

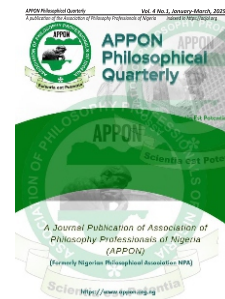
ETHICAL IMPLICATIONS OF ARTIFICIAL INTELLIGENCE (CHATGPT) IN EDUCATION

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ABSTRACT

This paper highlights the relevance of Artificial intelligence (AI) in general and the ChatGPT in particular. Artificial intelligence offers extraordinary opportunities in all facets of human life. At the same time, there are gross ethical questions surrounding Artificial intelligence. One of the main ethical dilemmas facing AI is that of liability. Who is responsible for the actions performed by an AI system? If an algorithm makes a decision that has a significant impact on people's lives, who is responsible for it? This question becomes especially important when it comes to decisions that affect human life, health care and safety. In response to these questions, this paper, through hermeneutic analysis argues that Artificial Intelligence system is not a moral agent and could not be ascribed as such. All ethical caveat and responsibility therefore, revolve around the human agents, who are the designers, developers, and users of all AI products. It is therefore the onus of the human agents to keep an ethical eye on their activities in the Artificial intelligence industries.

Keywords: Artificial, ChatGPT, Education, Ethical, Intelligence

Introduction

Artificial intelligence (AI) is making significant advances in all facets of human life and endeavours. Today, our society is witnessing a rapid evolution of digital era. In the education sector, there have been noted rapid changes. New learning experiences are gradually replacing once universally considered valid traditional teaching methods. Today, artificial intelligence offers new methods of analysing vast amounts of data to personalize teaching than before. In fact, AI is revolutionizing education by

tailoring learning experiences to individual student's needs, increasing engagement and improving overall learning outcomes.¹ Some fields of orthodox and traditional academic endeavours are witnessing great innovations which promise to aid students' diverse needs by personalizing learning experiences to match each individual's unique interests and learning styles. Thus, traditional learning theories established over the years seem to be giving ways to new possibilities as these have capabilities to enhance students' performances. The

¹ Muh Putra Pratam, Rigel Sampelolo, Hans Lura, Revolutionizing Education. Harnessing the Power of Artificial Intelligence for Personalized Learning. *Kaliskal: Journal of Education, Language Teaching and Science*, vol. 5, no. 2, Indonesia, 2023. DOI: <https://doi.org/10.52208/klasikal.v5i2.877>.

growing use of artificial intelligence in the 21st century is influencing a societal and economic shift towards increased automation, data-driven decision-making, and the integration of AI systems into various economic sectors and areas of life, impacting job markets, healthcare, government, industry, education, propaganda, and disinformation.

The most popular and specific area of Artificial Intelligence to education today is the area of the “Chat Generative Pre-Trained Transformer (ChatGPT), which had its public launch in November 2022. Since then ChatGPT has captured the world's imagination about its capabilities. It is a Chabot developed by the research and deployment company OpenAI, which is trained to follow an instruction in a prompt and provide a detailed response. Unlike Google, which has static and stored results, ChatGPT uses deep learning to produce results from one or more sentences that provide background information or pose a question. This involves self-improvement or self-learning capabilities. ChatGPT can respond to complex questions and produce comprehensive, essay-length answers on virtually any topic. It has revolutionized the method of teaching and learning. ChatGPT can accept text input to help write code, generate stories, look up information, and more.

The innovations in education as a result of ChatGPT come with benefits and challenges. The ethical risks of compromising data privacy, biased inputs, inaccuracies/misleading results, unreliability, plagiarism, and a lack of transparency and accountability are very frightening and need to be addressed. These raise questions about the long-term effects, ethical implications, and risks of Artificial Intelligence, prompting discussions about

regulatory policies to ensure the safety and benefits of the technology.²

This paper therefore, looks at the benefits and ethical challenges of Artificial Intelligence in education with special reference to the use of ChatGPT in researches as this has positive and negative influences on both teachers and students. The paper in a hermeneutic analysis appreciates the technological innovation in ChatGPT and at the same time highlights its risk, with the intent to suggest some ways to curb its ethical pitfalls.

