




Renewal in Educational Spaces as a Relational Aspect: Making Way for a New Culture of Reasoning Innovation and Sustainability

Pulane Adelaide Molomo*

* Faculty of Management Sciences,
Central University of Technology,
Bloemfontein, South Africa
Email: pmolomo@cut.ac.za

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ABSTRACT

Educational spaces have long been situated in repressive, non-relational and detached conditions that have been damaging to the geopolitical, socio-economic, and environmental balance. The paper reports on the effectiveness of educational spaces when characterised by an ethical relationship between human and nonhuman elements as a collaborative measure to solve earthly problems. The purpose was to highlight the role of education in producing innovative, honest, and critical thinkers who can apply knowledge to navigate relational intricacies. Qualitative data was generated from literature and a purposively sampled respondent group of eight lecturers and twelve students in a South African university, using interviews and focus group discussions. Data was categorised and analysed into themes. It was found that a pedagogical encounter which enabled students to engage in activities that deepened their knowledge of how the world works in totality gave them opportunities to understand the balancing effect of relational aspects when solving problems. This study proposes a renewal in thinking about other beings and things in educational spaces toward understanding the relational interaction brought by scientific and technological advancements that impact on human and nonhuman agents. The implication is that the world needs people to become innovators, think holistically and build a synergy between things and humanity. The study proposes that educational spaces should develop consciousness and ethical behaviour to sustain the relationship between human and nonhuman agents, which has implications for innovation and new practices that will sustain the world.

KEYWORDS

Balance; ethics; innovation; educational spaces; relational aspects; problem-solving.

INTRODUCTION

The lack of a relational composition between humans and other species has brought the world to a crossroads in recognising the value of nonhuman agents (Chan, Gould & Pascual, 2018). The demands of the 21st century, the increasing complexities of science and technological advancement in the world, and the imbalance of the ecosystem are causes for concern. According to Haraway (1991:154), 21st century humans live in a web of complex linkages that command connections between the environment, technology, science, religion, capitalism, and ideology. Clearly, in the quest for innovation and advancement, humans cannot function without technology and science (Gingrich-Philbrook, 2010). These intricacies necessitate a renewal of the mind and a balance of relations between human and nonhuman things. Similarly, human progress is directed by knowledge, innovation, norms, ethics, and cultural values that can sustain all human and nonhuman species (Bronner, 2004). The implication is that technological advancement in the world is moving in a different direction that no longer needs to be viewed through a binary lens but rather as a synergy of multifaceted angles that requires the contribution to life of all living and non-living things to be valued and understood.

Arguably, the pressing question is about renewal and rethinking the relationship between humans, and the role played by technology and the impact of environmental and cultural factors from a post- or non-anthropocentric angle (Braidotti, 2013). All components of reality are expected to take equal positions; thus, institutions of learning, notably higher education, have the responsibility to instil ethical standards and knowledge that can navigate the world towards reconstructing a new ethos that will constitute a just world characterised by relations of things. This paper thus seeks to raise consciousness and understanding of the relationship entertained with otherness by highlighting some of the benefits brought by science and technology as constituents of nonhuman elements in advancing human progress and innovation. Also, one of the pressing questions is to ponder the meaning of being human against the backdrop of globalisation, technoscience, capitalism and climate change.

LITERATURE REVIEW

General explorations and economic practices on a global scale have caused an outcry and discomfort which challenges the results of human actions. According to Yusoff (2018), the Anthropocene age has traces from the colonial era characterised by elements such as dispossession, colonialism, modernity, heteropatriarchy, imperialism, and racism, which all have destroyed the balance of the ecosystem. To that effect, Hayles (1999) criticises liberal humanists as selfish and the source of greed and abuse of power that needs to be dismantled. The argument is about what kind of thinking or ideology has placed human above other species, resulting in a profit-oriented capitalist economy with consequences of disregarding diversity and the well-being of other species (Moulier-Boutang, 2012). With consequent exploitation and imbalance of the ecosystem (Mies & Shiva, 1993), the contention is about the recomposition of humanity to militate against imbalances and anxiety caused by human's relations with other

species (Braidotti, 2013). This implies that there is a need to deepen knowledge of nature, critical thinking, and ethical responsibility with regard to shaping the future of a diversified host of species within the ambit of modern standards and morals that might be considered of value for the difficult times we are faced with if we are to solve human-created problems. Moving to the future and re-awakening consciousness implies that relational qualities and innovation can be established through disengagement from familiar habits of thought. Arguably, such a renewal commands what Braidotti (2013) refers to as a qualitative leap toward recognising diversity, balance, and a relational encounter with different species, which suggests that reality is reflective of all cosmos elements viewed through a hybrid lens and not in fragments.

