

## **Posthumanist and New Materialist Perspectives as Navigational Tool in Art Education Research: A Diffractive Analysis**

Roline Kotze, Karolien Perold-Bull, Elmarie Costandius and Neeske Alexander

*Stellenbosch University, South Africa*

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### **Abstract**

An art project conducted with twelve Grade 10 learners at an art centre in Cape Town from April 2016 to June 2016 was analysed diffractively using perspectives of posthumanism and new materialism. This post-qualitative approach to research was an attempt to move away from research methods based on humanist thinking. Data consisted of the art project, learners' responses in terms of source book content and work produced, informal discussions, and videos and photographs taken during the work processes. Several specific agential cuts were performed on the data, some of which are presented here. The analysis of these entanglements of data provided rich content and interesting lines of flight, which led to thought-provoking questions about art education, sensory education, and the possibilities of applying posthumanist thought and methods in the South African art classroom.

**Keywords:** art education, agential cut, diffractive analysis, new materialism, posthumanism, post-qualitative

### **The Burning**

The structures are burning. The sound and smell of matches being struck, of the crackling of the fire, of an aeroplane flying overhead, of the garden's rustling and of the calls of birds become part of the bits of discourse that are becoming constituted by and entangled with the entanglements of structures, the shadows of hands falling over them, the hands as they work, the moving human bodies, the flames, the grass, the garden.

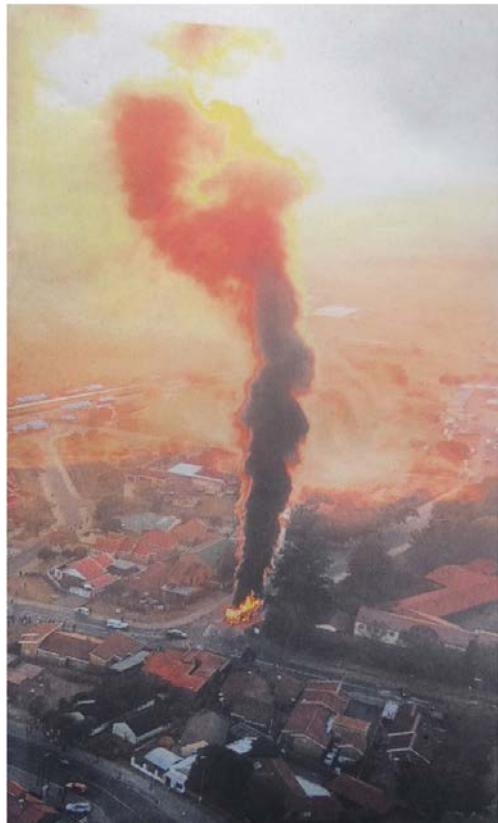
The experience was like the unfurling of intricate, multi-layered assemblies that opened up not linearly over time, but in all directions simultaneously. The structures in their 'moment of vitality' (Bennett, 2004: 348) drew from us spontaneous, unplanned, meandering, fragmentary conversation that wove itself through the intense watching, the silences, and the sounds. This event came about because of our attempt at viewing art education and practice through a

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Corresponding author: [ecostandius@gmail.com](mailto:ecostandius@gmail.com)

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posthumanist and new materialist perspective while simultaneously being affected by the complexity of these perspectives and the difficulty of trying to do research in this way.



**Figure 1: Image of a burning bus in Attridgeville, west of Pretoria (2016) (photograph taken by Aki Anastasiou, Eyewitness News, reproduced by one of the researchers, from *Die Burger*, 23 June 2016: 15)**

The article that accompanied the image above (Figure 1) reported that the people who set it alight did so because of ‘die rook wat roep’ [the smoke that calls] (Van Eeden, 2016: 15), and we thought about how ‘thingpower’ was being appropriated and harnessed by those who felt themselves to be powerless. Therefore, what others would regard as senseless destruction made perfect sense to these disaffected, even desperate, people. We are not certain yet what other kinds of sense to make of these thoughts – after all, some things refuse to ever ‘dissolve completely into the milieu of human knowledge [or understanding]’ (Bennett, 2010: 3) – but they have created an opening for unexpected lines of flight. Therefore, what we do know is that they took us beyond ‘ready-made concepts and opinions’ (Springgay & Rotas, 2015: 556), and that we felt excited by the fact that we had had them at all – we *were* thinking ‘different thoughts’ and therefore experiencing a new kind of becoming (Kontturi, 2014: 47). This could not have happened without the notions of diffractive readings and new materialist theories, the experiences of the art intra-vention, and our thinking and writing into/of/about/through all of these.

