required to ensure that cognitive offloading and critical thinking skills are not disregarded.

Artificial intelligence holds immense potential to transform education, yet its ethical implications cannot be overlooked. By engaging with philosophical arguments, we can navigate the complex ethical landscape of AI in education, striving to uphold principles of autonomy, fairness, and human flourishing. As we continue to harness AI technologies to enhance learning experiences, it is imperative to remain vigilant and ethically responsible, ensuring that education remains a beacon of enlightenment and empowerment for all.

Bibliography
Alan F. W., Privacy and Freedom, Cambridge University Press, 2021.
Bostrom, Existential Risks and Super-intelligence, Oxford University Press, 2014.
Currew, R., "Philosophy of Education. Ethical and Political Issues in", 360, in Donald M. Borchert (gen. ed.), Encyclopedia of Philosophy, VII, 2nd ed., New York: Thomson Gale, 2006.
Devlin, K., Artificial Intelligence in Practice, Cambridge University Press, 2021.
Fadahunsi, A., Philosophy. An Anthology, Ikeja: Ark Publishers, 1998.
Floridi, L., Ethics of Artificial Intelligence, and the Concept of the Info-sphere, Oxford University Press, 2018.
Floridi, Luciano, The Ethics of Information, Oxford University Press, 2013.
Maurice S. J., Ethics and Education in the Age of Artificial Intelligence, Routledge, 2021.
-------------------, "Educational Data Mining: A Case for Ethical Guidelines and Quality Assurance in Learning Analytics." International Journal of Artificial Intelligence in Education, vol. 29, no. 2, 2019
Peter, O.M, 'The Concept of Education' in Philosophy of Education: Introductory Note,