Different species are part of the universe of a conglomerate of different parts that make up a whole, and the purpose is to live in a joint interaction with each other driven by the ideal of a moral compass guiding the survival of all genera (Cajete, 2016; Simpson, 2017), given that no system on the planet earth can exist in isolation. As Simpson (2017) posited, an ethic of reciprocity reflects the interrelatedness and interdependence of relations between humans and nonhumans. The different roles must be echoed from all angles. Comprehension of the cosmos as a shared space that brings together human and nonhuman species implies that the foundational principle accompanying the collaboration and diversity approach reflects moral consciousness in all relations.

Posthuman Relations

The growing argument amongst many researchers is that the earth has changed to such an extent that we have entered the present historical era of the Anthropocene, which is referred to as a new age of imbalances (Morton, 2013). According to Lewis and Maslin (2015), the Anthropocene brings a fresh perspective and critical changes in the relationship between humans and nonhuman agents, dismantling the entrenched binary division by presenting a multi-dimensional approach. Since balance and sustainability are crucial, binary approaches can no longer direct the function of species in the posthumanism epoch. Knowledge expansion, democratic rights, globalisation, and technological expansion have strengthened contestation about the balance and interrelatedness of systems and earthly components (Braidotti, 2002). To Braidotti (2016), the possession of knowledge creates an urgent call for a multi-layered and multi-directional approach that dislodges anthropocentrism by critiquing the harm caused by the human species on the planet whilst encouraging more profound knowledge and renewed thinking.

Likewise, Fraser et al. (2006) propose a unifying vitality of all living systems to overthrow anthropocentric superiority, which means that science, technology, and a balance of the ecosystem are needed more than ever for survival. To that effect, Braidotti (2013) proposes an alliance between human and nonhuman agents which acknowledges the connection of various types of knowledge without categorising nor positioning them in the order of importance. Such a perspective can bring a multi-factorial association of human and nonhuman elements without relegating humans with their distinct intellectual and rational abilities to the periphery. The

renewal and relational stance of not categorising machines, humans and other components of reality have a further implication on looking at the influence of different parts of the natural system and progress. According to Braidotti (2002), posthuman critical theory is a composite assemblage of human, non-organic, machinic and other elements. Thus, the relational perspective as a point of departure for innovation, balance and sustainability can become a just path for different agents to thrive, which also means that problems that face the world in terms of imbalances cannot be overcome without technoscience and socio-ecological cohesion. According to Marope, Chakroun and Holmes (2015), development is a holistic process that can be driven through a curriculum that encompasses values of equity, inclusion, and justice. This means that curricula must embed such principles in line with the current technology by being redesigned in a manner that will stimulate students' power in navigating the learning journey (Lee, 2011; Risam, 2019). Furthermore, technology can be used as a driver and an instrument to bring the world together (Adu et al., 2022; Binkley et al., 2012). In line with the relational stance, the future path of curricula is to sustain the future by being relevant in the technological era as well as allowing relationality, balance, and lifelong learning to both young and old (UNESCO, 2015).

Similarly, cohesion founded on the fundamental rights of all players is necessary for agency to facilitate interconnectedness based on ethical behaviour amongst all players in the web of relations (Griffin, 2013). The implication is that relationality and ethical standards are critical elements towards directing all actions of human and nonhuman agents because principles sustain any collaboration. In recognising equality in this hybrid relationality between human and nonhuman agents, Buchanan (2013) suggests that an institution for justice in innovation should be instituted based on sound principles to regulate policies around innovation and fairness. Admittedly, a harmonious cohesion based on sound principles can lead to a healthy natural balance and a healthy planet. Dall'Agnol (2020) asserts that mutual respect, cooperation, and a caring spirit between humans and nonhuman artificial agents can create peaceful coexistence. This implies renewal and rethinking the 21st century development journey by assessing the importance of otherness, which should translate to a less individually human-centred, but to a more relational and more system-centred approach.

