


Pre-service teachers' views on integrating post-humanism into classroom practice

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Background: With disruptive innovation in education being the in vogue terminology, the theories of critical and transformational learning are becoming pervasive in the teaching and learning space. Critical and transformational learning focus on socially just pedagogies. The worldviews of post-humanism address the limitations of the humanist ontology and pose fresh and transformative lenses with which to consider how teachers could position themselves to work towards socially just pedagogies.

Aim: The purpose of this study is to explore the views of pre-service teachers on integrating post-humanism into classroom practice.

Method: A qualitative case study research strategy is used in this study. Structured open-ended questionnaires were used to collect data from a population of Bachelor of Education students of a specific institution of higher learning. Content analysis was used to analyse the data obtained from the questionnaires.

Results: The findings of this research indicated that most of the respondents were eager to integrate the philosophy of posthumanism into classroom practice. Respondents also indicated that post-humanism must be studied as part of their philosophy of education module and integrated into the broader curriculum to enable them to effectively integrate post-humanism into teaching and learning. Based on these key findings, it is recommended that teacher education institutions integrate the philosophy of post-humanism into both the theoretical and didactic modules of the curriculum.

Conclusion: We must challenge the status quo of anthropocentrism and humanism and integrate post-humanism into classroom practice to push the boundaries of educational possibilities to have a deeper understanding of what it means to be 'connected'.

Contribution: Recommendations based on the analysis of data obtained from these students may be used by institutions of Higher Education to re-evaluate their philosophy of education modules to include the philosophy of posthumanism. Pre-service and in-service teachers may use findings and recommendations of this study to reimagine their educational philosophy.

Keywords: post-humanism; humanism; post-anthropocentric; anthropocentric; pre-service teachers.

Introduction

From time immemorial, philosophy has had a profound influence on education and the process of teaching and learning. The interdependence of philosophy and education is clearly seen in the fact that the great philosophers of all times have also been great teachers, and their philosophy is reflected in their educational systems (Saragih 2012). Education has a close relationship with philosophy because philosophy is a worldview that leads to educational goals, and the learning world is bound and follows the journey that education develops with the reality in the environment (Isriyah & Lasan 2018).

The term philosophy is derived from the Greek term *philosophia* consisting of the word *philein*, which means love and *sophia* which means wisdom; thus, etymologically philosophy means love of wisdom (Isriyah & Lasan 2018). Philosophy of education is described as the study of key philosophical ideas that have influenced educational thought and developments in the world. Five major philosophies that clarify perspectives on education have been identified: Idealism, Realism, Pragmatism, Existentialism and Postmodernism. These educational philosophies are often underpinned by the educational theories of perennialism, essentialism, progressivism, reconstructionism and critical theory. These educational philosophies originate from well-established, in-depth general philosophical systems, while educational theories

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are specific and formulated to serve the education needs of curriculum and learning and teaching (Tan 2006).

Educational philosophers such as Adler, an advocate of perennialism; Hirsch, a prominent figure in theories underlying essentialism; Sartre, a leader of existentialism; Freire, a campaigner for social reconstructionism; and Dewey, the father of progressivism, have written extensively on the implications of these educational philosophies on curriculum and teaching and learning (Chapter 2: Your philosophy of education s.a.).

The philosophy of perennialism focuses on perennial knowledge, the mastery of content and the development of reasoning skills. Like perennialism, the essentialist curriculum is subject-centred and emphasises knowledge and skills that will enable an individual to be productive in the workplace. Existentialism debunks the philosophies of perennialism and essentialism, acknowledging that every student is different and no single set of outcomes is appropriate for all students. Progressivism argues for a flexible, student-centred and creative learning environment with an emphasis on collaboration rather than competition. Social reconstructionism advocates for social change that uses education to develop a new social order that mirrors true democracy (Chapter 2: Your philosophy of education s.a.; Tan 2006).

In addition to the given philosophies, an ethical and political philosophy that gained new dimensions in the 20th century is humanism. Humanism is a philosophy that affirms the notion of human freedom and progress, recognises the value or dignity of humans and makes them the measure of things (Anowai & Chukwujekwu 2019). According to Cline (2021), a philosophy, worldview or system of beliefs is 'humanistic' whenever it shows a primary or overriding concern with the needs and abilities of human beings. In the humanistic approach to teaching and learning, the focus shifts from achieving academic goals to self-realisation. A humanistic approach to education emphasises improving learners as individuals, taking their interests and aims as the basis to organise or produce and facilitate their learning experience (Javad & Tahmasbi 2020).

