

Taming the “necessary devil”: humanization of artificial intelligence tools and technologies for teaching and learning

Mensah Prince Osiesi¹, Cina Patricia Mosito², Heloise Sathorar³, Muki S. F. Moeng³

¹Department of Educational Foundations, College of Education, University of South Africa, Pretoria, South Africa

²Primary School Department-Foundation Phase, Faculty of Education, Nelson Mandela University, Gqeberha, South Africa

³Faculty of Education, Nelson Mandela University, Gqeberha, South Africa

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ABSTRACT

Humanization of artificial intelligence or AI has begun to gain research attention in several fields. However, little knowledge exists about the humanization of AI tools and technologies for the education field. This study, underpinned by the humanizing pedagogy and community of inquiry (CoI) theories, explores authors' reflections and literature evidence on the dangers of AI in education, possible strategies for the humanization of AI in teaching and learning processes, and the challenges thereof. This reflective study utilized a qualitative approach. The purposive sampling technique was used in selecting four academics from the faculty of education in a South African public university. Data from the study were analyzed via critical self-examination and the integration of contextual, personal, and literature insights. Findings indicate the dangers of AI to the educational process, the procedures by which educational AI technologies can be humanized, and the challenges hampering the humanization of AI for education purposes. The study implies the need for AI-driven professional development for educators as well as the infusion of culture, values and academia in the design of AI tools and technologies. The study concludes that AI adoption should be embraced by all education stakeholders; however, advocacy for its ethical, responsible, and humane use be continued and prioritized.

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Corresponding Author:

Mensah Prince Osiesi

Department of Educational Foundations, College of Education, University of South Africa

Pretoria, South Africa

Email: osiespm@unisa.ac.za

1. INTRODUCTION

The increasing integration of artificial intelligence (AI) has now influenced the human world. Despite the potential of AI to improve teaching and learning approaches, personalize learning experiences and feedback, foster language proficiency, academic engagement, and streamline administrative processes, there has been increased caution against its adoption, especially in education. John McCarthy and Alan Turing made significant contributions to the field of AI, which has been the subject of research for the past thirty years [1]. In line with Turing's [2] work, 'Computing machinery and intelligence', established the conceptual underpinnings of AI by posing fundamental queries regarding machine learning and thinking. Being a branch of computer science, it uses machine learning methods and algorithms to simulate or imitate human intelligence [3]. It is increasingly employed to mimic human cognitive capacities through applications that make people's lives easier and more efficient [4]. In the education sector, artificial intelligence is being utilized to improve the teaching and learning processes [5]. AI exemplifies computational intelligence, with contemporary endeavors aimed at enabling computers to engage in coherent dialogue with humans, resolve

complex issues, generate accurate forecasts, and autonomously perform a diverse array of tasks previously executed manually [4]. Given that AI tools and technologies cannot make complex moral, ethical, and aesthetic judgements like humans can, experts on AI ethics debate the extent to which these tools and technologies can be held accountable for educational outcomes [6]–[8]. Consequently, this study explores our reflections, perspectives, and literature evidence on the dangers of AI in education, possible strategies for the humanization of AI in teaching and learning processes, and the challenges militating against such humanization endeavors.

AI gives computers the ability to reason, learn from mistakes, adapt to new inputs, and carry out tasks that humans would undertake [9]. Although research on AI in education has long been established, recent rapid advancements have sparked interest in the topic and brought attention to the potential applications of the technology for the present and the future [6], [10]. AI provides adaptive learning experiences by modifying the complexity and difficulty levels of learning materials, thereby accommodating different learning styles and aptitudes [11]. It offers feedback on teachers' effectiveness and suggests professional training opportunities that are particular to their needs [12]. AI also helps with the assessment and evaluation process by assisting in the creation and review of essays, research papers, and other academic tasks. It also provides a variety of opportunities to improve teaching and learning, including language learning, research, and writing support [13]. AI's capacity to select and suggest pertinent materials from enormous databases of instructional materials expands students' and teachers' access to a wider range of information and inspiration sources [14].

Though AI cannot replace human interactions, it can improve the educational experiences of both teachers and students and assist them in resolving problems and difficulties associated with instruction [6]. According to Gao *et al.* [15], it promises to enhance learning outcomes, engagement, and readiness for a technologically advanced future. Nations and institutions of higher learning hope to maintain their competitiveness and secure continued relevance through enhanced and robust academic outputs (leading to the creation of economically viable adult graduates [critically conscientized citizenry]) [16]. To reduce social and economic inequality, scholars have argued that students should be taught AI competencies as well as the professional development and training of teachers on AI technologies, particularly in developing countries [6], [17].

The possibility for teachers and students to take advantage of these technologies to obtain unfair or undue advantages in their academic endeavors is growing, thereby raising critical concerns [18]. For example, there is concern that AI may weaken students' critical, analytical, problem and decision-making skills [19]. Recent advancements have established AI as a disruptive force in education, transforming learning processes and opening up new avenues for individualized instruction [20]. Educational institutions, especially higher education, where the use of these technologies is prevalent, need to fully engage and navigate the changing technical and instrumentalities of the tool amidst its challenges [21]. Despite the several merits of AI technologies, it can be easily abused/misused [22], which undercuts the fundamental goal of fostering comprehension, critical thinking, and authentic learning, and results in dehumanizing characteristics wherein authentic teaching and learning efforts can be made futile. Thus, if AI is to be futuristically advantageous to the education sector, it must be humanized.