What is Artificial Intelligence

Artificial intelligence (AI) is intelligence exhibited by machines, particularly computer systems. It is a field of research in computer science that develops and studies methods and [software](#) that enable machines to perceive their environment and use learning and intelligence to take actions that maximize their chances of achieving defined goals.³ – Such machines may be called AIs. Google, a major practitioner in the field of AI, says that it is the ability of systems to synthesize information as the manifestation of intelligence, similar to the way it is defined in biological intelligence.⁴ Some applications of Artificial Intelligence include; advanced web search engines (Google Search); recommendation systems (used by YouTube, Amazon, and Netflix); interacting via human speech (Google Assistant); autonomous vehicles (Waymo); generative and creative tools (ChatGPT, Apple Intelligence, and AI art); and superhuman play and analysis in strategy games (e.g., chess and Go).⁵

Origin and Development of Artificial Intelligence

The artificial intelligence (AI) we see today is the product of the field's journey from

² Wikipedia, *The free encyclopedia, Artificial intelligence*. visited on November 25, 2024, at 9 pm.

³ Stuart J. Russell & Peter Norvig, *Artificial Intelligence Modern approach*, 3rd Ed., ([Pearson Education Inc.](#), 2021), 1–4.

⁴ Russell, *Artificial Intelligence*, 4.

⁵ Wikipedia, *The free encyclopedia, Artificial intelligence*.

simple, brute force methodologies to complex, learning-based models that closely mimic the human brain's functionality. Early AI was effective for specific tasks like playing chess or jeopardy but it was limited by the necessity of pre-programming every possible scenario. The historical development of AI reflects a continual effort to mirror the essence of human intelligence and learning. The original goal of artificial intelligence founders is to create machines that can learn, adapt, and potentially think with a level of autonomy that was once the realm of science fiction.

The study of mechanical or formal reasoning began with philosophers and mathematicians in antiquity. The study of logic led directly to Alan Turing's theory of computation, which suggested that a machine, by shuffling symbols as simple as "0" and "1", could simulate any conceivable form of mathematical reasoning.⁶ This, along with concurrent discoveries in cybernetics, information theory and neurobiology, led researchers to consider the possibility of building an "electronic brain." They developed several areas of research that would become part of AI,⁷ such as McCulloch and Pitts design for "artificial neurons" in 1943,⁸ and Turing's influential 1950 paper: 'Computing Machinery and Intelligence', which introduced the Turing test and showed that machine intelligence was plausible.⁹ In 1950 Alan Turing wrote, "I propose to consider the question; can machines think?"¹⁰ He advised changing the

question from whether a machine thinks, to whether or not it is possible for machinery to show intelligent behaviour. He devised the Turing test, which measures the ability of a machine to simulate human conversation or literally has a mind.¹¹

In summary, the first person to conduct substantial research in this field is Alan Turing; in that period, he called it machine intelligence. Artificial intelligence was founded as an academic discipline in 1956 by those who now are considered the founding fathers of AI: John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon.¹² The field went through multiple cycles of optimism followed by periods of disappointment and loss of funding, known as AI winter. Funding and interest vastly increased after 2012 when deep learning surpassed all previous AI techniques and after 2017 with the transformer architecture. This led to the AI boom of the early 2020s, with companies, universities, and laboratories overwhelmingly based in the United States pioneering significant advances in artificial intelligence.¹³

In philosophy today, the issues of Machine consciousness, sentience, and mind have become problematic. The philosophy of mind queries whether a machine can have a mind, consciousness and mental states, in the same sense that human beings do. Although Russell and Norvig made it clear that making a machine conscious in exactly the way humans are is not what they were equipped to take on,¹⁴

⁶ Stanford University, "Artificial Intelligence.