However, in an era of exponential change in the technological and digital spheres and unprecedented social, environmental and economic crises, the imperative lies in a shift from the philosophy of humanism to the perspective of post-humanism. This notion is supported by Valera (2014), who argued that our conception of human beings must include our wider cultural environment and our physical structure, and in particular our technological environment, not just as an external adjunct to the human condition but as an inherent part of what constitutes us in the first place.

The purpose of this article is to explore the views of pre-service teachers regarding the integration of the philosophy of post-humanism into education and the practice of teaching and learning and, as postulated by Snaza et al. (2014), to enable our future educationists and educational practitioners

to begin exploring new, post-humanist directions in research, curriculum design and pedagogical practice.

Literature review

This study is underpinned by the theoretical framework of post-humanism. Ferrando (2019) justifies her statement, '[p]ost-humanism is the philosophy of our time', by explaining that over the last decades, a radical wave of the theory that included feminist, post-colonial and antiracist critical theory, environmental activists, disability rights advocates, lesbian, gay, bisexual, transgender and queer (LGBTQ) theorists questioned the scope, the founding principles and the achievements of European humanism and its role in the project of Western modernity. Ferrando (2019) further contended that these movements questioned more specifically the idea of the human that is implicit in the humanist ideal of 'Man', as the alleged 'measure of all things'. Snaza et al. (2014) corroborates Ferrando's advocacy for post-humanism by proposing that if for a very long time, humanity has been the measure of all things (anthropocentrism), post-humanism is looking to account for things in a nonanthropocentric way.

According to Mcshane (2007), anthropocentrism is the view that the nonhuman world has value only because it directly or indirectly serves human interests, and nonanthropocentrism is the denial of this view. Mcshane's view may seem simplistic; however, proponents of post-humanism, Yan, Litts and Na (2020), stated that post-humanism is about rethinking the relations between the human and nonhuman by challenging anthropocentric thinking. Hayward (1997) highlights the ontological (seeing humans as being the centre of the world) and ethical criticisms of the term anthropocentrism, defining it as attitudes, values or practices that promote human interests at the expense of the interests or well-being of other species or the environment. Valera (2014) describes the philosophy of post-humanism as that of:

[T]he total contamination of the human being with other forms of life, i.e., the elimination of differences: post-mankind lives in harmony with other living (and non-living) beings, establishing a sort of open system. (p. 3)

The real goal of post-humanism is not so much a hyper-technological appliance of the human being but a progressive elimination and fluidisation of the differences. Post-humanists regard humans as the embodiment of the extended technological world (Valera 2014), a technological world that has disrupted education and pervaded the way we teach and learn.

In a world where change is inevitable, Howlett (2018:117) posits that 'education faces a tenuous future, straddling a growing divide between a no-longer-relevant past and an uncertain future, a future that calls into question the future of humanity altogether'. Kruger (2016) postulates Snaza's and Weaver's argument that the bifurcation in educational research between subject and object alienates the researcher from the environment and structures hierarchical relations with the knowing human in the position of power.

Hierarchical structures promote human exceptionalism and instrumentalism, which leads to the majority of educational research being anthropocentric and 'speciesist' as it reserves the centre of the universe, and any conversation about it, to humans (Kruger 2016).

According to Snaza et al. (2014):

[E]ducators and educational researchers are used to looking at schools as places where humans dwell together to learn what it means to be human and to accumulate the kinds of skills and habits required to participate in human societies as adults. (p. 39)

However, schools are connected with the nonhuman world in so many explicit and implicit ways, such as the architecture; infrastructure; prehistoric dead organisms waiting to be mined and refined; stockpiles of books, computer equipment, office supplies, light bulbs, cleaning chemicals, historical records, sporting equipment and cooking utensils. This demonstrates that we as humans are not the centre of the universe and should not be the centre of conversation (Snaza et al. 2014).

Humanist Western education dominated the 19th century, a period where the child was viewed as a passive recipient of knowledge and the teaching fraternity consisted of predominantly authoritative, detached male scholars. This perspective still pervades sectors of education today. Alternate models of Western pedagogy emerged in the 20th century. Although these alternate models were more child-centric, focusing on progressive, experiential pedagogy and social reforms (Blaikie, Daigle & Vasseur 2020), Blaikie et al. (2020:3) propose a post-humanism conception of pedagogy that is 'holistic, where boundaries are porous and students develop capacities to feel, think and imagine themselves relationally'. This relationality enables us to think against the various category segregations through which we have learned to make sense of the world, in the academic disciplines as well as in the constructs that inform and shape our everyday lives (Bayne 2018). Drawing from research carried out by Weil, Bayne (2018) added that some of the most interesting work emerging in the field of education from this area emerges from the field of animal studies and the issue of species segregation: the privileging of the 'human animal' over the 'nonhuman animal' and how, as teachers, we challenge the assumption of 'human exceptionalism'.