Technological Advancement

The assertion is that technology safeguards a relationship between human beings and other living beings; hence, post-humanists embrace technology as that which saves us from humanism (Thompson, 2017). If we want to understand what technology is for humanity, we cannot analyse those different aspects of reality as separate systems. Also important to note is how the human species adapts to the unprecedented speed at which technology is changing the trajectory of human development (Barfield & Williams, 2017). The concern is how people embrace the pace of change, new practices, and new thoughts in educational spaces accompanied by technological and scientific advances that are changing the world.

Even though there are benefits of technological advancement and the innovative forms that characterise the Anthropocene reality, some of the inequalities arising from capitalism, racism, and sexism corrode the ideals of connectivity and interrelationship (Kings, 2017). Innovation and technological advancement rely heavily on the capacity of the human to embrace dynamic change and the readiness to embrace economic, social, and technical change without fear of becoming ineffective. "Today synthetic computation expands what is sensed, measured, calculated, communicated, stored and worked on" (Bratton, 2016:88). According to Silva (2009), curriculum relevance to the 21st century demands emphasis to be placed on what students can do with knowledge in coexistence with other human, nonhuman and things. Other views present curricula as dynamic, progressive, and articulate of moving away from past practices towards embracing the future and thus require change to be explored in line with global trends of relationship, inclusivity, and equity (Williamson, 2013).

Renewal and Multiplicity

Foucault's (1970) record of human's genealogy is two-fold: the first phase expresses the unfortunate situation which turned human's actions towards exploitation of other species, and the second phase shows human's return to consciousness and new thoughts. Foucault (1970) argues for human's renewal to save the world from extinction by applying critical thinking in accelerating the change process on how the world is perceived. Hardt and Negri (2000) call for a hybridisation approach in dealing with different species, which means that the binary view under which the world has been operating cannot fit into the complex advances of the 21st century. This requires renewal of the mind, including new ways of doing things. According to Fowler (2000), the shift toward a renewal of discourse and connection advocates a hybrid of machine and organism as a form of rethinking that allows scholars to re-examine their understanding of human agency and relationality. This means that human's understanding of the world is shaped by knowledge that stimulates thought; therefore, equipping people with the ability to think differently and innovatively is necessary. According to Olsson (2010), knowledge has power and is created from shared meanings, experiences, and social practices to make further meaning to those who understand them.

According to Dall'Agnol (2020), developments in the 21st century should be a community of different things which include technology, nonhuman animals, trans-humans, natural humans, posthumans, etc. To humans, having held the central position in the world, it means more knowledge is required to understand and cope with the complexity and direction the world is navigating. However, Hayles (2017) points to the risk brought by new materialism about the goal of inquiry aimed at providing a detailed description associated with access to knowledge to better understand the subject under investigation and gain new thoughts that can contribute to change. New thoughts imply mind-shift and renewal in thinking in understanding all components of reality and the moral outlook of the world is to be aimed at seeing a joint functioning of the whole of nature to sustain the living and non-living organs.

THEORETICAL FRAMEWORK

A theoretical framework is referred as a movement of thought which denotes assumptions, ideas and concepts grounding a research artefact by providing a shared worldview or lens supporting one's thinking about the problem (Osanloo and Grant 2016). This paper adopts a posthumanist critical theory stance to understand the relational aspects between humans and things and how a shift in perspective and renewal can create ecological justice. Critical theory, as a distinctive form of theory moving away from the veil of power and a limited ideology, argues for a more comprehensive means of grasping the social reality to identify problems in the world (Thompson, 2017). It further seeks to comprehend norms that constitute the world in totality, including individuals' social life and social processes that constitute an attempt to modify people's actions (Thompson, 2017).

Since the structure of the world is relationally formed, critical theory is critical of all things that lack normative, deeper understanding and relational qualities (Feenberg, 2014). Lately, critical theory is related to anything that questions inappropriate social practices and human actions (Thompson, 2017), hence its association with posthumanism in challenging human individualism. The approach accommodates posthumanism as an ideology founded on anthropogenic roots by distancing itself from placing one species at the centre of all things (Esposito, 2008). Similarly, posthumanism offers a radical transformation from the modern age and traditional Western thinking of treating humans differently from nonhuman beings (Rosiek et al., 2020).

The association of posthuman and critical theory offers a new type of discourse which moves away from a mere combination of two key structures of thought, namely, posthumanism and post-anthropocentrism, to a new and more complex direction (Wolfe, 2010). According to (Rabinow, 2003), this direction navigates toward positioning human beings to a species position as *Anthropos*. The implication is that human has been dominating and controlling other species, which has affected the organisation of things. Conscious and critical thinking is thus required to move forward and avoid such practices. Arguably, human beings are obliged to return to their species genre as *Anthropos* which entails human relationship to nature (Esposito, 2008; Rabinow, 2003).