⁷ Daniel Crevier, *AI: The Tumultuous Search for Artificial Intelligence*. (New York, NY: BasicBooks, 1993). ISBN [0-465-02997-3](#).

⁸ Russell J. Stuart, Peter Norvig, *Artificial Intelligence: A Modern Approach* (4th ed.). (Hoboken: Pearson, 2021), ISBN 978-0-1346-1099-3. [LCCN20190474](#).

⁹ Russell & Norvig, *Artificial Intelligence*, 2 & 984

¹⁰ Copeland J., ed. *The Essential Turing: the ideas that gave birth to the computer age*. (Oxford, England: Clarendon Press, 2004). ISBN 0-1982-5079-7.

¹¹ Brian Christian, *The Alignment Problem: Machine learning and human values*. (W. W. Norton & Company, 2020). ISBN 978-0-3938-6833-3. OCLC 1233266753

¹² Russell & Norvig, *Artificial Intelligence*, 21–22.

¹³ [Russell & Norvig](#), *Artificial Intelligence*, 21–22.

¹⁴ Russell Stuart J. & Norvig Peter *Artificial Intelligence*,

however, the question has become central to philosophy of mind, as it is also typically the central question at issue in artificial intelligence in fiction.

Artificial Intelligence in Education

Intelligence is difficult to define and to measure. Modern AI has had more verifiable successes by focusing on specific problems with specific solutions. We have therefore decided to tailor down to Artificial Intelligence in Education (AIED). AI can generate tailored educational materials and even conduct analysis using simple webcam technology. AI primarily analyses students' performance data, identifying critical weaknesses and predicting learning outcomes. This capability can identify at-risk students and create personalized learning paths, optimizing educational design and development. High-performing students can be challenged with advanced content, maintaining engagement and motivation.¹⁵ Educational technologies integrating AI, known as artificial intelligence in education (AIED), aim to transform teaching and learning processes. This informs the growing research and practices in this field.

The machine of Artificial intelligence in education is the Chat Generative Pre-Training Transformer (ChatGPT). It is an artificial language model that depends on the data it is fed to make inferences and return accurate information. Using a wide range of internet data, ChatGPT can help users answer questions, write articles, programme code, and conduct in-depth conversations on a substantial range of topics. Some users even ask ChatGPT to take on more complex forms of these tasks, including crafting job descriptions, writing company mission statements, and even drafting termination agreements by using its knowledge base, input answers, and key references.

In the academic world, academics, researchers, and students are already employing ChatGPT which is part of Large Language Models (LLMs) to complete their various academic and non-academic tasks. Thus, education methodologies are integrating AI for learning analytics, aiding decision making to enhance students' learning capabilities. Given the advancements in providing responses to inquiries, educators use ChatGPT as teaching aid in their teachings and researches. Students are the major stakeholders in using ChatGPT in a university setting. They can use it as a tool to complete written assignments and write research papers, and for examinations. It can be used as a resource, much like a search engine. The difference is that a search engine, such as Google, searches the internet to provide relevant results while ChatGPT uses deep learning to generate humanlike responses to user prompts.¹⁶

A key advantage is that ChatGPT in education can adapt to each student's unique learning style and pace.¹⁷ It can provide resources to write an essay on a particular topic, help the student to write the essay, and then the student can query ChatGPT with follow-up questions. It can also facilitate collaborative learning by facilitating group discussions to produce ideas or solve problems. ChatGPT can provide students with immediate feedback on their work. It can answer questions, provide explanations, and even suggest resources to use to better understand the issues related to the student's prompt. ChatGPT can facilitate using advanced teaching methodologies, promoting interactive learning, and developing students' critical thinking skills.