How we 'do' education lies right at the heart of rising to the challenges of developing thinking strategies for participating in the complexities of 21st-century living and working (Bayley 2018). Proponents of post-humanism, Darbellay, Ferreras, Bidwell and Pernecky, proposed that a post-human pedagogy explores the key elements of returning to holistic ancestral and indigenous ways of knowing; reframing relationships between scholars, teachers and learners; considering material physical learning environments in which knowledge is co-created; and embracing the need to move towards post-disciplinary conceptions of knowing, curriculum and knowledge creation (Blaikie et al. 2020).

For those dissatisfied with current modalities of teaching and learning, thinking like a post-human offers a diffractive lens through which to address some of the limitations that we as teachers and pedagogues might find ourselves grappling with. Such limitations include how to handle the kinds of complexities brought on by enhancements in technology, ecological and environmental changes, globalising forces that disrupt human and nonhuman divides and the reality of living in an ever more entangled, post-human world (Bayley 2018).

Proponents of post-humanism have highlighted the significant implications of post-humanism on teaching and learning. The idea that teaching and learning must provide students with the knowledge and skills to handle 'ways of living and thinking that have not yet emerged' is something that arguably has applied throughout the history of education. Bayley (2018) argued, however, that with the exponential rate of technological and ecological change expanding as it is, the landscape of the present and/or future is undergoing somewhat seismic shifts. It is the rapidity of this change that generates a heightened need for the urgent and creative reimagining of education for current times (Bayley 2018).

Yan et al. (2020) propound that post-human pedagogy provides a new perspective for us to further work to understand the learning that happens through students' relationship with technology and the natural world. Studies conducted by Yan et al. (2020) indicated that post-human pedagogy is interested in human-technology and human-nature relations.

Yan et al. (2020) posit that the pedagogy practice that embraces post-human ideas should give more room to the notion that children are knowledge producers rather than just knowledge consumers. Highlighting research carried out by Murriss and Chiew, Yan et al. (2020) contend that this perspective does not mean overemphasising a student-centred approach. Instead, it intends to direct our attention to other beings and entities on our planet. In this way, it can offer alternatives to student-centred pedagogy that represents the current individualistic culture and help to focus on the interconnectedness of the possible entities in learning (Yan et al. 2020). Blaikie et al. (2020) address the intra-active process in the classroom by stating that post-humanism considers scholars, teachers and learners to be co-creators of knowledge. The learner is no longer seen as occupying an inferior position aligned to and restricted by nature or not yet knowledgeable, skilful, cultured or fully adult. The job of teachers and all humans is to support learners in becoming part of the world, facilitating their full participation (Blaikie et al. 2020). Blaikie et al. (2020) contend that in a post-humanist classroom, because the teacher is neither a guide, nor an instructor, nor a facilitator, nor a socialiser, nor a protector, then a re-evaluation of the teacher's role is essential. Blaikie et al. (2020) are advocates for the notion of 'flipping' the classroom as a post-humanism approach to education but emphasise that the teacher-learner relations must be recalibrated so that they are neither hierarchical nor potentially oppressive to enable pedagogy to be seen as a co-created journey of discovery, rather than simple content delivery.

Acknowledging the research conducted by Edwards and Pasquale, Bayne (2018) points out that education has focused on the learning subject as a result of an a priori assumption of a separation of matter from meaning, the object from the subject – a position that seems increasingly less tenable as ‘datafied’ societies and ‘algorithmic selfhoods’ are becoming rapidly normalised.

Yan et al. (2020) assert that as post-human pedagogy entangles with post-human thinking, the added dimension of the nonhuman is inevitable, which is often represented by rethinking the role of technology. Yan et al. (2020) draw from research conducted by Strom et al. (2018, in Yan et al. 2020) to argue that with the ubiquity of digital technologies, virtual learning environments or mobile devices are highly integrated with traditional face-to-face lectures. The role of technology has blurred the divides between material and virtual, past and present. Technology is not only a tool for post-human pedagogy. Technology is an important nonhuman actor in learning. Technology is a reciprocal agency in collaborative work. Its agency is demonstrated in the way that technology structures or even constrains interactions. In terms of the human–technology relation, it calls for seeing technology beyond a mediating tool and focusing on how it co-defines learning (Yan et al. 2020). Bayne (2018) supports Yan et al.’s (2020) views stating that contemporary education must step back from the still widely held assumption that the value of digital technology in education is largely instrumental, with digital technology seen as a ‘tool’ to be used to make education ‘better’.