The development of human relationship with nature thus implies an understanding and an ethical commitment of acknowledging the interconnected way of life among all creation and things (Esposito, 2008). According to Hegel, in his *Phenomenology of Spirit* (1977, originally published in 1807), change about any aspect is influenced by an increased knowledge about the problem because a valid form of knowledge about nature is mindful not only of how things are perceived but about the consciousness of the normative relational aspects. As argued by Hegel (1977), balance of the ecosystem and the purpose of nature in totality is represented by a moral duty of respect and deep reflection about other species. This highlights renewal and a deeper understanding of relations and how society views other nonhuman agents. Therefore, critical theory seeks to have a better understanding of people's interaction and perceptions about the

world and how things are connected to each other by shifting their lens from subjectivity to objectivity (Thompson, 2017). According to Turner (2004), critical theory helps to look at hidden limitations that deter relations by illuminating the tensions between moral universalism and moral diversity by highlighting the triangle of cognitive science, social theory, and ethics. According to Abromeit (2013), methods used in the social sciences may yield better results and bring about change if moral judgement is included as one of the criteria. Similarly, as posited by Bernstein (2010), encouraging rationality and reasoning in the way things are done can promote ethical behaviour. In this way, critical theory can liberate people against human forms of detachment toward nonhuman things. Moreover, recognition of rights of all things in the modern era also puts weight on respect for democratic principles, including ethics, norms, and rationality (Honneth, 2011).

Aim of the Study

The aim of this study is to explore curriculum changes in accommodating the relational element of different role players in regard to technological advancements.

Research Question

- Why does the human-nonhuman inclusivity in the curriculum space matter in the context of science and technological advancement?
- How meaningful is an ethical relationship between human and nonhuman beings in the 21st century?

Research Objectives

- To establish whether the hybridisation approach regarding human-nonhuman relations in educational spaces matters in the context of science and technological advancement.
- To assess the importance of a relationship between human and nonhuman beings in the 21st century.

RESEARCH DESIGN AND METHODOLOGY

Research Design

This study adopted a qualitative method to collect rich data, which was analysed thematically. A literature review preceded an interpretive paradigm influenced by participants' experiences through interviews and six members' two focus group. Use was made of semi-structured questions about participants' experiences with the relational value of species (Denzin & Lincoln 2012; Patton 2015). Participants' narratives were transcribed and manually coded into themes whilst permission to conduct the interviews was sought. The study's objectives were shared with participants verbally and in a written format.

Sample and Sampling

The sampling method determines the trustworthiness and validity of the research findings about the phenomenon under investigation (Lincoln. & Guba, 1985). The study sample was limited to a purposefully selected group of 12 students who participated in the focus group

discussions and six lecturers who were purposively selected to represent the population relevant to the research design.

Methods

Qualitative data was collected using two focus group (FG) consisting of six members each, and individual interviews to collect rich qualitative data (Merriam & Tisdell, 2016). Both focus group and personal interviews using semi-structured questions to let participants share their views were conducted.

Data Analysis

Qualitative data was obtained from participants through interviews and focus group discussions which elicited rich qualitative data. Such data was recorded, transcribed, categorised into common emergent themes, and analysed thematically (Saldana, 2016).

RESULTS

In reporting the findings and results, the following abbreviations are used: L(s) represents lecturers, and FGs represent Focus Groups

Theme 1: Hybridisation approach and advancement

"Teaching and learning conducted through virtual platforms showed the value of interdependence between science, technology and human activities" (L1).

Another participant said:

"Online technological facilitation of educational, business and other activities adds to the relational dimension of sustaining and preserving the wellbeing of other species in reducing carbon emission done mostly by human traveling activities" (L6).

The above responses confirm the assertion made by Braidotti (2013) of recognising the diversity and co-existence of different species.

In elaborating on the value of nonhuman agents, the participant had this to say,

"I rely on technology for my study and collaboration with others. I also google articles, videos, and schedule meetings, and in the blink of an eye, I can reach out to others" (L2).

This extract indicates that collaboration and knowledge are key elements that enhance reasoning and contribute to innovation.

"With the use of smartphones, gadgets and other less expensive phones including the use of an app, technological advancements in educational spaces were visible which enable virtual teaching and learning platforms" (L3).