## **Introduction**

With reference to education theory and educational research, Nathan Snaza and John Weaver (2015: 2) point out that, although posthumanism has been receiving much attention in most fields of study, it has remained rather neglected within fields of education. Education is still steeped in the humanist tradition (Morris, 2015: 46), and the epistemologies and ontologies of humanism, as well as Ancient Greek metaphysics and Christian mythologies, continue to inform the discourses of contemporary education (Gough, cited in Pedersen, 2015: 61). These influences rely on strict, constructed, and unchallenged hierarchies of power and knowledge which do not allow for pluralism or inclusive views of the lesser-than-human and non-human. Humanist education ignores the ‘extraordinary violence “humans” do to animals, to ecosystems, to whole species, and, of course, to each other’ (Snaza, 2015: 21).

Art and art education can lead to open-ended exploration that creates spaces for investigation. Posthumanist and new materialist theories address the shifting bodily enmeshment of humans, including those humans viewed as lesser-than-human from a humanist perspective (women, disabled persons, etc.), with the material world. Visual arts have the capacity to literally and figuratively visualise and materialise the strange making of the familiar in order to prise open visions ‘that have been left untapped’ (Braidotti, 2012: 35). Critical learning is not a neat and orderly process, but one in which people ‘fall into life as opened and unfinished’ (Burdick and Sandlin, 2013: 157). According to Jan Jagodzinski (2015: 126), it is the task of arts-based research to ‘redistribute the sensible beyond the limitations of [the human]’. This refers to an inclusion and exploration, through aesthetic acts, of the sensorium of ‘those that have no voice and cannot be seen’, in other words those of the ‘inhuman and non-human world’ (Jagodzinski, 2015: 126).

This research entailed an in-depth analysis with post-qualitative aims of an art project conducted with Grade 10 learners at an art centre in Cape Town, South Africa, from April 2016 to June 2016. Diffraction was used as experimental method to discover possible useful insights into the entanglement of humans and the earth’s systems. Art education was explored as medium in facilitating critical awareness in learners of the relation between humans to all non-human others on earth.

Elizabeth St Pierre (2011: 621) argues that, as data are never produced as ‘brute’ and stand alone, but always within particular contexts, they are therefore ‘always already products of theory’. The insights discussed in this article resulted from reading the data through tenets of agential realism and vibrant matter within the broader context of posthumanism and new materialism. By reading different ideas through one another and the data, interactions with the material world were rendered understandable in new ways other than what might have been understood from engaging with data from a humanist or qualitative perspective. This involved an attempt at understanding that humans and all manifestations of the non-human are always affecting or being affected by one another in interdependent and mutual relationships in which they are constantly re/configured and re/becoming. Decisions, outcomes and answers are never final, but always open to change, and the acceptance of ambiguity, uncertainty and difference

should be encouraged. What is needed in terms of finding solutions for pressing problems of social and environmental injustices is, as Deleuze suggests, the affirmative, experimental work of thinking different worlds in which we may also live differently (St Pierre, 2013: 225). Our research was guided by the following question: What insights could be gained from an analysis, based specifically on a methodology of diffraction, of a Grade 10 art project aimed at facilitating critical awareness of the relation of humans to non-human others on earth?

### **Theoretical Perspectives**

An important term to define for this research is: intra-action. In opposition to *interaction*, which denotes encounters between pre-existing entities and therefore assumes ‘separate individuals that precede their inter-action’, *intra-action* signifies the ‘mutual constitution of entangled agencies’ (Barad, 2007: 128). It is through specific agential intra-actions that the boundaries and properties of ‘individuals’ within the phenomenon become determinate and particular material articulations of the world become meaningful (Barad, 2007: 140). The theoretical perspectives in which this study was grounded revolved mainly around tenets of agential realism and vibrant matter; both of which are situated in the broader theoretical areas of posthumanism and new materialism. Ideas relating to post-qualitative methodologies also informed the research process.

#### *Posthumanism*

The aim of posthumanist discourse is to create spaces for investigating what it means to be human, by critically questioning prevailing humanistic and dualistic perceptions of ‘the human’ when viewed in the light of current cultural and historical contexts (Miah, 2007: 12). According to Hayles (1999: 290), human will is no longer regarded as the source from which arises ‘the mastery necessary to dominate and control the environment’. Therefore, a pivotal premise of posthumanism is its critical position regarding the prominence given to humanity, which excludes all lesser-than-human humans and is therefore a narrow notion of who is human, in the natural order (Miah, 2007: 2). The lesser-than-human includes ‘other modes of embodiment, both dialectical otherness (nonwhite, nonmasculine, nonnormal, nonyoung, nonhealthy) and categorical otherness (zoomorphic, disabled, or malformed)’ (Braidotti, 2009: 526). Posthumanism, in how it is applicable as a theoretical premise for this study while simultaneously disrupting the theory/practice binary, may therefore be summarised as follows (Pedersen, 2010: 242):

[It is] a response to humanism’s inability to meet its own criteria of value pluralism, tolerance, and equity for all, [as well as] its limitations in addressing whatever may emerge from the multiple interfaces between organic and inorganic, material and virtual, cultural and natural worlds ... [It] also implies a view on human dominance as not being an inherent or essential attribute, but rather a negotiated position within a system, a position that can be overturned.