Humanization is the process of attaining greater humanity within social, historical, and transformative contexts. This is essential in navigating AI-infested spaces, including those of teaching and learning [23]. Humanizing the teaching and learning process means using pedagogical tactics that focus on and strongly support students' unique learning needs while enabling them to demonstrate and realize their potential in any way they want and at their own speed [24]. Humanization places a strong emphasis on humanistic teaching and learning methods and views learners as distinct, considerate, and sociable [24]. It entails consciousness and a reflexive shift towards being some (one) with some (body) [25], and the process that encompasses self-awareness, introspection, and a dedication to integrity and embodiment [21], and denotes developing stimulating, sympathetic, and encouraging learning environments [26].

Personalized feedback, engaging learning exercises, and fostering a sense of community are all components of a humanized educational process, which now seems to be enhanced via AI tools and technologies [26]. The education sector must figure out how to create an AI-enabling and humanized environment within the field for a more emancipatory, equitable, and humane learning and teaching experiences, while bearing in mind inclusive education goals [27]. Recent studies have outlined the difficulties of implementing AI in education, particularly in developing countries like those in Sub-Saharan Africa, due to several challenging factors [4]. Amongst these are information and communication technology (ICT) hardware accessibility, electrical accessibility, Internet reliability, data costs, students' basic ICT skills, language barriers, and a dearth of culturally responsive content [28]. Despite the benefit of AI, its adoption in education poses serious concerns regarding whether it is consistent with conventional learning theories [4], [29], [30]. Transparency, user privacy, data confidentiality, data integrity, and system availability are the

main concerns associated with AI adoption [31]. Others include issues concerning AI's lack of creativity, intellectuality, emotional intelligence, and infringement on academic integrity [4], [32].

Although AI can process and analyses data efficiently, it might not have the same creative or nuanced understanding as humans [33]. For this reason, integrating AI, especially in education, where human lives are molded and continuously refined, balancing human interaction and the development of critical thinking skills through this technology becomes essential and timeous [34], [35]. Even though AI frequently imitates human cognitive processes like learning and problem-solving by using rules created by humans to evaluate information, comprehend inputs, and accomplish set objectives [36], [37], it is still not entirely human, nor will it ever be!

Research on AI in education is immense in developed nations of the world, with few emerging within the developing nations [38], [39]. Specifically for the humanizing pedagogy discourse and literature, the notion and strategies by which AI tools and technologies for education purposes could be humanized is sparse and necessitate the attention of scholars and researchers, amongst other stakeholders. Underpinned by the humanizing pedagogy and community of inquiry (CoI) theories, this study explores our reflection as teacher educators and literature evidence on the dangers of AI in education, possible strategies by which AI can be humanized for the teaching and learning processes, and the challenges that militate against the humanization of AI tools and technologies in education. This research seeks to answer the following questions: i) how has AI bedeviled the teaching-learning process? ii) how can AI be humanized for optimal teaching and learning? and iii) what challenges hamper the humanization of AI for teaching and learning?

2. LITERATURE REVIEW

2.1. Adoption of AI for teaching and learning

Most published research on AI in education was done before ChatGPT; new developments have emerged [40], [41]. AI-powered technology is becoming increasingly important in human (in this case, students and teachers) daily lives, quietly changing the way they think, behave, and communicate with each other [42], [43]. AI has been defined as the use of computer machines to think and behave in a human-like and logical manner [4]. Alan Turing originally popularized the notion that machines could carry out actions termed to be intelligent [44]. This led to the 1955 conference that created the phrase "artificial intelligence", which is defined as when a computer exhibits behavior that would be deemed intelligent if executed by a human [45].

AI has been defined as any computer system that can make judgments, carry out complicated tasks, and learn and solve problems at a level that is on par with or better than that of humans [6], [46]. According to studies, AI adoption improves students' engagement, attitudes, and learning interests [47], [48]; changing the way students and teachers execute any given task with unprecedented rapidity [49]. With its introduction, long-term curricula are already being designed for a digital, high-quality educational process, digitally combining various technologies and applications for personalized learning.

2.2. AI bedevils the teaching-learning process

A deep comprehension of AI tools and technologies, and the educational process is necessary for its successful integration in the teaching and learning contexts [30]. Ethical considerations add to this complexity, particularly in light of the growing application of generative AI. AI systems have the potential to reflect current injustices and prejudices by inheriting past biases from social data. Regarding privacy considerations, using vast amounts of personal data for AI training creates privacy risks since, if improperly protected, sensitive data could be exploited. Biased AI systems may be involved in discriminatory profiling or unfair surveillance, which could violate the privacy of persons.