A caring approach towards attitude change was flagged:

"I apply the ethics of care to recognise the relationship between human and nonhuman things and use it to integrate a caring approach towards present[ing] a decolonial teaching and learning pedagogy" (L3).

The change brought about by the relationship between different agents is supported by Lewis and Maslin (2015), who indicate that the Anthropocene brings a fresh perspective and key

changes in the relationship between humans and nonhuman agents by dismantling the entrenched binary and bringing in a multi-dimensional approach.

Theme 2: Knowledge and change in attitude

Most of the participants indicated that foundational principles of theories taught in higher education space equip students with knowledge which changes their attitude and perception toward nonhuman agents (L5).

Another participant (L4) said,

"Human beings need other species to produce food which requires change in attitude about human activities that leaves no space for other species to breathe".

The extract above confirms the assertion made by Braidotti (2016) about the possession of knowledge which establishes a platform for a multi-layered and multi-directional approach that dislodges anthropocentrism.

Another participant (L6) said:

"Technology has expanded our connectedness. But in doing so, some physical relationships are replaced with virtual connectedness in ways that affect people's perceptions of the world".

One of the participants indicated that nature consists of different species that all matters and are part of the creation and thus requires not to be harmed.

Another participant L5 said:

"Part of a change in attitude from human beings to other species will be seen when diversity is recognised, and all creation is treated equally".

Theme 3: Relationship characterised by ethical norms

"As an art and design educator, I specialise in fashion design sustainability. In this context, I incorporate the principles of an ethics of care as an ethical framework to revalue commodity fetishism towards fashion sustainability (P4).

The extract above highlights ethical principles as conveyed by Cajete (2016) and Simpson (2017), who assert that we are living in a moral universe in which everything is an agent or part of an agent, and every action of any of the agents needs to have a moral component.

In highlighting recognition of ethical norms, one of the participants said,

"A relationship that is based on mutual respect [and] equality and acknowledges the difference of others follows ethical standards" (L7).

This view is supported by Braidotti (2013) who acknowledges an alliance between human and nonhuman agents and the relation between different types of knowledge without categorising or positioning them.

Theme 4: Science and technological advancement

Trends in technology enable students to use innovative and creative instruments that characterise game theory, like infographics which captivate students and make learning more meaningful (L5-8).

The contribution of science and technology was highlighted; participants indicated that science and technology enhance development and innovation (FG).

One of the participants (L6) expressed some of the constraints brought by the use of digital tools; the participant said:

"Even though technological advancement opens for live sessions, physical interaction between students and lecturers is not there; a lecturer cannot even probe answers or observe students' gestures."

Some of the participants said that both human and nonhuman roles are different and compliments each other towards a certain extent; therefore, global trends that facilitates progress and sustainability should be embraced (FG).

DISCUSSION

The findings revealed that in the current epoch, science, technology, human and non-human relations are pertinent. Also uncovered is recognition of the rights of all species to value their existence and maintain sustainability which highlight the idea of giving recognition and equal status to all agents. The inclusion and recognition of other species thus requires re-composition of humanity in mitigating imbalances and inequalities of other agents. This is further corroborated by Braidotti (2013), and has implications for curriculum transformation in raising awareness and promoting a holistic approach in the education system which embraces inquiry teaching, science, and technology use, to maximise the development of competencies such as critical thinking, problem solving, collaborative skills, ethics, and innovation. Furthermore, the dimensions of technology have been shown to be relevant and enjoyed by the current generation, which speaks to curricula to shape and develop global citizens who will be able to function beyond borders, who would solve problems in the world by practising the ethics of care and who would value other agents. The ethics of care contributes to maintaining ethical standards that direct the interaction and roles played by different agents in the education domain. The maintenance of harmony between different agents – which requires conformity to ethical norms which do not categorise or position any agent above others – is also echoed by Cajete (2016) and Simpson (2017).

It emerged from the findings that scientific innovations and the use of technology popularised different educational platforms that fulfilled the needs of 21st century students, including virtual connectivity which sustained curriculum delivery during the time of crisis precipitated by the COVID-19 pandemic. What has emerged from the findings is the awareness that curriculum takes place in a context which places a demand on relevancy and recognition of current needs, including connection between different agents. Also illuminated by the findings is the idea of collaboration and the complimentary nature of agents, which forms part of the fundamental principles of the relationship between different agencies needed for progress in the 21st century. The idea is also validated by Gingrich-Philbrook (2010) who holds that innovation and advancement mean that humans cannot function without technology and

science. Arguably, acquiring knowledge and applying science and technology discovered by others contributes towards innovation, human rationality, critical thinking, problem solving and the ability to use resources sustainably. The findings have indicated that foundational principles of theories taught in higher education space equip students with knowledge which is key in changing people's attitude and perception toward non-human agents. This contributes towards people moving from subjective practices while using an objective lens to shape their moral judgements.

