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Understanding Curriculum Transformations towards the Creation of Sustainable Learning Environments: A Posthumanist Reflection

Mahlomaholo Rosy Makeresemese*[a] & Mahlomaholo Geoffrey Mahlomaholo[b]

* Corresponding author
Email: QhosolaM@ukzn.ac.za

a. University of KwaZulu-Natal, Faculty of Humanities, School of Education, Pinetown, South Africa.

b. University of Mpumalanga (UMP), Faculty of Education, Siyabuswa Campus, Siyabuswa, South Africa.

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ABSTRACT
This paper uses posthumanism as the theoretical framing to understand the curriculum transformations towards creating sustainable learning environments at some higher education institutions (HEIs) and the early childhood care and education (ECCE) centres in South Africa. The choice of these two bands in education is necessitated by the fact that curriculum singularities and/or insularities have become obsolete in the context of the Covid-19 pandemic and its aftermath, the calls for decolonization of the curriculum and the challenges of the Fourth Industrial Revolution (4IR). For example, COVID-19 has demonstrated that the curriculum is best delivered when various actors, different modes of interaction and distributed sites are used to ensure no learner is left behind, irrespective of their station in life. Emphasizing the same notions of multi-layered and multi-perspectival approaches, the calls for decolonization affirm the importance of all canons of knowledge, beyond just the euro-centric ones, as the basis for a transformed curriculum. Furthermore, the 4IR privileges the skills of collaboration and compassion for others as critical in this era. What the article brings forth as the central idea is the primacy of relationalities in the construction of curriculum, hence the identities of learners, students, academics, caregivers, institutions of higher learning and care centres. The above are beyond the deleterious influences of anthropocentrism, hence the Anthropocene, and the individuality of humanism and enlightenment. Creating sustainable learning environments is the primary goal of all curricula across the globe. The challenge thus far has been the curriculum approaches that isolate individuals and/or processes from the stakeholders and role players. Curricula emphasized the lone genius's power and prowess, relying almost solely on their innate abilities as advised by genetic epistemology; this was despite the incessant caution by socio-culturalism and eco-systemic couplings. The latter advocates for the focus on relationalities as a basis for curriculum quality assurance and its transformations. To evidence the above, this article traces how the scholars and practitioners of the curriculum at HEIs and ECCE in South Africa have shifted focus from an emphasis on isolationism to collaboration and the privileging of relationalities. The article highlights the nature and the specificity of those changes and how they relate to new curriculum experiences.

KEYWORDS
Curriculum transformation; sustainable learning environments; posthumanism.

INTRODUCTION

The understanding of curriculum transformation towards the creation of sustainable learning environments, which this article presents, focuses on both teacher preparation for early childhood education (ECE), which takes place mainly in higher education institutions on the one hand, and the early childhood education institutions where children from 0 to 9 years old are taken care of at preschools, kindergartens, creches and/or primary schools with Grades RR to Grade3, on the other (Sambo, 2018). As shall be noted, the focus is on curriculum transformations of what and how young children learn. This focus, therefore, brings to the fore how teacher education for early childhood care and education (ECCE 0 - 5) as well as Foundation Phase (FP 4/5 – 9) are currently being provided for and are being transformed (Brown, McMullen, File, 2019). Ideas from design thinking as the body of knowledge are used as organizing principles to present a coherent article (Panke, 2019), which implies looking at the curriculum challenges and the emerging solutions currently in the provision of early childhood education as well as in the preparation of teachers at universities for this critical phase in the lives of young children as learners (de Figueiredo, 2021). Understanding curriculum transformations refers to looking at how the curriculum is being theorized and practised as well as how circumstantial factors and otherwise that make quality outcomes be achieved are arranged (Mensah, 2022). It also ensures that the theorizations and practices lead to working curriculum outcomes. While the focus is on South Africa, curriculum practices across the globe also constitute the backdrop against which these understandings are being formulated (Yang & Li, 2022). The primary assumption in this article is that no country deliberately creates curriculum challenges, but all aim to create sustainable learning environments through these curricula. Changes and transformation become necessary when current theories and practices do not yield the desired outcomes of sustainable learning environments (Granados-Sánchez, 2022).