For example, studies [31], [50] draw attention to the possibility of students abusing AI technologies in unethical ways, including completing assignments using AI-generated content without giving due credit or aligning such AI-generated content with their own 'human' critical knowledge. Similarly, the use of AI tools and technologies in assessment and evaluation procedures may erode student autonomy and trust in learning environments, as it is very likely to exacerbate cheating and other unethical tendencies [51]. AI tools and technologies lack human empathy, inventiveness, and understanding [52]. Higher-order thinking could be diminished by an over-reliance on AI for teaching and learning, feedback, and evaluation processes [53].

AI has also been associated with a reduction in cognitive function, a decreased ability to retain information, and a greater dependence on these technologies for information/knowledge [54]. This over-reliance frequently happens without confirming the reliability and correctness of the data supplied, particularly when the material is unsupported by appropriate citations [55]. Excessive dependence on AI technology may reduce students' motivation and dedication to learning since they may rely too much on these resources for solutions rather than actively and critically engaging in the learning process [55]. The use

of these AI tools has eclipsed important ethical difficulties, including the creation of false or deceptive information, algorithmic biases, plagiarism, privacy violations, transparency, and social justice issues [56].

The fundamental issues with AI in education include the decline in human-to-human interaction, the protection of private information, new security flaws, the opaqueness of algorithmic functions, the possible deterioration of critical and creative thinking, the escalation of technological inequalities known as the “digital divide,” complex ethical dilemmas, the need for continual professional development for educators, reliance on the dependability and upkeep of AI tools, and the moral implications of academic content produced by AI [34], [57]. AI-driven impersonal learning character could erode teacher-student bonds and decrease empathy and social connection in classroom settings [58]. Furthermore, it could result in a phenomenon called the “eliza effect” where students anthropomorphize AI technologies, by giving them human-like feelings or ideas [59].

AI tools and technologies employed in educational contexts may unintentionally replicate racial or socioeconomic prejudices. Students’ unethical use of AI results in receiving false assessment results (misappropriation of academic success). Similarly, the covert use of AI poses a risk to the future workforce by encouraging dishonesty and a lack of transparency among students who will eventually join the world of work [60]. Students’ uncontrolled use of AI restricts their educational prospects, exposes them to false information, impairs their ability to think critically, and jeopardizes graduates’ employment security as they are likely to be lacking creative and practical skills [60]; being already enslaved by ‘technocentric chains’.

2.3. Humanizing AI for teaching and learning

To humanize educational AI tools and technologies, developers and designers could focus on embedding characteristics that make AI interactions seem more natural, empathetic, and relatable to humans. It is contended that the environment, teaching, and assessment methods need to be reconsidered, as educators and institutions of learning have been quick to blame AI as the primary cause of a perceived deterioration in academic integrity [14], [61]. As such, humanizing the assessment and evaluation processes whereby students and teachers have a sense of belonging and adequacy, with the assurance that their best efforts will be appreciated and judged as good enough, becomes crucial [62], [63]. Traditional evaluation techniques are losing ground to more comprehensive approaches, including project-based learning such as group projects and presentations. These strategies prevent cheating inclinations in addition to promoting critical thinking even within AI frameworks [64], [65].

More actionable efforts on the part of AI designers and developers, such as injecting human-related personality traits (e.g., common sense, humor, wit, and warmth) and emotional connection and expression, would make AI outputs less mechanical and more engaging and humane. Similarly, using colloquial languages (context-based languages and representations) and cultural references in AI outputs to create familiarity and relatability is also encouraged. Additionally, since AI tools and technologies are unable to take into consideration the agency of learners in their own learning paths [6], the curricula must include a specific module that links the usage of AI with human social relations.

By defining the goal and usage of AI for both teaching and learning, educational institutions can maximize its application [66]. Human scrutiny and monitoring are essential in the humanization of AI. Despite the rapid evolution of AI technology, there is still a great deal to learn about how these developments are being regulated, especially in educational settings [67]. As such, AI outputs must be constantly treated as first drafts that require human editing to refine tone, fix awkward phrasing, add humor (where applicable), and ensure consistency with brand voice or user expectations, especially in relation to the contextual expectations of such AI-generated outputs [68].

A variety of hazards and moral conundrums are brought about by the rapid pace of AI research, which surpasses the deliberate development of regulatory inspection and ethical debriefing [34]. To effectively implement AI in education, teachers must receive support through specialized professional development programs on how to humanize AI-generated outputs and transmit the same to their students. There is a necessity for educators to have additional information and abilities concerning AI and its incorporation into the classroom [5].

Culturally responsive pedagogy should guide the development of AI tools and technologies, guaranteeing that interactions and content are inclusive and relatable to a wide range of student groups [69]. We argue that AI is not a ‘white knowledge’, or ‘white knowledge bank’-a reason for a more culturally responsive and critical consciousness for concerned stakeholders in the education realm. In its finest form, culturally responsive teaching offers practical methods for establishing a classroom environment that values diversity, optimizes student potential, and aligns with the changing educational environment [70]. Instead of adopting the techno-centric approach, the design of AI education tools and technologies should always be more human-centered and strive for updated, accurate, and humanized knowledge [9].