In accounting and finance, ChatGPT can be used to enhance audit practice and can be a valuable tool in financial management. The auditing profession uses innovative

¹⁵ Cristian Randieri, *Personalized Learning and AI*,

¹⁶ Steven Mintz, Ethics of ChatGPT in Education. *Technology and Analytics. SF strategic finance*. January 16, 2024. Sfmagazine.com

¹⁷ Steven Mintz, Ethics of ChatGPT in Educationn.

technologies and digital data to assist in developing audit programmes. The AI ChatGPT can save time and resources by relieving auditors from performing repetitive, mundane tasks. As a result, auditors can devote more time and attention to creative work and critical thinking. ChatGPT can help finance professionals, who are entrusted with managing the financial responsibilities of an organization, by automating routine tasks, analysing large amounts of data, providing guidance in decision making, and creating financial reports.

Ethical Implications of Artificial Intelligence

Besides the fervid issue of AI liability mentioned above, there are concerns about the use of AI in education, particularly regarding the privacy of our data and the potential for biased algorithms. It has therefore become essential to apply safeguards to protect users' rights and ensure fairness in using AI technologies. There are fears that Artificial intelligence can supersede the human capacities. Thus, the survival of human beings on the surface of the earth would largely depend on the development of solid and strong moral standards around Artificial intelligence.¹⁸ There is also the fear that AI in education could worsen the digital divide by creating unequal access to necessary technology and internet connectivity, thus further deepen educational inequalities. All these highlight the importance of actively engaging all stakeholders to promote ethical practices and ensure equity, inclusivity and responsible use of AI tools. Today, many people insist that the future of education lies at the intersection of this innovation and its ethical management.

Data privacy and security: This is the

first ethical issue in ChatGPT Artificial Intelligence. ChatGPT has access to huge amounts of data; there is a risk that this data could enter into wrong hands either through hacking or by other means. Proper security measures should be in place to protect the data from unauthorized access.¹⁹ Users should not place private information in the chat box. There is therefore, the need to ensure that data is handled securely and that people have control on how it is used.²⁰

Fairness: The ethical value of fairness is part of the foundation for grading students. Some students with greater access to technology may have an unfair advantage when using ChatGPT over those students who do not. This ethical value must be used in order to avoid discrimination. Furthermore, AI algorithms can be influenced by implicit biases that lead to unfair or discriminatory decisions. For example, facial recognition systems may be less accurate at recognizing faces of people of colour than those of white people. It is crucial to ensure that AI is developed in an impartial manner and that decisions made by AI systems are balanced and fair to everyone. This bias also may occur if information is skewed to support one point of view over another. For instance, ChatGPT may 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. Educators can analyse ChatGPT-generated answers/essays that favour a particular viewpoint. These are few among many other examples of recognized biases in the system.

Inaccuracies/misleading results: ChatGPT may come up with incorrect, inaccurate, or incomplete information depending on the questions asked. One reason is that it does not generate answers by

¹⁸ Stewart J. S. & Nyholm S., Ethics of Artificial Intelligence in <http://edu/ethics-of-artificial-intelligence>. Accessed October, 2024.

¹⁹ *Government of the United States of America, Consumer Data: Increasing use poses Risks to Privacy*, (gao.gov Report, 13 September 2022). Retrieved November 25, 2024.

²⁰ Steven Mintz, Ethics of ChatGPT in Education.

looking for the information in a database, as would a Google search, but rather it draws on patterns it learned in its training. One way to deal with such issues is to submit feedback to the responses to ChatGPT and see whether it produces information that is more reliable.²¹

Reliability: ChatGPT is generally reliable for straightforward factual questions but can yield less helpful, more generalized responses to complex topics. By asking clear and specific questions, ChatGPT can produce reliable results. Thus, there is always the need to crosscheck the responses with other sources to alleviate uncertainty.