This article focuses on young children, as explained above, because they are the future of any nation (Little, 2020). Creating sustainable learning environments for them has proven to be the mainstay of any nation (Chapman & O'Gorman, 2022). Research has shown over and over again that a nation that genuinely takes care of the education of its young has an assured successful future (Chong et al., 2021). Research from this perspective has also demonstrated that the earlier deliberate sustainable learning environments are created for the children, the better a competitive urge is created and given to them in terms of employment and further learning opportunities as well as the world of work, generally (Häikiö et al., 2020). Through this very early provision of sustainable learning environments, children grow to become genuinely productive citizens of a democracy. Through this early exposure, children become mature, responsible adults who can lead the nation with knowledge and confidence into the unknown and prosperous future (Gong et al., 2020). In this article, sustainable learning environments are defined as those contexts that enable the economic development of all in an environmentally sustainable manner towards the social inclusion of all (Chapman & O'Gorman, 2022). Put

differently, these contexts enable learners to exploit their potential fully in line with and towards the fulfilment of UNESCO's 17 Sustainable Development Goals (SDGs) (Baena-Morales & González-Víllora, 2022). This notion recognizes that learners have inherited and intra potentialities to learn and perform academically but that these require what Erick Corte and Barry Fraser referred to as powerful learning environments (Monique et al., 2006). Learning environments make change and transformation desirable and possible, as that can affect growth and excellence (Lekhu, 2023).

This article is written from a posthumanist perspective because it affirms the impacts of other humans, non-humans and beyond humans in the environment on the curriculum, identity formation, academic performances and potentialities of others, as examples (Dube et al., 2023; Lemieux, 2021). This article recognizes the multi-layered and multi-perspectival nature of the curriculum and its changes. It moves from a position that sees curriculum as multi-pronged and multiple-authored, constituting everything that happens to a learning individual, whether one is an aspirant pre-service early childhood education teacher or learner (Yıldız Taşdemir, 2021). The article, as argued, perforates and de-centres the identity of the aspirant teacher, of the practising one, of the early childhood education learner, and all because it argues that what is essential are relationalities that constitute these seemingly stable entities (Truman, 2019). Posthumanism would posit that our identities are constructed in relationalities; thus, the best analysis is the one that takes that as the starting point (Magaiza & Muchaku, 2023). The notion of relationalities then makes us aware as to how everything is entangled into one another to the extent that talking about an early childhood education learner includes talking about their parents, their entire community, and their individuality, including one's physical, physiological, psychological and socio-cultural dimensions to mention a few (Beghetto & Zhao, 2022). It is an intricate complexity that needs to be understood from those embedded dimensionalities (Toohey & Smythe, 2022).

Challenges that Require the Understanding of Curriculum Transformations at ECCE and Teacher Education Levels

The greatest need to understand curriculum transformations at both the ECE and the ECE Teacher Education is due to the grip that euro-centrism still has on both, as well as the goal that the formerly oppressed has in achieving the Africanising decolonial turn therein (Mahabeer, 2018). It is known that the ECE and ECE teacher education curricula are still organized along the old euro-centric Piagetian Genetic Epistemological lines (Ndlovu-Gatsheni, 2018). This theoretical position takes a symbolic significance in this article because it is not only Jean Piaget who believed in biological and genetic endowments as the basis for determining the readiness of children to learn certain things (Nunley, 2020). Whole schools of thought that some researchers want to categorize as 'Western or Eurocentric' have assumed this position from as early as Auguste Comte's pronunciations about the achievement of the Positive Stage in research that led to human and social scientists, especially psychologists and educational psychologist experimenting with the use of natural scientific methods and tests to measure

human intelligence, around the turn of the 20th century. From 1900 to date, the world witnessed the mushrooming of these pseudo-scientific tests that measured intrinsic, inherited and intrapsychic human intellectual abilities, including their highest cognitive functioning (Nelson et al., 2020). This mushrooming was because of the influence of the achievements of the industrial revolution in the natural sciences that produced 'miracles' like locomotion in trains, cars, aeroplanes, electricity and many of the 'wonders' of the late 19th to the early 20th centuries (Sakhapov & Absalyamova, 2018). It became fashionable and almost universal for anybody who claimed to be a scientist to experiment with these natural scientific methodologies and procedures because of their achievements in physics, chemistry, etc. It did not matter whether their studies were on dynamic and subjective human beings. All were expected to behave consistently and constantly as if they were objects in a natural scientific laboratory (Jacobs, 2013). Their behaviour was considered static and could thus similarly be accessed and assessed based on objective tests, which measured the relationship between the cause and the effect, which was assumed to lead to the formulation of universal and general laws. The expectation was that humans could be subjected to the same natural laws that governed the objects in the natural science laboratories (Zhang & Yang, 2020). The birth of the intelligence quotient (IQ), which thrived on looking at the ratio between one's chronological age (CA) and what was termed mental age (MA), was ushered in during this period (Lukowski et al., 2019). Mental Age was defined as one's performance on a test, which was assumed to be equal to the average of one's peers at the same chronological age (Stribling, 2021).