According to Yan et al. (2020), post-human pedagogy is inherently an ethical practice. Kruger (2016) maintains that ethics of sustainability are radically immanent and foregrounds the primacy of productive relations, creative interdependence and copoiesis. This ethics is also post-anthropocentric, as it posits that all bodies (the human and nonhuman, organic and inorganic) have the power to act, affect and be affected (Kruger 2016).

The dominant humanist, Cartesian and representationalist ontology limits how we think about what can be learnt in the teaching and learning situation, by students as well as academics, whereas post-humanist worldviews pose fresh and transformative lenses with which to consider how academics could position themselves to work towards socially just pedagogies (Leibowitz & Naidoo 2017). By reviewing research conducted by Haraway and Postma, Leibowitz and Naidoo (2017) assert that a post-humanist perspective would suggest that a teaching and learning event should more appropriately be approached with curiosity, and approaches that attribute pre-established natures and abilities to particular beings need to be disrupted. For teaching and learning encounters, this implies the need to question the notion that both students and academics are separate bodies with their own intentions. Leibowitz and Naidoo (2017) elaborate that each teaching moment, including classroom encounters, is intra-active and not

entirely predetermined in terms of pre-existing abilities and prescribed roles. Intra-action differs from inter-action as it does not assume the pre-existence of entities and acknowledges the relationality through which different entities are constituted (Leibowitz & Naidoo 2017).

According to Yan et al. (2020), the human–nature relation is also a part of post-human pedagogy. Yan et al. (2020) argue that Western science separates humans from nature, viewing learners as the only active agents who make sense of nature with measurement and empirical observation. Yan et al. (2020) justify this argument by contending that because Western science is often privileged as one reality among many possible ones, the diverse human–nature relations are often ignored. Yan et al. (2020) suggest that exploring the human–nature relations is important for navigating the knowledge systems from different cultures and add that post-human pedagogy also calls for a methodological turn to align with this more-than-human framework.

From a post-humanist perspective, the objects, bodies and spaces in which we engage in pedagogy as scholars, teachers and learners are agents who actively shape teaching and learning, in that we learn in and from spaces and places (Blaikie et al. 2020). According to Blaikie et al. (2020):

[P]osthumanist pedagogy asks us to be attentive to these settings and attempt to create new ways of thinking by disrupting the spaces we traditionally use for teaching, by recognizing and attuning to the spaces and places that have always been pedagogical such as the kitchen at home, the school buildings, the windowless concrete classrooms in which we meet our students, the enrolment sizes dictated by budget concerns, and other very mundane and concrete factors that impact how we teach and learn. (p. 4)

Blaikie et al. (2020) thus conclude that post-human pedagogy is not simply a matter of taking a class outside into nature and open spaces. Post-humanism invites us to understand how learners are interconnected with space and takes us into the realm of thinking about pedagogy holistically, an approach that differs fundamentally from discipline-based pedagogies of the mid–20th century (Blaikie et al. 2020).

Blaikie et al. (2020), the proponents of post-humanism, propose a move towards holistic systems thinking in teaching and learning. We must move beyond disciplines to a much more radical approach that is not discipline-centric but rather holistic. This will address the complex problems we are facing in the world today, and only modes of thinking that acknowledge, remove and bridge disciplinary divides and operate beyond them will offer workable possibilities. Exposing learners from kindergarten to graduate level to such thinking will allow them to think about the world and all of its beings, spaces and places as entangled, as interconnected. It will prevent silo thinking and foster the capacity to experiment, explore and discover, letting the creativity of children and teachers thrive (Blaikie et al. 2020). However, the theory of post-humanism has not been significantly explored from an educational perspective or

integrated into classroom practice. As pre-service teachers are currently being trained to teach the next or future generations, and post-humanism is a new age philosophy aimed at futuristic learning, it will be prudent to elicit pre-service views on integrating post-humanism into classroom practice.

The purpose of this article is to explore the views of pre-service teachers regarding the integration of the philosophy of post-humanism into education and the practice of teaching and learning and, as postulated by Snaza et al. (2014), to enable our future educationists and educational practitioners to begin exploring new, post-humanist directions in research, curriculum design and pedagogical practice.