Policies and frameworks for AI education that describe the moral issues, usage standards, and practical methods for fostering and implementing AI with a touch of humanity in classrooms may also be useful. These recommendations would give educators and learners a sense of purpose and assist them in overcoming the difficulties related to the integration and humanization of AI [5]. It can be beneficial to integrate the ability of AI tools and technologies to support constructivist or socio-cultural theories of learning, which place an emphasis on students' critical thinking, context, and teamwork, and are facilitated by involving human specialists in their design and development [9], [33].

Curriculum design that incorporates project-based learning and real-time analytics to balance human creativity with AI technologies is recommended [71]. Incorporating inclusivity and equity frameworks could be a means of humanizing AI tools and technologies, ensuring that these tools are developed and deployed to accommodate a range of student demands and lessen educational inequalities [67]. Teachers and students could utilize AI humanizer programs (such as Writesonic, QuillBot, and others) that automatically reword writing produced by AI to make it seem more natural and human. By modifying phrase structure, language, and tone, these tools frequently allow the user to choose between several styles (formal, informal, and conversational). Since automated technologies might occasionally change meaning or omit crucial content, we advise educators and students to constantly check these AI outputs for correctness, relevance, and alignment. Furthermore, rigorous AI awareness and sensitization campaigns, seminars, and workshops should be set up for stakeholders in education to teach and train them on ethical and responsible AI use.

There are not many studies that present empirical data or real-world instances of AI humanization. For example, Pirzado *et al.* [72] investigated how human-like AI chatbot interactions affect consumers' trust and purchase intentions in the business sector, emphasizing the mediating effect of humanization. According to the study's findings, consumers' intent to make purchases is positively impacted by the quality of their interactions with AI chatbots. In a similar vein, research by [73]–[75] confirms that humanizing AI systems with capabilities like emotion recognition and altered responses can enhance customer service, communication, and engagement. Incorporating ethical concepts into the conception, development, and implementation of AI tools is another way to humanize AI [76]. The authors claim that while humanizing AI does not inherently result in a more symbiotic connection between humans and computers, it does lay the groundwork for its advancement based on human potential and ideals.

2.4. Challenges hampering the humanization of AI for teaching and learning

Making AI tools and technologies truly “human-like” is challenging, despite their growing applications in educational contexts. These challenges could stem from technological and human-related factors.

2.4.1. Lack of AI literacy

For schools to deploy AI, teachers and students must have both physical access to technology and the knowledge and abilities necessary to utilize and profit from its various forms [5]. The effects of a lack of AI literacy may remain longer than those of classroom instruction [6]. AI literacy is not optional; it is a social justice imperative, particularly for AI-to-be users in developing nations of the world.

2.4.2. Inadequate funding for education and educational technology

Using and maintaining AI technologies in educational systems can be expensive, and because of these costs, there is a chance that students' and teachers' digital inequality may be negatively impacted [77]. To successfully integrate AI and humanize it, institutions may need to set aside a sizable funding for AI infrastructure, software, curriculum revisions, and training [38], [78].

2.4.3. Teachers' readiness and AI competencies

Without the right assistance and training, it might be challenging to get the abilities and knowledge needed to successfully incorporate AI tools into teaching practices enmeshed in the humanized pedagogy [5]. Due to a lack of these skills and knowledge, teachers are unable to infuse humanized characteristics into AI-generated content, nor navigate the use of the tools.

2.4.4. Superficial personalization

Although AI may modify content, it is unable to fully comprehend the backgrounds, interests, and learning preferences of specific students, which restricts its capacity to provide genuinely tailored assistance and feedback [34].

2.4.5. Learning homogenization

Standardized AI-driven courses might stifle originality and diversity of opinion by providing stereotypical answers that might not consider the needs of each learner, particularly in a multicultural space.

2.4.6. Reduced teacher autonomy and concerns about job displacement

Teachers might feel that their duties are diminished to that of facilitators as AI takes over more educational tasks, which could compromise their professional judgement and inventiveness, and eventually their jobs [46]. Some worries teaching employment may be lost or devalued because of the automation of instructional duties, which is common with the use of AI tools and technologies, or has already been taken over by these tools. As a result, attempts to make AI tools and technology more human are minimized [79].

2.4.7. False impressions about AI

False impressions about AI, such as anxieties about its negative impacts, could deter its actual humanization. Misconceptions regarding AI capabilities, operation, and effects are among the most prevalent types of false impressions. These misconceptions might include the following: AI systems are truly intelligent or conscious; AI is completely factual and accurate; AI is impartial or objective; AI will completely replace human labor; AI is truly creative; AI systems function exactly like the human brain; AI models are completely unpredictable and black boxes; AI needs large budgets and skilled data scientists for all applications; AI's outputs are deterministic and consistent; and AI can solve messy or subpar data problems miraculously. These misconceptions underscore the significance of using AI technology with caution and knowledge, being conscious of its limitations, and requiring constant human supervision and ethical considerations (a vigorous humanization agenda) [80]–[84].