The above theorization and Jean Piaget's stage theories have been at the base of all our curriculum thinking, theorization and practices in South Africa, Africa, and the West (Lukowski et al., 2019). For example, children at creches or preschools to high schools (i.e., kindergarten to matric K-12) are organized along the same principles to categorize and group them according to their assumed similarity in mental age and/or chronological age in the same Grades (Ruuska, 2021). Concepts like school readiness are the residue of this school of thought (Stribling, 2021). According to them, it is assumed that, say, at three years old, children are not ready to learn specific aspects of curriculum like theorems or coding because Piaget said that chronologically they were not even cognitively prepared to comprehend and understand such 'cognitively demanding' material (Monkeviciene et al., 2020). They had to wait and grow physiologically and otherwise, and maybe reach the chronological age of 14 to function at the formal operation stage and thus start learning about such (Ruuska, 2021).

Current research in South Africa led by Hasina Ebrahim, the UNESCO Chair Housed at UNISA and her international team have demonstrated beyond reasonable doubt that what counts for a learner to perform well academically and otherwise is the stimulation that one receives from the able other (Ebrahim, 2011). When a child is born and has all the capabilities functioning well, they can be exposed to any material with the able support of knowable others who have the skill to mediate and scaffold the learning child to higher levels of functioning all around, not only cognitively (Jensen et al., 2019). According to this asset-based approach,

proper nutrition for all children is critical and crucial for the rapidly growing and developing mind, capable of performing beyond anybody's wildest expectations (Jensen et al., 2019). The teacher or facilitator of learning is expected to be skilled enough to enable the child to intensify their self-awareness, explore and learn, and be uninhibited by any stage theory (Ebrahim, 2010). The more stimulating material is presented to the child, the more play method is enriching and transformational is presented to the developing child, the more they are going to learn even better (Ebrahim, 2011); this is a considerable departure from the current approaches, which look at children as averages in modified Piagetian stages. If facilitators know how to facilitate learning and their expectations for their learners are very high, research shows they will perform as expected (Daries & Ebrahim, 2021).

The euro-centric approach advocated for by Piaget and the respective schools of thought truncates what an ECE learner can learn, achieve and do. That approach is euro-centric regarding how it reproduces inequality because children of the poor are also limited in accessing stimulating educational experiences (Bhambra, 2021). The social structural arrangement of coloniality South Africa is trying hard to emerge from excludes children of the poor African majority along these lines. To invoke the old Paul Willis and Bowles and Gintis' view, issues of inequality, poverty and unemployment in South Africa and across the globe are reproduced in classrooms or settings that discriminate regarding access to teaching and learning materials (Au, 2018). Literature is replete with information and findings about schools for under-resourced African learners, where the children attending them are deprived of opportunities for optimum learning (Gale, Molla & Parker, 2017). In South Africa, African children between 0 and 6 are worse off because most are not even at formal schools or receive any approved curriculum (Feza & Chiphambo, 2022). In many instances, children at this level are seen as not ready because of the official policy; thus, not many resources are being expended to teach them. No formal curriculum is in place. However, due to the advocacy of many groups, there are attempts to formalize the curriculum to resource it and appoint skilled and well-qualified teachers (Le Fanu et al., 2022). To date, all these are still at the beginning stages to the extent that one can conclude that it will still take some time before equitable provision of educational opportunities for these children is instituted. Creches and the ECCE centres, till the beginning of 2022, were under the control of the Department of Social Development (Feza & Chiphambo, 2022). Children at these centres were not taught at all. They were kept there to be busy with non-educative activities, and occasionally, they would sleep and be fed while their parents were at work. Other races, like white children of the same age, received formal tuition at well-resourced preschools where well-qualified teachers facilitated their learning (Dagdilelis, 2018). The gap between whites and Africans thus continues to widen even though a small fraction of affluent Africans are beginning to take their children to some privately owned preschools with the hope of bridging this widening gap, which also reflects the intersectionality of race and social class, among others. Africans continue to swell the ranks of the unemployed and poor because more and more parents cannot afford the fees at privately owned preschools and creches (Soudien