Plagiarism: The obvious issue for educators is that ChatGPT has the potential to facilitate cheating by students and researchers without being detected, most likely through plagiarism. This has implications for academic integrity and could undermine the fundamental values of higher education. Wood and his co-authors noted that students use ChatGPT to cheat.²² Today, take-home, open-book assignments are vulnerable to Chatbot abuses. Instead of these, some professors are opting for in-class assignments, handwritten papers, group work, and oral examinations. Other useful methodologies to counteract the motivation to cheat using AI technologies and ChatGPT are by administering exams in a settings where technology cannot be accessed, shifting from traditional examinations to more presentation-style assignments, or pretesting examinations with ChatGPT to assess whether the questions can be correctly answered. Ethical risks of plagiarism can also be mitigated by relying on OpenAI and other companies such as Turn-it-in that have developed tools to detect text generated by language models such as ChatGPT. Turn-it-in is an advanced writing detection technology that is highly

reliable and proficient in distinguishing between AI- and human-written texts and is specialized or student writing.²³ However, educators should use caution: AI technology is moving so fast that any tool is likely already out of date. 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.

Transparency: Transparency in AI is about clearly communicating the workings of AI systems to users. Students should understand why they have been given a particular response when ChatGPT responds to a query. The goal is to ensure that AI doesn't become a "black box" – a machine that takes in data and produces answers without one understanding how it arrived at those conclusions. Transparency enhances trustworthiness and builds confidence in using ChatGPT.

Accountability: Increased accountability and transparency in ChatGPT help to ensure that users are receiving the most relevant and useful prompts. Appropriate measures should be taken to reduce the potential for bias in the system.

Having discussed the common ethical risks of AI ChatGPT, we now examine deeper ethical issues pertinent to Artificial Intelligence. The salient questions here are:

- Are AI technologies moral agents? Do AI systems qualify in our classification of moral agents such that they can be held responsible?
- Are they in the real sense of it rational, are they free agents and have they volition? For a person to be morally responsible he must be free and conscious in his actions.
- If the AI is not a moral agent, in an event where the AI technologies make mistakes or cause harm or injury to

²¹ David Wood, et. al., "The ChatGPT Artificial Intelligence Chatbot: How Well Does It Answer Accounting Assessments Questions?" *Issues in Accounting Education*, (November 2023), 1-28.

²² David Wood, "The ChatGPT Artificial Intelligence Chatbot," 1-28.

²³ Steven Mintz, "Ethics of ChatGPT in Education."

people which may have life and death implications, who should be held responsible?

- Furthermore, when AI Chabot generates false and harmful information, who should be responsible?
- Do algorithm machines qualify as rational agents capable of moral deliberation?
- Can machines actually be held at the same ethical standard with human beings? Today, AI is being used to develop new medical treatments, diagnose diseases and improve the quality of healthcare delivery. AI is being used to develop cancer treatments that are tailored to the individual patient's genetic makeup. In the area of education, AI is being used to develop personalized learning platforms and provide students with feedback on their work. It is also being used to grade essays and provide students with feedback on their writing. In these few examples, if AI Chabot generates false and harmful information, who bears responsibility for AI?
- Who is to be blamed if AI lies or does something that is wrong?
- Although these are complex questions with no easy answers, people like Jain Ritesh see it as simple and easy. For him, the deployer is responsible. If one integrates AI into his business, the person owns its decisions, errors and biases. He argues that: Is AI accountability even a question? If you build it, deploy it and profit from it – then you own it. Responsibility is not optional; it is inevitable.²⁴

On this issue, cases that have been decided suggest that courts are willing to hold AI developers, deployers and users

accountable for harm that AI models systems can cause.²⁵ For instance, if AI system lies, this can be shown due to a fault in the system's design or training. Here, the developer could be held responsible. Thus, the key to ensuring that AI is developed and used in an ethical manner and at the same time align with human values lies with humans.