2.5. Theoretical framework

This study is underpinned by the humanizing pedagogy and the CoI theories. The Freirean humanising pedagogy theory, subsumed in the Critical Pedagogy paradigm, supports the fight for change (transformative learning), where students are sentient beings with the ability to think [85]. Through this pedagogy, students receive compassionate, loving, and caring treatments while developing into critical thinkers and active co-creators of knowledge [24]. The three main tenets of Freire's pedagogy are humanisation (recognising students' humanity, dignity, and experiences); empowerment (fostering students' autonomy, agency, and critical consciousness); and dialogue (promoting critical thinking and mutual respect between teachers and students). This theory resonates around teachers' and students' use of AI tools and technologies, how they dialogue with peers about its usage, their competencies in the use of the technology, and ways by which they attempt to humanise AI-generated outputs. We argue that teachers and students are supposed to critically (critical consciousness) examine the knowledge and information they gather from AI tools and technologies in line with their academic pursuits. By this theory, creating a more inclusive, equitable, and transformative learning environment is germane.

Another theory appropriate for describing the humanisation of technology, especially in educational contexts, is the CoI created by Yang *et al.* [86]. Three interrelated “presences” are highlighted in this theory, which, when combined, produce a significant, human-centered learning environment. These “presences” include teaching presence (the planning, facilitating, and guiding of learning processes to achieve meaningful educational outcomes), social presence (the interpersonal relationships and sense of community that technology-mediated environments foster), and cognitive presence (the capacity of learners to construct and confirm meaning through reflection and discourse)” [87]. These factors work together to guarantee that technology supports the social, cognitive, and facilitative aspects that humanise learning experiences in addition to content delivery [87]. Within “a cohesive and interactive community of learners whose purpose is to critically analyse, construct, and confirm worthwhile knowledge,” CoI places a strong emphasis on meaning-making and discourse [26], [86].

3. METHOD

This study uses a qualitative approach and is reflective methodologically. A reflective research methodology mainly explores and critically examines a researcher's experiences, and the research process itself to generate personal views and conclusions and is aimed at improving future endeavors. Critical self-examination of the researchers' experiences, viewpoints, and knowledge-building process is subsumed under reflective research. According to Clarke and Braun [88], the creation of insights and findings in reflective research heavily relies on the researcher's own understanding, observations, and interpretations, which are influenced by literature. Instead of depending only on empirical measurement or statistical analysis, this methodology prioritizes the integration of personal insights, critical interaction with available literature, and interpretive analysis of data [89].

The concept of reflexivity is widely recognized as being essential to the process of qualitative research [90], entailing the practice of reflection (questioning, analyzing, and evaluating oneself) in all the research stages: methodological construction, data collection, and data analysis [90]. The purposive and

convenient sampling techniques were used to select four academics in the faculty of education at Nelson Mandela University in the Republic of South Africa. The purposive sampling was deemed suitable given the current and continuing debates on AI use in higher education. The sample was also conveniently selected to include those within the same institution and who share vested interests in these debates about AI and education.

For this study, we used reflective thematic analysis, critical self-examination, and the integration of contextual and personal insights (triangulation for rigor) to analyse the data, derived from our think tanks and the extant literature. For the latter, we only utilized published literature (e-books, conference proceedings, and journal articles), which we thoroughly read to gain an in-depth understanding of their content, context, and findings [91].

Our reflective data were gathered from all four participants (academics) in the education faculty, with individual reflexive notes about one's own role and assumptions regarding the research aim. A semi-structured reflective journals/diaries had prompts linked to the study's research questions (e.g., How has AI bedeviled the teaching-learning process? How can AI be humanized for optimal teaching and learning? What challenges hamper the humanization of AI for teaching and learning?). These journals were both written and digital (WhatsApp voice chats and notes). We also kept systematic notes during/after each of our weekly group discussions about how our positionality, assumptions, and emotions could have shaped our views regarding the questions raised and how we interpreted them [92]. Sample of our reflection data excerpts were "enhancing students' critical perspectives in the teaching-learning process", "AI leads to high tendency of students to plagiarize", AI content modules that are both socially and contextually aligned with learners' needs. Then, as we analyzed the data, we continuously considered our own prejudices and presumptions while identifying and coding central themes or recurrent concepts. We read, thought about, and improved our comprehension of the data in a cyclical process to ensure authenticity and rigor. In an effort to understand the data, we asked ourselves what the data meant to us, what we wanted to know (based on the theoretical framework and research questions of the study/research focus), and how the literature and our perceptions and experiences relate to what these data denote [93].

For the coding of the data from our reflections, we first transcribed the audio reflections from the group discussions we had and those from the WhatsApp notes. Our structured discussions lasted most times for at least 20 Minutes. We then collated the reflections from the chats, journals, and personal memos, organized them, and made them anonymous. We then read through all reflections to get a holistic sense of what they denote before coding. Initial coding, deductive, and reflexive thematic coding were done on the data [94]. The coding was mainly guided by the insights from the literature and our reflective stance (reflexivity). In validating our reflective data, we ensured member checking (we shared feedback of our reflections in every group discussion), triangulation (comparing our reflective data with other sources and interactions with students and other academics, used sufficient contextual detail (without breaching anonymity), as well as an audit trail (we kept systematic documentations and memos explaining the various decisions for every one of our meetings). The data analytical process is further illustrated in Figure 1. To strengthen the study's transparency and trustworthiness, our self-reflective processes or excerpts were: Is this research approach really adequate and robust enough? Have we selected the right literature? Were our biases not too over-reaching? A summary of the research questions, objectives, and corresponding findings is presented in Table 1.