et al., 2021). They go to school at ages six or seven, not having had this essential exposure. They do not perform as well as the rest. As a result, they experience the highest failure and dropout rates and are not admitted to universities or well-paying jobs (Tiwari et al., 2021). Unemployed among them is reproduced to the current levels of over 64%. The story about the creches includes higher education as these children come from the same contexts as the aspirant teachers. In the latter's case, they would say they shall escape the vicious cycle of unemployment and abject poverty as employment might be assured (Matli & Ngoepe, 2021).

The most significant problem that affects both ECE learners and their aspirant ECE teachers is the nature of the curriculum content that does not mirror their experiences, fears and aspirations (Dagdilelis, 2018). In many instances, the teacher education curriculum is replete with literature, theories and knowledge crafted from outside Africa, as we have exemplified with Piaget's Genetic Epistemology (Lukowski et al., 2019). Research on this matter has demonstrated an abyssal approach to Africa and its mode of knowing in the curriculum (Küçük, 2019). Knowledge about Africa is despised and excluded from the teacher education curriculum as if Africans never taught teachers of their young children how to do it. Knowledge about Africa's indigeneity is buried deep down under massive tons of Western episteme that disregards everything that is African. Teacher education graduates leave their universities with an amnesia about what it means to be African, and their teaching remains superficial and decontextualized (Bhambra, 2021). Young learners suffer the same fate, as a method of delivering curriculum ignores the fact that they can know as individuals in their own right. What these young learners are capable of is disregarded. The teachers of young learners take the centre stage and instruct the children to do as they say. There is minimal opportunity for these children to learn according to their individual learning styles, capitalizing on what they like and enjoy. School material is presented as foreign content with little to do with the children's everyday lives or solving problems (Küçük, 2019).

Posthumanist Responses towards Curriculum Transformation

In response to the above challenges, this article couched in the Posthuman perspective notes that three powerful occurrences that were initially unrelated to one another came together around 2020 to provide a profound platform for curriculum transformations at all levels of education. First, we had the COVID-19 pandemic, whose origins are still unknown. However, some theorists ascribe its genesis to the era of the Anthropocene, which is marked by the wanton destruction of the environment fueled by human greed (Berekaa, 2021). This perspective argues that human greed resulted in an unparalleled negative impact on the ozone layer protecting the planet. More industries and the like across the globe churned out tons of carbon, which polluted our air as they tried to produce more and more products for the insatiable human greed and want of those products (Law, 2020). Humans polluted the oceans with waste and oils, depleted natural resources and ate animals of all kinds in large numbers. In the end, nature retaliated with a vengeance that included extreme climatic changes - the recent

Durban floods are a case in point. Then came the COVID-19 pandemic from animals eaten indiscriminately, as nature retaliated to protect itself (Relman, 2020).

Second, technological advancements ushered in the era of artificial intelligence and the use of sensors and algorithms that improved digitization in the curriculum (Liu et al., 2021). Klaus Schaub described this as the Fourth Industrial Revolution – 4IR (Petersson, 2021). These improvements enabled curriculum, research, teaching and learning to continue to be delivered remotely during all the levels of the COVID-19 pandemic lockdown as the scientists searched for the vaccine. Third came the demands for the Africanisation of the curriculum (Mawere, 2020). These were coupled with calls for decoloniality in education. At the same time, the importance of the confluence of these three was the impetus they gave to curriculum transformation, at least in South Africa (Moremoholo, 2023). For example, the provision of remote teaching and learning facilities was accelerated due to the pandemic. Many affluent universities and schools adopted and used these technologies in new ways of planning and delivering their e-curricula (Liu et al., 2021). Education in general, e-curriculum and e-learning were firmly located in the 4IR, and there was no way of turning back.