Furthermore, intelligence (rationality) is a sophisticated type of activity reserved to humans and it is natural that the possession of intelligence by humans entails moral responsibility. Here, man is responsible for both his actions and consequences of his actions. Artificial intelligence cannot intend its actions. In this case, one would not attribute moral responsibility to Artificial intelligence. The AI cannot be aware of the consequences of its actions. It has not the faculty to make a choice. AI is not an autonomous being, only autonomous agents have the capacity to choose their actions. AI cannot follow appropriate ethical norms? These and many others are critical ethical cases AI inductees have to unravel as they will go a long way to safeguard trust and confidentiality, so as to avoid deception and infringement of privacy.

There are many other ethical concerns like the impact of AI on human work: AI can automate some tasks and improve efficiency, resulting in people losing jobs. AI also raises broader ethical questions regarding its possible evolution and its interaction with humanity. There are debates about the future of AI and the possibility of developing a “super-intelligence” that could surpass human intelligence. These issues raise questions about our identity, our role in the world, and our responsibility to lead the development. They are ethical issues that must have to be considered soonest. It is not whatever that is possible in science and technology that can be applied to the human

²⁴ Jain Ritesh, *Who Owns AI's Mistakes? The Accountability Dilemma!* (Finextra, 06 February, 2025).

²⁵ Megan Howarth & Katie Chandler, *AI liability – who is accountable when artificial intelligence malfunctions?* (TaylorWessing, 7 January, 2025). [Taylorwessing.com/en/i](https://taylorwessing.com/en/i)

person and the society. It is important to consider how to mitigate AI's negative effects on society and ensure that it is used to create opportunities and improve people's quality of life.

Efforts to Safe Guard Ethical Use of Artificial Intelligence

Today, there are phrases and terms like machine ethics, [AI safety](#), friendly artificial intelligence, artificial moral agents, and human compatible. Friendly AI talks about machines that have been designed from the beginning to minimize risks and to make choices that benefit humans. Eliezer Yudkowsky who coined the term, argues that developing friendly AI should be a higher research priority: it may require a large investment but it is a must before AI becomes an existential risk.²⁶ The field of machine ethics provides machines with ethical principles and procedures for resolving ethical dilemmas.²⁷ This field of machine ethics is also called computational morality,²⁸ and was founded at The Association for the Advancement of Artificial Intelligence (AAAI) symposium in 2005. This association contends that machines with intelligence have the potential to use their intelligence to make ethical decisions. Other approaches include Wendell Wallach's "artificial moral agents"²⁹ and Stuart J. Russell's three principles for developing provably beneficial machines.³⁰

Conclusion

Integrating AI in education promises to transform learning experiences and improve educational results via personalized approaches. AI ChatGPT serving as a virtual tutor and intelligent assistant in education is highly welcome. Studies using AI tools like ChatGPT show that they reinforce human ideas. However, all these must be guarded by an ethics that can provide a standard system and regulations for the development, designing and use of AI technologies to ensure that the new technology will complement human efforts but not to replace them. The role of human emotional and empathetic engagement in teaching cannot be overemphasized.

Most mistakes or errors of AI stem from the human elements as experts bring their values, convictions, and biases into the development and training of the AI systems. Thus, AI models mirror these imperfections, resulting in the errors or biases during decision-making. This is evident in the Rekognition software of Amazon, which has notable error rates for women, and people of colour, which was attributed to the bias complex of programmers.³¹

AI like any human creation: machines, computers, cars, etc., is imperfect. They are human tools and products whose potentials for mistakes is a genuine risk. Thus, significant responsibility lies in the human element in the creation and supervision of Artificial Intelligence.³² This is obvious because only human agents, either

²⁶ Yudkowsky E., "Artificial Intelligence as a Positive and Negative Factor in Global Risk" (<http://intelligence.org/files/AIPosNegFactor.pdf>) (PDF), *Global Catastrophic Risks*, (Oxford University Press, 2008).

²⁷ Anderson Michael & Anderson Susan Leigh, *Machine Ethics*. (Cambridge University Press 2011), 22.

²⁸ Anderson Michael, et. al, *Machine Ethics*, 22.

²⁹ Wallach Wendell, *Moral Machines*. (Oxford University Press, 2010).