Research methodology

A qualitative case study research strategy is used in this study. This qualitative design is underpinned by the philosophy of post-humanism. Post-humanism aligns with the 'new materialist' thought, which has been influential in the humanities and social sciences, emphasising the agency of nonhuman matter and the need to revisit questions of human subjectivity in light of the ecological crisis, contemporary geopolitics and technological shift (Bayne 2018). Data for this exploratory case study were collected using open-ended questionnaires. Albudaiwi (2017) describes open-ended questions as questions that do not provide participants with a predetermined set of answer choices; instead, open-ended questions allow the participants to respond with their own words. Open-ended questions allow researchers to take a holistic and comprehensive look at the issues being studied, because open-ended responses permit respondents to provide more options and opinions, giving the data more diversity than would be possible with a closed question (Albudaiwi 2017). A questionnaire consisting of nine open-ended questions was sent to 60 Bachelor of Education fourth-year students selected from a population of 350 Bachelor of Education students, based at a private institution of higher

learning in Gauteng, South Africa. The researcher's decision to use fourth-year students is based on the premise that these pre-service teachers are firstly doing philosophy of education as a fourth-year module, and secondly, these students have three years of school-based work-integrated learning experience and will therefore have informed views regarding integrating the tenets of post-humanism into classroom practice, albeit limited knowledge of the concept of post-humanism. A total of 51 students completed the questionnaire, resulting in an 85% response rate. These questions were designed around the literature review of this study, focusing predominantly on the concept of integrating post-humanism into classroom practice. The students were required to complete the questionnaire and submit it online. A total of 51 students completed the questionnaire, resulting in an 85% response rate. Data obtained were analysed using content analysis to qualify the occurrence of certain words, phrases, subjects or concepts gleaned from the responses.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Independent Institute of Education Ethics Committee (ref. no. R. 00018 [REC]).

Results

Table 1 reveals the questions posed to the students and the recurring themes, words, phrases and concepts generated from the responses. These responses address the aim of the study, which is to explore the views of pre-service teachers regarding the integration of post-humanism into classroom practice.

Table 1 indicates that most respondents were not familiar with the concept of post-humanism but stated that it was a philosophy that existed beyond what is human. Many students also thought it was a philosophy that addressed

TABLE 1: Questions posed to students and recurring themes, phrases and words.

Questions	Recurring themes, words, phrases and concepts
1. Have you heard of the philosophy of post-humanism? What have you heard or what do you think it is about?	No. Modern philosophy. Existing beyond humans. Future of humanity. Being dependent on the environment and technology.
2. The philosophy of humanism maintains that 'man is a measure of all things'. Given the current technological advancements and the social and environmental crisis we are currently experiencing, how significant do you think this philosophy is in current times?	Significant. 'Man' still controls the environment, technology and society. Man is to blame for current problems. Man has lost values. Not significant: technology has taken over. Man is not the centre of the universe.
3. Advocates of post-humanism argue that teaching and learning must not just focus on the learner but also on our wider cultural environment, physical structure and technological environment. What is your opinion of this for futuristic learning?	Mostly agree. Environments influence how children learn. Focus on the bigger picture and the world around us. Impact of technology on learning. Understand different cultures. Broadens our thinking.
4. How comfortable are you to integrate the philosophy of post-humanism into your philosophy of education?	Will be comfortable with more understanding. Comfortable because it incorporates the environment. May be difficult to integrate because it is complex. The focus must be on more than just the learners.
5. How important do you think it is to integrate the philosophy of post-humanism into our philosophy of education module?	Important. Prepare for future learners. Influence the way we will teach. Diversity in teaching. Environmental and social awareness. New philosophies broaden our thinking.
6. How will you ensure that technology is not just used as a learning tool in the classroom but as a 'nonhuman' facilitator for teaching and learning?	Use to develop further understanding. Use technology to learn new things. Show learners how technology can improve the world. Replace human interactions in teaching and learning. Enhance lesson. Additional teaching resource.
7. Post-human pedagogy is an ethical practice that considers both the power and importance of both human and nonhuman entities. Why do you think it is important to implement post-human pedagogy in the classroom?	Prepare learners for a changing world. Take care of the environment. Creative thinking. Interaction with nonhuman entities. Intriguing.
8. Post-humanism proposes a move towards holistic systems thinking in teaching and learning. Schools must move away from discipline-centric teaching to holistic teaching. What is your opinion on this?	Discipline is important in the classroom. Holistic learning leads to learners' success. Holistic learning focuses on more than just content. Both are important. With holistic thinking, learning will be more fun.
9. How will shifting our thinking from humanism to post-humanism impact learning and teaching in the classroom?	Inclusive environment. Technology is an important life skill. Positive change. Awareness that humans are not the centre of the universe. Improves critical thinking. Cultural impact.

the future of humanity and becoming dependent on technology and the environment. Answers that indicated that students 'Googled' the definition of post-humanism were disregarded to ensure that the data were not contaminated.