Also emerging from the findings is the greater role played by technology than ever before in expanding knowledge, and access to knowledge which is able to deepen research and bring a paradigm shift to practices that disregard the existence of other agents. Science and technology had also illuminated different types of knowledge and access in shaping learners towards becoming independent instead of relying on the teacher as the sole and dominant actor in the acquisition of knowledge. Even though science and technology are fast-tracking knowledge acquisition, the findings revealed that human interaction cannot be replaced by advances in technology. Arguably, the teacher's role of motivating and guiding students cannot be taken over by technology. However, in the learning journey there is a need for students to corroborate what they have learned in class from other sources on the web by using technology, which implies that the 21st century needs collaboration, and a complementary role of different agents. Having to interact and use multiple sources of information and navigate through technology adds to student development, and this develops independent thinking, rationality and logic, which makes them become engaged and able to solve real world problems.

CONCLUSION

Emanating from literature and data analysis is the understanding that the world needs to operate as a relational entanglement of many human and nonhuman agency forms. Human beings are brought to a new realisation and consciousness that not only human beings matter on planet earth, but other agents also play a significant role. The inference is that humans need a renewal in thinking to embrace change and adapt to the new realities of the 21st century of cohabitation. The findings have uncovered that the era of individualism has ceased to exist. This leads to the conclusion that all activities of different agents should have a relational dimension which is directed by ethical standards that sustain nature, including the value of existence and rights of other species. As reality is constituted by many dimensions, including the complexities of the 21st century, it has a direct impact on curriculum transformation as a tool used to educate people in navigating intricacies and relational dynamics of the 21st century. Consequently, curriculum need to be redesigned to follow a holistic approach which embeds principles of inclusivity and diversity and maximises the use of science and technology in collaboration with other species to fast-track innovation and sustainable development.

REFERENCES

- Abromeit, J. (2013). *Max Horkheimer and the foundations of the Frankfurt School*. Cambridge University Press.
- Adu, K., Badaru, K., Duku, N., & Adu, E. (2022). Innovation and Technology: A Panacea to Teaching and Learning Challenges during the Covid-19 Lockdown in South Africa. *Research in Social Sciences and Technology*, 7(1), 69-89. <https://doi.org/10.46303/ressat.2022.5>
- Barfield, W., & Williams, A. (2017). Cyborgs and enhancement technology. *Philosophies*, 2(1), 4. <https://doi.org/10.3390/philosophies2010004>
- Bratton, B. H. (2016). *The stack: On software and sovereignty*. MIT Press.
- Bernstein, R. J. (2010). *The pragmatic turn*. Polity Press.
- Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining twenty-first century skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and teaching of 21st century skills* (pp.17–66). Springer.
- Braidotti, R. (2002). The politics of ontological difference. In T. Brennan (Ed.), *Between feminism and psychoanalysis* (pp. 97-113). Routledge.
- Braidotti, R. (2013). *The posthuman*. Cambridge: Polity Press.
- Braidotti, R. 2016. The contested posthumanities. In *Conflicting humanities*, edited by R. Braidotti and P. Gilroy (pp. 9–45). Bloomsbury Academic.
- Bronner, S. E. (1994). *Of critical theory and its theorists*. Blackwell.
- Buchanan, A. (2013). *Beyond humanity?* Oxford University Press.
- Cajete, G., A. (2016). Indigenous education and the development of indigenous community leaders. *Leadership*, 12(3), 364-376).
- Chan, K. M., Gould, R. K., & Pascual, U. (2018). Editorial overview: relational values: what are they, and what's the fuss about?. *Current Opinion in Environmental Sustainability*, 35, A1-A7.
- Dall'Agnol, D. (2020). Human and nonhuman rights. *Revista De Filosofia Aurora*, 32(55), 4-26.
- Esposito, R. (2008). *Bios: Biopolitics and philosophy*. University of Minnesota Press.
- Feenberg, A. (2014). *The philosophy of praxis: Marx, Lukács and the Frankfurt School*. Verso.
- Flower, M. J. (2000). Unsettling science literacy. *Liberal Education* 86, 36-45.
- Fraser, M., Kember, S., & Lury, C. (2006). *Inventive life: Approaches to the new vitalism*. Theory, Culture & Society, 22(1), 1-14.
- Foucault, M. (1970). *The order of things: An archaeology of human sciences*. Pantheon Books.
- Gingrich-Philbrook, C. (2010). "SPCM 551: Phenomenology Seminar I: French Communicology." Southern Illinois University, Carbondale. 23 Feb. 2010. Lecture.
- Griffin, J. (2013). *On human rights*. Oxford University Press.
- Osanloo, A., & Grant, C. (2016). Understanding, selecting, and integrating a theoretical framework in dissertation research: Creating the blueprint for your "house". *Administrative Issues Journal: Connecting Education, Practice, and Research*, 4(2), 7.
- Haraway, D. (1991) *Simians, cyborgs, and women*. Free Association Press.
- Haraway, D. (2006). A cyborg manifesto: Science, technology, and socialist-feminism in the late 20th century. In J. Weiss, J. Nolan, J. Hunsinger, & P. Trifonas (Eds.), *The International handbook of virtual learning environments* (pp. 117-158). Springer.
- Hardt, M. & Negri, A. (2000). *Empire*. Harvard University Press.
- Hayles, N., K. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature, and informatics*. The University of Chicago Press.