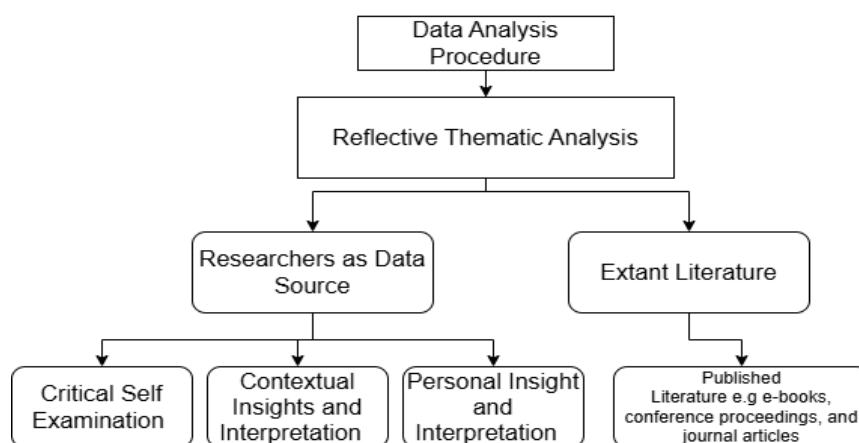


Figure 1. Data analytical procedure

Table 1. Summary of study's research questions, objectives and findings

S/N	Research questions (RQs)	Research objectives	Findings
1	RQ. 1	AI risks	Ethical dilemmas, high plagiarism cases, lack of human empathy, lack of inventiveness, lack of higher-order thinking, and lack of critical perspectives
2	RQ. 2	Humanization strategies	Promotion of critical pedagogy, injection of more human-related personality traits, and use of colloquial and culturally oriented languages to create familiarity and relatability, curricula review with AI content modules that are both socially and contextually aligned with learners' needs, and inculcation of comprehensive assessment and evaluation approaches, such as project-based learning (individual and group projects and presentations)
3	RQ. 3	Challenges hampering AI humanization	Lack of or inadequate AI literacy, inadequate funding for education and educational technology, lack of teachers' readiness and AI competency, superficial personalization, learning homogenization, reduced teacher autonomy, and concerns about job displacement and false impressions about AI

4. RESULTS

This study has explored our perspectives as teacher educators, and literature evidence on the dangers of AI in education, possible strategies for the humanization of AI for teaching and learning processes, and the challenges militating against this endeavor. Irrespective of the 'phobias' and discomfort concerning the increased adoption of AI tools and technologies in education, it has come to be. By the tenets of this study, it is found that ethical dilemmas, plagiarism cases, lack of human empathy, inventiveness, higher-order thinking, and critical perspectives are the dangers of AI tools and technologies in education. Another finding of this study indicates the possible means through which AI tools and technologies can be humanized, specifically for educational purposes. These strategies include the inculcation of comprehensive assessment and evaluation approaches, such as project-based learning (individual and group projects and presentations). A finding of this study highlights the challenges hampering the humanization of AI for teaching and learning, including a lack of AI literacy, inadequate funding for education and educational technology, a lack of teachers' readiness and AI competency, superficial personalization, learning homogenization, reduced teacher autonomy, and concerns about job displacement and false impressions about AI.

5. DISCUSSION

AI-generated ideas and information are in machine languages, with little or no higher-order thinking [52]–[55]. AI tools and technologies also demotivate students and dampen their academic self-efficacies and engagement [55]. The finding also depicts that these tools and technologies give rise to false information, privacy violations, and social justice issues [56]. As hinted by past studies, a decline in human-to-human interaction, the possible deterioration of critical and creative thinking, the escalation of technological inequalities known as the "digital divide", and the dangers of AI technologies [34], [57], [60]. The approaches by which AI in education can be humanized, such as by the practice of critical pedagogy among students [61], [62]. Injecting more human-related personality traits and the use of colloquial and culturally oriented languages to create familiarity and relatability for AI content, wherein AI content is within students' purview. This is further made possible by curriculum review and adjustments with AI content modules that are both socially and contextually aligned with learners' needs, which is paramount [6].

Also, by defining the goals and usage of AI for both teaching and learning, educational institutions can maximize its application through human regulations [66], and human editing of AI-generated information can thoroughly humanize such information. Culturally responsive pedagogy and professional development of teachers on humanizing these AI technologies could be impactful. Adopting a human-centered approach in the teaching and learning process amidst the usage of AI tools and technologies can be effective [9]. Policies and frameworks for AI education that describe the moral issues, usage standards, and practical methods for making AI have a touch of humanity in classrooms may also be useful [5]. Incorporating inclusivity and equity frameworks enhances the humanization of AI tools and technologies [67].