³⁰ Russell Stuart, *Human Compatible: Artificial Intelligence and the Problem of Control*. (United States: Viking, 2019). ISBN 978-0-5255-5861-3. OCLC 1083694322 (<https://search.worldcat.org/oclc/1083694322>).

³¹ OneAdvanced, <https://www.oneadvanced.com>, Human vs. AI: Who is responsible for AI mistakes? 27/05/2024.

³² Steve Roberts, Who is Responsible When AI Lies? Responsible ai. How Kindo.ai protects your data, <https://www.kindo.ai>. Vvisited 25/02/2024.

manufacturers or users are liable for any AI abuse or mistakes. Errors in AI mishaps often stem from a lack of ethical considerations during development and implementation phases of AI software. Attributing Autonomy of Decision to AI is therefore, an ethical mistake. Sequel to the above submission, the commitment for the mitigation of the mistakes entails that programmers, data scientists, engineers, etc., be ethically conscious spanning from the development, to deployment, to continuous learning, oversight and responsible use of the AI tools by individuals.

On the other hand, educators need to be mindful of the uses of ChatGPT as well as how to handle ethical risks and increase reliability. They should undergo proper training and familiarize themselves with the tool's features, capabilities, and limitations. They also should prioritize responsible usage, ensuring that ChatGPT is used to enhance learning and not replace it. ChatGPT and other AI in education have learning value but guidelines are needed to deal with its ethical risks, including plagiarism. Rather than banning students from using labour-saving and time-saving ChatGPT writing tools, educators should teach students to use them ethically and productively. In this way, the practical reasons for using ChatGPT, will be to complement and enhance human creativity.

The users of AI tools should responsibly utilize them, understand their limitations and not blindly depend on them for critical decisions. For instance, healthcare workers cannot solely depend on AI medical diagnoses, nor legal practitioners on AI judgments and content creations. These can result to severe professional repercussions if mistakes occur. They must always have a confirmation check-control. Students also

should realize that ChatGPT can get things wrong, so they should look for confirmation from other resources. They should fact-check responses, which can engage critical thinking skills. The potentials of Artificial Intelligence could be positively harness in personalized learning and research by having comprehensive guidelines developed to support the on-going development of AI-based learning analytics and ensure that these tools are used effectively and ethically in educational settings.

The UNESCO recommendations call for an AI that increases and enhances human capabilities, not diminish them. It declares that AI should serve human beings, improve and amplify their capabilities, rather than replacing them.³³ Artificial intelligence must be human centred. In the use of artificial intelligence, human beings must be treated as ends in themselves rather than as means to an end. Artificial intelligent engineers and all those who design and interact with the artificial intelligence systems should be guided with strong moral policies and robust ethical principles.³⁴ Every effort in development and use of artificial intelligence should be geared towards the service of man and his needs. In this way, humanity can work towards a future where technology complements and enriches the human element in education rather than displace it.³⁵

The relationship between ethics and artificial intelligence is a complex one that requires constant reflection and discussion. It is critical to develop and use AI responsibly, addressing ethical issues that arise along the way. Only through an ethical approach can we ensure that artificial intelligence is an opportunity for human progress and well-being, respecting the fundamental values and principles of our

³³ Morandín F. Ahuerma, "Diez recomendaciones de la Unesco sobre ética de la inteligencia artificial". In: F. Morandín (Ed.), *Principios normativos para una ética de la inteligencia artificial* (Concytep, 2023), 86-94. ISBN: 978-607-8901-78-4. <https://t.ly/1AMpI>

³⁴ Anderson M & Anderson S.L., *Machine Ethics* 22.

³⁵ Cristian Randieri, *Personalized Learning and AI*.

society. Governments have responsibility to develop laws and regulations that govern the development and use of AI. These should be designed in such a way that they will protect the public and promote ethical practices. In this way humanity can ensure that no application of the artificial intelligence would undermine the human person.

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