However, at the same time, the inequalities among universities, schools and ECCE centres for different socio-cultural classes were amplified. The education institutions in poor and rural contexts that were not in a position to afford these gadgets, Wi-Fi and internet connectivity, as well as the requisite data, resorted to the Freirean concept of the Community Classroom (Dewsbury, 2020) referring to situations where the typical classroom or ECCE centre is decentered, and teaching and learning are distributed. Learners who usually would be 20 in a class were now taught in four groups of five or so in their respective neighbourhoods by people who were not necessarily teachers but had volunteered to provide teaching and learning assistance in their localities (Young & Bruce, 2011). Sometimes, teaching and learning of these five or so children would take place at the home of one of those five children, where there would be enough space for these kinds of activities to occur (Barczyk & Duncan, 2013). Some able others in the neighbourhood, irrespective of their qualifications, would volunteer to support and help these children in one learning area, even providing meals, teaching materials, etc. (Young & Bruce, 2011). COVID-19 in this context also demonstrated that the curriculum was best delivered when various actors, different modes of interaction and distributed sites were used to ensure emphasizing the notions of multi-layered and multi-perspectival approaches to learning, which deepened the multiplicity of sites and roles in curriculum transformations (Maseko & Stützner, 2020). These diversified and sometimes blended approaches to teaching and learning became available to all education institutions with time to the extent that they became available for use by any one institution should one become more able to afford the gadgets or prefer to intensify in-person interactions with the real-life world (Vium, 2020).

These modes of teaching and learning that became localized also made decoloniality possible, as no one canon of knowledge remained dominant. Indeed, formal infusing local indigenous knowledge into the existing euro-centric curriculum may take time to materialize

fully. Still, possibilities for such were heightened as education institutions relied on local innovations and teaching and learning approaches. Somehow, other forms of knowing and knowledge are gradually becoming visible as others support conventional teachers with their different ways of doing things (Maseko & Stützner, 2020). The African knowledge that was buried deep down the abyssal is beginning to emerge as the nature of the situation and contexts demanded other forms of knowing to complement the existing ones, which are proving not to be entirely adequate to meet the demands of the times (Söylemez & Varol, 2021). Non-conventional teachers perforated the dominant canons of knowledge as they presented other localized ways of doing things at the distributed sites and contexts for teaching and learning. These perspectives revealed multiple truths and knowledge (Maseko & Stützner, 2020). The above further underlined the necessities and urgencies of the calls for decolonization that affirmed the importance of all canons of knowledge, beyond just the euro-centric ones, as the basis for a transformed curriculum (Lee & Stensaker, 2021).

What is emerging from the above is that the challenges that have been due to curriculum approaches that isolated individuals and/or processes from the stakeholders and role players were gradually being complemented by curriculum practices that recognized the significant influences of the contexts, the universe, the planet, or the able others who/which might be human, non-human and beyond-human. The old ways of doing curricula emphasized the power and prowess of the 'lone genius', relied almost solely on their innate abilities as advised by genetic epistemology, was supplemented by Len Vygotsky's musings on socio-culturalism and the zone of proximal development in the cultivation of the total identities (Brown, 2020). While the latter development was significant, it was at the same time overtaken by the events in history because Urie Bronfenbrenner's eco-systemic thinking had entered the fray and extended the cycle of stakeholders and their influences on the learning child and aspirant teacher beyond the immediate family/able others (Micro-), through the neighbourhoods (Meso-), to the social classes (Exo-) and ultimately to how society is organized (Macro-) (Lenhoff et al., 2022).

Posthumanist theorization then takes the story to its logical conclusion by introducing the notion of relationalities to demonstrate that it is not just the individual and/or individuality of human beings and institutions that matter that much in curriculum transformations but the relationships and relationalities that constitute those entities (Kouppanou, 2022). The notion of relationalities perforates and decenters identity/entity and makes it fluid so that it becomes a function of relationship with everything, not just humans. The decentered entity enables this article to talk about the responses to the previous single euro-centric canon of knowledge to be deconstructed as there is a recognition of relationalities of cannons that include the African way of knowing (Smelik, 2022). Decentering identities and entities recognize that everything is linked and entangled to everything else. Curriculum provision is a collectivized effort of many stakeholders related to all other humans, including machines, computers, infrastructure, the green and different kinds of environment, etc. (Susen, 2022).