- Hayles, N. K. (2017). *Unthought: The power of the cognitive nonconscious*. The University of Chicago Press.
- Hegel, G. W. F. (1977). *Phenomenology of the spirit*. Oxford University Press.
- Honneth, A. (1995). *The fragmented world of the social*. State University of New York Press.
- Jay, M. (1986). *Marxism and totality: The adventures of a concept from Lukács to Habermas*. University of California Press.
- Kings, A. E. (2017). Intersectionality and the changing face of ecofeminism. *Ethics & Environment*, 22(1), 63-87.
- Lewis, S. L., & Maslin, M. A. (2015). Defining the Anthropocene. *Nature*, 519(7542), 171-180.
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Marks, J. (2010). Ethics. In A. Parr (Ed.), *The Deleuze dictionary Revised Edition* (pp. 87-89). Edinburgh University Press.
- Marope, P.T.M., Chakroun, B., & Holmes, K.P. (2015). Unleashing the potential: Transforming technical and vocational education and training. *Education on the Move Series*. Paris: UNESCO.
- Mies, M., & Shiva, V. (1993). *Ecofeminism*. Zed Books.
- Morton, T. (2013). *Hyperobjects: Philosophy and ecology after the end of the world*. University of Minnesota Press.
- Moulier-Boutang, Y. (2012). *Cognitive capitalism*. Polity Press.
- Pineau, E. L. (2005). Teaching is performance: Reconceptualising a problematic metaphor. In B. K. Alexander, G., L. Anderson, & B. Gallegos (Eds.), *Performance theories in education: Power, pedagogy, and the politics of identity* (pp. 15-39). Routledge.
- Rabinow, P. (2003). *Anthropos today*. Princeton University Press.
- Rosiek, J., L. Snyder, J., & Pratt, S. L. (2020). The new materialisms and Indigenous theories of nonhuman agency: Making the case for respectful anti-colonial engagement. *Qualitative Inquiry*, 26(3-4), 331-346.
- Shiva, V. (1997). *Biopiracy. The plunder of nature and knowledge*. South End Press.
- Silva, E. 2009. Measuring skills for 21st century learning. *Phi Delta Kappan*, 90(9), pp. 630–634.
- Simpson, L. B. (2017). *As we have always done: Indigenous freedom through radical resistance*. University of Minnesota Press.
- Thompson, M. J. (2017). Introduction: What is critical theory? In M. J. Thompson (Ed.), *The Palgrave handbook of critical theory* (pp. 1-14). Palgrave Macmillan.
- UNESCO (2015). Education 2030 framework for action: Towards inclusive and equitable quality education and lifelong learning for all. Paris: UNESCO.
- Williamson, B. (2013). *The future of the curriculum. School knowledge in the digital age*. The MIT Press.
- Wolfe, C. (2010). *What is posthumanism?* University of Minnesota Press.
- Yusoff, K. (2018). *A billion black Anthropocenes or none*. University of Minnesota Press.