Many fourth-year students believed that the philosophy of humanism is significant in current times because 'man' still controls the environment, technology and society, and 'man' is to blame for the current problems. Students who believed that the philosophy of humanism was not significant in current times indicated that technology is slowly taking over and 'man' is not the centre of the universe. Most students agreed that teaching and learning must not just focus on the learners because our environments and technology influence our learning. Most students are also of the opinion that teaching and learning must consider the world we live in, which includes our physical and technological environment. Education should no longer be confined to the perception that human beings are the centre of the universe.

In response to question three, most students agreed that teaching and learning must focus on more than just the learners. Pedagogical practices must consider the 'bigger picture' and focus on the 'world around us'. Respondents also indicated that technology would continue to have a huge impact on teaching and learning in the future. Most respondents also believed that understanding different cultures will broaden their thinking and make them better teachers.

Most students agreed that they would be comfortable integrating the philosophy of post-humanism into their philosophy of education if they had a clearer understanding of the philosophy of post-humanism. Students also highlighted the importance of including post-humanism in their educational philosophy because it incorporates the environment. However, a few students indicated that including post-humanism in their philosophy of education may be difficult because post-humanism seemed like a complex philosophy.

Students unanimously agreed that it was important to include the philosophy of post-humanism in the philosophy of education module as part of the teacher education curriculum because it would effectively prepare them to teach future learners. It would broaden their thinking and influence the way they teach in the future. It would promote diversity in teaching and enable them to incorporate technology and social and environmental issues in their scope of teaching.

Many students indicated that they would ensure that technology is not just used as a learning tool in the classroom but as a 'nonhuman' facilitator for teaching and learning by using technology to develop further understanding, learn new things and show learners how technology can be used to improve the world. Some students stated that technology

may be used to replace human interactions, enhance their lessons or as an additional resource.

Responses to question seven indicated that most students did not understand what ethical practices are and how these practices were related to post-human pedagogy. A few students observed that considering the power and importance of both human and nonhuman entities was an intriguing concept that would prepare learners for a changing world. Many believed that post-human pedagogy would promote critical thinking in learners and assist them in caring for the environment.

It was significant to observe that many students associated discipline-centric teaching with classroom management, thus offering the opinion that discipline is still important to optimise student learning. A significant number of students, on the other hand, indicated that holistic teaching would focus more than just on content; as a result, learners would achieve greater success and have fun learning.

Many respondents indicated that shifting our thinking from humanism to post-humanism will create an inclusive environment for teaching and learning. Technology will be incorporated more into the learning space, improving digital skills. Post-humanism will improve our learners' critical thinking and level of cultural intelligence and bring about positive change when humans eventually realise that they are not the centre of the universe.

Discussions

Many of our pre-service teachers will be going into the world of teaching and learning without understanding or being aware of the philosophy of post-humanism. They will therefore lack the ability to rethink the relations between humans and nonhumans and challenge their anthropocentric thinking, a type of thinking that promotes human interests at the expense of the interests or well-being of other species or the environment, thus preventing us as humans to be inextricably connected to the world (Bayne 2018; Hayward 1997; Yan et al. 2020). A post-humanist approach to education will challenge pre-service teachers to interrogate and dismantle the humanist structures upon which many current educational systems rest. Integrating this post-humanism approach into classroom practice will enable these novice teachers to view learners as being 'entangled' with, connected to and responsible for themselves, alongside the life and habitats of all humans, nonhumans, the environment, the planet and space, including entities beyond our planet (Blaikie et al. 2020). For education, the implications of seeing the human as inseparable from the networks or ecologies within which he or she is assembled are profound because they challenge the very possibility of the rational cognition and individual agency, which we have seen education as existing to nurture (Bayne 2018).

Although many respondents still view humanism as being significant, this is carried out within the context that 'man' is still in control of the environment, society and technology.

This view encompasses anthropocentrism: a type of thinking that recognises the nonhuman world has value only because it directly or indirectly serves human interests (Mcshane 2007). Post-humanism will propel pre-service teachers to make an ontological shift from understanding 'the Human' as an individuated entity separate from and observant of the world and its (human and non-human) inhabitants, to one which is inextricably connected to the world and only conceivable as emergent with and through it (Bayne 2018).

Most responses support Bayley's (2018) argument that with the exponential rate of technological and ecological change expanding as it is, the landscape of the present and future is undergoing somewhat seismic shifts. It is the rapidity of this change that generates a heightened need for the urgent and creative reimagining of education for current times (Bayley 2018). The learner is no longer seen as occupying an inferior position aligned to and restricted by nature or not yet knowledgeable, skilful, cultured or fully adult. By stating that learning should focus on the world around us, respondents acknowledge that the job of teachers and all humans is to support learners in becoming part of the world, facilitating their full participation (Blaikie et al. 2020).