The challenges hampering the humanization of AI, as indicated by this study, align with those of previous research [5], [6], [34], [38], [77]–[84]. Should these challenges be considered and addressed, then, actualizing the humanization of AI tools and technologies might be achievable. In line with these discussions, the findings of this study support the tenets of the COI, which asserts that authentic students' learning and teachers' effective teaching in the current AI era include humanization, empowerment, and dialoguing. The findings of this study further emphasize the relevance of the theories supporting the study and how critical it is to humanize AI tools and technologies, empower educators and learners on the intricacies and ethical use

of AI. It also advocated for dialogue among education stakeholders on strategies for improving AI adoption and applications in educational contexts. The teaching, social, and cognitive presences in the actualization of humanized AI tools and technology for teaching and learning concerns. We admit that this is a reflective study with a small sample serving as a data source; thus, the study's claims are insights based on the authors' reflections and the literature, rather than broad generalizations.

Although AI has a lot of potential for education and other fields, for that matter, its integration needs to be handled cautiously to preserve fundamental principles and reduce hazards. While firmly protecting data privacy and security, a balanced strategy should aim to maintain the human ties that are essential for emotional development. To counteract algorithmic biases, make decision-making processes more transparent, and foster cultures that promote critical thinking in addition to technological skills, proactive and human-centered solutions are required. It is impossible to ignore ethical issues pertaining to student rights, well-being, content validity, intellectual property, and equitable evaluation of AI use. To guarantee that these AI tools and technologies act as a force for good rather than as a means of academic exploitation or fraud, it becomes imperative to build a clear ethical framework that prioritizes human rights in AI adoption for education purposes.

While there remains a divide on AI adoption in education, responsible and ethical use of it is the way to go. Teachers and students should first be trained on AI skills and competencies before venturing into its acceptance and adoption. While [27] contend that the incursion of AI into education is something that can be resisted and reimaged, we contend for a more concerted effort at humanizing these AI tools and their outputs. It is critical to establish strategic goals to customize AI readiness initiatives to localized content, especially in developing countries [95]. Clear but strict policies and guidelines for the proper, responsible, ethical, and humane use of AI are mandatory for higher education, most especially [96], [97].

AI's potential dangers can be mitigated by ensuring that the following actionable guidelines or recommendations for classroom implementation are adhered to: i) teachers and school administrators should define what AI use is permissible (e.g., brainstorming, drafting) and what's prohibited (e.g., submitting AI work as original), address AI use directly in the syllabi with specific examples, and develop course/school-level academic integrity policies that cover AI; ii) students should be taught AI literacy and ethics, such as how AI works, its limitations, potential biases, and data privacy risks. Fostering critical thinking and asking students to document AI use is also crucial; iii) design authentic assessments by creating assignments tied to specific classroom experiences, guest speakers, or case studies; using diverse methods (presentations, projects, in-class work) to reduce reliance on AI; as well as incorporating group work and problem-based learning; iv) prioritize data privacy and security; v) regularly maintain human oversight (human-in-the-loop); vi) fostering open dialogue; and vii) ensuring equity and inclusivity.

Some specific examples of how the humanization of AI can be applied in the educational process or institutions may entail the adoption of empathetic and conversational AI Tutors (supportive tutors) by using natural language, patience, and scaffolding. The use of the "teach, not tell" approach/systems like Khanmigo act as AI tutors that prompt students to think critically, asking guiding questions rather than just delivering answers. Humanized AI models can detect student frustration or confusion through tone of voice or facial recognition, responding with encouraging language to keep them engaged. Empathetic Chatbots like Replika can be used to provide emotional support and conversational practice in a low-pressure, non-judgmental, and safe environment. Personalized and adaptive AI learning tools such as DreamBox, Knewton, and Duolingo Max analyze students' past performance in real-time, and create "Roleplay" scenarios, allowing students to converse with AI-powered characters for real-world practice. Curriculum customization achieved through the use of tools such as Tools like Diffit.me allows teachers to rapidly differentiate materials, adjust reading levels, or translate content.

Students, on the other hand, need to understand the ethics and responsibilities of AI usage. Since students (pre-service teachers in our case) will be the future of education, they must learn (and be specially trained) about AI and how best and ethically to use it [98]. We agree with Arriazu [99] claims that AI is neither good nor evil (in fact, we have referred to it as a necessary devil) but maintain that the problematic lies with the nature of its usage. This paper, therefore, surmises that prospects and initiatives aimed at humanizing AI tools and technologies for teaching and learning must consist of an intertwined or infusion of religion (values, morality, and ethics), cultural norms (contextual and situational), and academia (cognition and critical perspectives)

6. CONCLUSION

AI tools and technology for education are a knowledge-triggered mechanism; however, this knowledge is most often enmeshed in errors or what humans perceive to be so. Understanding and empirically assessing AI's potential to promote (or impede) human learning is at the heart of learning technology research. In recent times, there has been an obvious shift from the core traditional values of

education from a public good to being commodified. This commodification of education is mainly aimed at aligning the goals and products of education to meet the capitalist agenda. This has led to academic expectations being made on deliveries that are time-bound. As such, students and teachers in the education spaces globally (especially higher education) struggle to meet their academic and teaching-related timelines and deadlines, which is one reason for the deployment of AI tools and technologies.