This notion of relationalities is central to the Posthuman theorization of curriculum because it even addresses the challenges of inequalities engendered by humanism and enlightenment to which the old theories and practices of curriculum pay homage. Humanist thinking, influenced by enlightenment, has introduced the idea of hierarchies in the universe. For example, at the top of the ladder are white males who role model prodigies of excellence in culture and civilization (Fairchild, 2019). They are followed further down the ladder by the white females who are still superior in culture and civilization but not to the extent of their white male counterparts. Down this discriminatory ladder follows Black men and then Black women who are very close to the savage and are considered void of culture and civilization (Pavlyshyn et al., 2019). This hierarchized status is fixed and cannot changed in the same manner as Bourdieu's notion of *habitus* is acquired but remains permanent in one's repertoire of meaning-making and identity disposition. One can take a savage to a cultured context, but its uncouthed manners cannot be removed, so argue the humanists and enlightenment theorizations (Wacquant, 2014). As such, inequality is like centred identities/entities. However, suppose these identities and notions of the individuality are deconstructed and understood to be mere constructions in relationalities. In that case, from this perspective, the identities/entities are as powerful as the relationships that constitute them. The learning child at the ECCE or aspirant teacher at a higher education institution is as competent as the collective of the stakeholders, out of whose relationship, hers/his are crafted. To evidence the above, this article confirms how the scholars and practitioners of the curriculum at HEIs and ECCE in South Africa have shifted focus from an emphasis on isolationism to collaboration and the privileging of relationalities (Bayat & Mitchell, 2020).

The notion of relationalities also connects to the 4IR and gives prominence to collaboration, communication, compassion, critical thinking and creativity skills as necessary in this era (Lamola, 2022). These are the skills that the entire education system is attempting to cultivate because these ensure relevance during and beyond the introduction of robots that may take over repetitive menial manual labour that might be boring and often dangerous. Learners and aspirant teachers who have acquired these 21st-century skills remain with the competitive urge cultivated in relationalities (Nhemachena et al., 2021). These skills are cultivated through teaching methods such as self-discovery, problem-based project learning, self-regulated learning and collaborative learning, which affirm the critical value of relationships (Cook, 2020). These are the approaches advocated for by the new curriculum transformation that brings together into powerful focus the positive spin-offs of distributed (COVID-19-inspired community classrooms), remote (4IR) and localized (decolonial-African) teaching and learning (Lamola, 2022).

In the creation of sustainable learning environments, the cultivation of positive relationalities that lead to better performance(s), is important. For example, the teaching and learning strategy of self-discovery is best crafted in supportive and positive relationalities where the learners are challenged by their peers, the able others, and all others in the context to be

innovation. In such settings one is required to see connections among elements of a situation such that a solution to the identified problem emerges (Nhemachena et al., 2021). Sustainable learning environments where these relationalities occur, deliberately present material objects such as manipulatives, schema and ideas which constitute the bases for enhanced cognitive functioning. These at varying degrees are converted into concepts then theories that facilitate critical thinking and creativity (Bayat & Mitchell, 2020). Sell-discovery involves the learner finding one's way around a maze of challenges and problems that require to be resolved. In these sustainable learning environments, learners are encouraged to move out of their comfort zones, to be sensitive to problems, and to attempt to solve them. Habit for wanting to solve the problem is best created in such positive relationalities (Wacquant, 2014). Self-discovery requires self-discipline and activation of one's volition which is dependent on one's will power. The latter is also a function of support from others through mature relationalities where each learner is given the opportunities to show off one's competencies and to take pride as well as be motivated in the process (Lamola, 2022). Effective teaching and learning thus involves such modern approaches as problem -based project learning. Here teaching does not start from the definition of concepts, but it starts from the understanding of varied scenarios building the learners' understanding the learning materials through and experimentation in the context of the relationalities couching one (Lee & Stensaker, 2021). The processes of experimentation on the world while emphasizing issues of relationalities, it at the same time acknowledges the power of self-regulation, collaboration with others, animate and inanimate objects with which one is presented with and is relationship with every moment. The African idea that knowledge is not the preserve of one mind, but that it is distributed and that it is in the coming together of many minds that excellence in teaching, learning and everything are created. In the community with others, animate and inanimate things, one's relationalities are enhanced to provide sustainable learning environments. Capitalising on this will create an effective strategy to enhance performance and learning.

CONCLUSION

What the article brings forth as the central idea is the primacy of *relationalities* in the construction of curriculum; hence, identities of learners, students, academics, caregivers, institutions of higher learning and ECCE centres.

The above, therefore, could be beyond the deleterious influences of anthropocentrism, hence the Anthropocene, and the discriminatory individuality of humanism and enlightenment. Creating sustainable learning environments is the primary goal of all curricula across the globe.

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