Extrapolated data indicate that most respondents feel comfortable integrating post-humanism into their educational philosophy and also agreed that post-humanism should be included in the philosophy of educational module, thus supporting the theory that pedagogy practices that embrace post-human ideas would support the notion that children are knowledge producers rather than just knowledge consumers. This perspective does not mean to overemphasise a student-centred approach. Instead, it intends to direct the attention of pre-service teachers to other beings and entities on our planet. In this way, it can offer alternatives to student-centred pedagogy, which represents the current individualistic culture, and help to focus on the interconnectedness of the possible entities in learning (Yan et al. 2020). This post-human conception of pedagogy that situates humans in multimodal contexts beyond the intellect will encourage pre-service teachers to consider other species, place and space, the planet as a whole and the important role of physical learning environments in the teaching and learning space. The integration of post-humanism in classroom practice will minimise silo thinking and foster the capacity to experiment, explore and discover, letting the creativity of children and teachers thrive (Blaikie et al. 2020).

Yan et al.'s (2020) views that contemporary education must step back from the still widely held assumption that the value of digital technology in education is largely instrumental, with digital technology seen as a 'tool' to be used to make education 'better', has been supported and highlighted by views elicited from fourth-year B.Ed. students. Students believed that technology must be used more than a tool in the classroom. It must be used to improve the world and help to solve environmental and social crises. Post-human pedagogy provides a new perspective for us

to further work to understand the learning that happens through students' relationship with technology and the natural world. Studies conducted by Yan et al. (2020) indicate that post-human pedagogy is interested in human-technology and human-nature relations.

Integrating post-humanism education into the classroom context will give pre-service and in-service teachers a new perspective on the critical differences between meaning and knowing. While the various potential forms of knowing might occur in specific contexts, 'meaning' would replace knowing for education because meaning, understood as the interactions among patterns of information creation and the randomness of unperceived patterns, has implications for action, choice and social and cultural life in physical environments that are transformed by human 'knowing'. 'Knowing' is only a human concept, while meaning envelops everything else (Snaza et al. 2014).

Although most students did not indicate that they had a clear understanding of ethical practices, they displayed an awareness that implementing post-human pedagogy in the classroom would prepare the learners for a changing world, a world where ethical awareness leads to more democratic and expansive forms of education and moves towards an ecology of interdependent ethical relations in education (Yan et al. 2020). Our post-human future will be a time 'when species meet' and when humans finally make room for nonhuman things within the scope of our moral concern. Post-human ethics will encourage pre-service teachers to think outside of the interests of our own species, be less narcissistic in our conception of the world and take the interests and rights of things that are different from us seriously (Ethics Centre 2018), ultimately infusing this thinking into the practice of teaching and learning.

Respondents were in support of holistic teaching. Post-humanism invites us to understand how learners are interconnected with space and takes us into the realm of thinking about pedagogy holistically, an approach that differs fundamentally from discipline-based pedagogies of the mid-20th century (Blaikie et al. 2020). Although students did not have a worldview of post-humanism, their responses indicated that they view teaching and learning with transformative lenses, and their opinions advocate for socially just pedagogies. These opinions support research conducted by Leibowitz and Naidoo (2017), who assert that a post-humanist perspective would suggest that a teaching and learning event should more appropriately be approached with curiosity and approaches that attribute pre-established natures and abilities to particular beings must be disrupted. A close analysis of the responses indicates that most pre-service teachers advocate for an approach that allows for and embraces the emergence of difference, hybridity and intra-actions across school contexts that lend themselves to equity and social justice (Strom & Martin 2021).

Conclusion

Considering the global crisis that we are currently experiencing from an environmental, social and political perspective, we must interrogate ways in which we can rethink our approach to teaching and learning. Therefore, we have to challenge the status quo of anthropocentrism and humanism to push the boundaries of educational possibilities. Advocates for a post-human pedagogy call for the abandonment of a humanistic worldview and a curriculum that values intra-action, the interconnected existence of all things living and nonliving and innovative pedagogical methods that extend beyond the classroom. Thus, it is imperative that post-human pedagogy is interwoven into the teacher education curriculum to ensure that futuristic learning is viewed through a diffractive lens.

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Data availability

The raw data in Table 1 are available upon request.

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References

Albudaiwi, D., 2017, *Survey: Open-ended questions*, viewed 23 September 2021, from <https://methods.sagepub.com/reference/the-sage-encyclopedia-of-communication-research-methods/i14345.xml>.