Despite the sentiments expressed in this paper, which advances the good, bad, and ugly of AI, we strongly acknowledge the potential of AI to promote epistemic inclusion, especially in this tech era, where students are the natives while the teachers have barely grasped the ins and outs of AI tools and technologies. Creating a balance between the two extremes is essential. While academics in higher education are always critiquing from an uninformed position about AI (and struggling to act as ‘AI police’), therein lies their opportunity to fully grasp and understand the contents and embodiments of this technology. While we are content with the value this paper adds to the extant literature, we admit that, being a reflective study, it has its own subjectivity and biases. The number of participants from whom the data were collected is relatively small and may have impacted the generalizability of the study’s findings. Limited literature databases were examined. While the reflective nature of the methodology is appropriate, it is limited by a narrow focus, the creation of ‘fiction’, contextual constraints, as well as the emotional and psychological impact on the researchers. Future studies could include a more diverse sample or cross-cultural comparisons (broader participant perspectives), perhaps including educators from various educational contexts/institutions as well as other countries beyond South Africa, to increase generalizability. Stronger research methodologies are also encouraged.

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Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Mensah Prince Osiesi	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Cina Patricia Mosito	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Heloise Sathorar	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓		✓
Muki S. F. Moeng	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

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CONFLICT OF INTEREST STATEMENT

The authors state no conflict of interest.

DATA AVAILABILITY

Data availability does not apply to this paper as no new data were created or analyzed in this study.

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BIOGRAPHIES OF AUTHORS



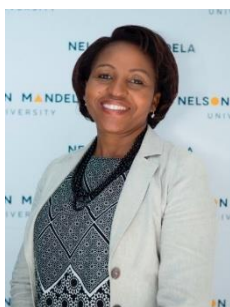
Mensah Prince Osiesi     is currently a postdoctoral research fellow at the Department of Educational Foundations, College of Education, University of South Africa, Pretoria. Originally, he is a faculty member in the Department of Guidance and Counseling Education (Educational Psychology), Faculty of Education, Federal University Oye-Ekiti, Ekiti State, Nigeria. He teaches research methods and statistics in education, educational psychology, career and psychological assessment, tests and measurement in education, and educational evaluation to undergraduate and postgraduate students. His research interests are educational evaluation (tests and measurement in education), teachers' professional development, primary and tertiary school education, mathematics and statistics education, design and validation of research tools, educational psychology, perception studies, online learning/education, and gender studies. He holds a PDS and B.Sc. in Statistics, M.Ed., and Ph.D. in Educational Evaluation from the prestigious premier university in Nigeria: The University of Ibadan. He has over a hundred published articles in peer-reviewed and high-impact factor journals. He has also written 4 books and 3 book chapters. He can be contacted at email: osiespm@unisa.ac.za or mensah.osiesi@fuoye.edu.ng.



Cina Patricia Mosito     is an associate professor of Inclusive Education at Nelson Mandela University. Her research, teaching, postgraduate supervision, and community engagement concern (i) understanding and supporting child development and learning in diverse circumstances and (ii) mainstreaming inclusive education in initial teacher education and continuing professional development of teachers. She has provided academic leadership in the roll-out of a British Council supported project, Teaching for All, in the Western Cape, Eastern Cape and the Northern Cape provinces of South Africa. Teaching for All is a curriculum and materials development project that aims to equip teachers with the skills, attitude, and knowledge to teach inclusively in diverse South African classrooms. Currently, she is a principal investigator in Understanding Teacher Pedagogy in South Africa, a longitudinal study that is being conducted by a consortium of 13 universities, in partnership with the National Education Collaboration Trust (NECT). Her publications are predominantly on Inclusive Education and the latest is an edited book titled Inclusive Education in South African Further and Higher Education: Reflections on Equity, Access, and Inclusion. She can be contacted at email: cina.mosito@mandela.ac.za.



Heloise Sathorar     is the executive dean of the Faculty of Education at Nelson Mandela University. She is an associate professor and holds a PhD in Critical Pedagogy. She has a distinguished record of teaching, research and leadership spanning 30 years. She is currently the lead co-ordinator for a DAAD Funded project with Oldenburg University, Groningen University and NHL Stenden that focuses on enhancing international teacher education. Her research interest includes critical pedagogy, humanising pedagogy, teacher education and higher education. She is widely published and has presented numerous papers at national and international conferences. One of her recent publications is entitled: Leading for sustainability and empowerment: Reflecting on the power of collaboration and humanising pedagogy. She can be contacted at email: heloise.sathorar@mandela.ac.za.



Muki S. F. Moeng     has been the deputy vice chancellor of Learning and Teaching at Nelson Mandela University since 2023. She served as the dean of the Faculty of Education at the same institution for seven years. Prior to that, she was the director of Teaching and Learning at North-West University for 5 years. Her academic career in higher education spans over 25 years. She was appointed by the Minister of Higher Education and Training for two terms to serve as a member of the Council on Higher Education (CHE). She was the chair of the Education Deans Forum and is currently serving as the chair of the DVCs: Academic Forum in South Africa. She is a qualified teacher with vast experience in teacher education and expertise in curriculum and instruction. Her research interests are in the Scholarship of Teaching and Learning (SoTL), Democracy and Education, Humanising Pedagogy and Social Justice. She is passionate about student access and academic development. She can be contacted at email: muki.moeng@mandela.ac.za.