- Anowai, E. & Chukwujekwu, S., 2019, 'Philosophy of authentic humanism: The only way of curbing conflict and violence', *International Journal of History and Philosophical Research* 7(1), 1–11, viewed 11 August 2021, from <https://www.eajournals.org/wp-content/uploads/Philosophy-of-authentic-humanism.pdf>.
- Bayle, A., 2018, *Posthuman pedagogies in practice*, Springer International Publishing, New York, NY.
- Bayne, S., 2018, 'Posthumanism: A navigation aid for educators', *Journal for Research and Debate* 1(2), viewed 11 August 2021, from <https://www.oneducation.net/no-02-september-2018/posthumanism-a-navigation-aid-for-educators/>.
- Blaikie, F., Daigle, C. & Vasseur, L., 2020, *New pathways for teaching and learning: The posthumanist approach*, Canadian Commission for UNESCO, Ottawa, viewed 18 August 2021, from <https://brocku.ca/unesco-chair/2021/01/08/new-publication-new-pathways-for-teaching-and-learning-the-posthumanist-approach/>.
- Chapter 2: *Your philosophy of education*. s.a., viewed 01 August 2021, from http://www.professorsapp.com/www.wadsworthmediacom_market.pdf.
- Cline, A., 2021, *What is humanism?*, viewed 08 October 2021, from <https://www.learnreligions.com/what-is-humanism-248125>.
- Ethics Centre, 2018, *Ethics explainer: Post-humanism*, viewed 08 October 2021, from <https://ethics.org.au/ethics-explainer-post-humanism/>.
- Ferrando, F., 2019, *Philosophical posthumanism*, viewed 18 July 2021, from https://www.researchgate.net/publication/335319597_Philosophical_Posthumanism.
- Hayward, T., 1997, 'Anthropocentrism: A misunderstood problem', *Environmental Values* 6(1), 49–63. <https://doi.org/10.3197/09632719776679185>
- Howlett, C., 2018, *Teacher education and posthumanism*, viewed 18 July 2021, from <https://files.eric.ed.gov/fulltext/EJ1174909.pdf>.
- Isriyah, M. & Lasan, B.B., 2018, *Classical philosophy: Influence the education philosophy of age*, viewed 18 July 2021, from <https://ejournal-bk.unindra.ac.id/index.php/teraputik/>.
- Javad, Y. & Tahmasbi, M., 2020, 'Application of humanism teaching theory and humanistic approach to education in course-books', *Theory and Practice in Language Studies* 10(1), 40–48. <https://doi.org/10.17507/tpls.1001.06>
- Kruger, F., 2016, *Posthumanism and educational research for sustainable futures*, viewed 26 July 2021, from https://www.researchgate.net/publication/312627609_Posthumanism_and_educational_research_for_sustainable_futures.
- Leibowitz, B. & Naidoo, K., 2017, 'The potential for posthuman insights to effect socially just pedagogies', *Education as Change* 21(2), 149–164. <https://doi.org/10.17159/1947-9417/2017/2020>
- Mcshane, K., 2007, 'Anthropocentrism vs. nonanthropocentrism: Why should we care?', *Environmental Values* 16(2), 169–186. <https://doi.org/10.3197/096327107780474555>
- Saragih, E., 2012, *Implication of philosophy in modern education*, viewed 20 October 2021, from http://assets.jurnal.unprimdn.ac.id.s3.amazonaws.com/documents/post_documents/fa0abdaa1ae763e920d5b3b9717d4cdc179e27a9.pdf.
- Snaza, N., Appelbaum, P., Bayne, S., Carlson, D., Morris, M., Rotas, N. et al., 2014, 'Toward a posthumanist education', *Journal of Curriculum Theorizing* 30(2), viewed 15 August 2021, from <https://journal.jctonline.org/index.php/jct/article/view/501>.
- Strom, K.J. & Martin, A.D., 2021, 'Toward a critical posthuman understanding of teacher development and practice: A multi-case study of beginning teachers', *Teaching and Teacher Education* 114, 103688. <https://doi.org/10.1016/j.tate.2022.103688>
- Tan, C., 2006, 'Philosophical perspectives on education', in C. Tan, B. Wong, J.S.M. Chua & T. Kang (eds.), *Critical perspectives on education: An introduction*, pp. 21–40, Prentice Hall, Singapore.
- Valera, L., 2014, 'Posthumanism: Beyond humanism?', *Institute of Scientific and Technological Practice* XXV, 481–491, viewed 15 August 2021, from <http://www.redalyc.org/articulo.oa?id=87535786012>.
- Yan, L., Litts, B.K. & Na, C., 2020, 'Learning in the more than human world: A conceptual analysis of posthuman pedagogy', viewed 21 August 2021, from <https://www.researchgate.net/publication/343112427.s>