Posthumanist ontological theories focus on the complexity, or entanglement, of the human and the non-human (Jackson, 2013: 742). Barad (2007: 136) delineates her view as

follows: 'Posthumanism ... is not calibrated to the human; on the contrary, it is about taking issue with human exceptionalism while being accountable for the role we play in the differential constitution and differential positioning of the human among other creatures (both living and nonliving)'.

Badmington (2003: 11) argues for caution against apocalyptic accounts of the end of 'Man', because humanism continues to regenerate and be present in the way we think and even in the term *post-humanism*. He advises that posthumanist theorising should include a critical practice of engaging with that which occurs inside humanism, 'consisting not of the wake but the working-through of humanist discourse' (Badmington, 2003: 22). Braidotti (2009: 527) notes that critical thinking has to be an active, affirmative, and creative process which 'cuts to the core of classical visions of subjectivity'. This thinking is part of the posthumanist process but is performed by humans and, therefore, unavoidably controlled by them.

On a practical level, this implies that in research the subject-object relationship should be critically revised, as it tends to alienate the researcher from the world and, therefore, also from that which is being studied (Snaza & Weaver, 2015: 9). The entangled materialities and interactions (or intra-actions) between humans (including the researcher) and non-human sentient beings, and humans and non-sentient objects, should be considered (Snaza & Weaver, 2015: 9). From a posthumanist viewpoint, all bodies, both human and non-human, exist as ever-moving and changing entanglements, which allow these bodies to exist in multiple ways (Springgay, 2015: 81). In terms of the situation of the researcher, materialist posthumanist research cannot be done from the outside (Springgay, 2015: 79, 85) – the researcher is inextricably entangled with that which he/she is researching, co-emerging in the ongoing processes of change and differentiation. The researcher is obliged to seriously consider and account for his/her 'own messy, implicated, and connected involvement in knowledge production' (Taylor & Ivinson, 2013: 666).

### *New Materialism*

Posthumanist theories focus on thoughts and experiences that are concerned with the bodily, the sensory and the material, and their interactions (or intra-actions) in states of inextricable entanglements. New materialism exists in relationship to cultural theory and can be understood as a (re)turn to matter as a response to the perceived limitations of the cultural turn, and the prevalence of discourse analysis, and its problematic reduction to language and the symbolic. New materialist theories facilitate the conceptualisation of how nature and culture and matter and mind move and mingle in processes of continuous flow (Barad, 2012: 47). It is exactly this 'nomadic traversing of the territories of science and the humanities' that Dolphijn and Van der Tuin (2012: 100-101) identify as the strength of new materialism. Dolphijn and Van der Tuin (2012: 107) explain how the affirmation of a radical sense of materialism defines matter not as solid or stable, but as always changing or undergoing metamorphosis. In a similar vein, Barad (2003: 828) claims that matter is not 'a fixed essence; rather, matter is substance in its intra-active becoming – not a thing but a doing, a congealing of agency'. According to Coole and

Frost (2010: 9), ‘materiality is always something more than “mere” matter: an excess, force, vitality, relationality, or difference that renders matter active, self-creative, productive, unpredictable’.

New materialist theories, rooted in posthumanism with its antipathy towards the privileging of the human, offer interesting and potentially fruitful ways in which to approach research in the field of visual art education. Particular ideas and/or theories that are grounded in new materialist thinking include Karen Barad’s ‘agential realism’ and Jane Bennett’s ‘vibrant matter’.

### *Agential Realism*

Barad's (2007: 32) term ‘agential realism’ is a posthumanist account of the constitution of both human and non-human material bodies, and of natural-cultural practices that include ‘everyday social practices, scientific practices and practices that do not include the human’. She holds that in ‘agential realist ontology, or rather ethico-onto-epistemology’ (an entanglement of what is usually taken to be the separate considerations of ethics, ontology, and epistemology), ‘individuals’ do not pre-exist as such, but rather materialise when emerging from the intra-actions through which they are produced (Barad, 2007: 128). A specific intra-action enacts what is called an ‘agential cut’, which precipitates a resolution within the phenomenon of some ontological indeterminacies to the exclusion of others (Barad, 2007: 140). Therefore, agency is always already interwoven with issues of responsibility and accountability, having to do with ‘what matters and what is excluded from mattering’, when such agential cuts are performed through material-discursive practices (Barad, 2007: 184). We are always already accountable to the (not only human) others with whom or which we are entangled, not through deliberate design but merely through the many entanglements and intra-actions through which we perform our daily living (Jørgensen & Strand, 2014: 68).

### *Vibrant Matter*

Bennett’s (2010: viii) project of vibrant matter embodies her attempt ‘to encourage more intelligent and sustainable engagements’ with vibrant matter and lively things. She shares this view of matter with Barad, who talks about matter as being ‘energized and energizing, enlivened and enlivening’ (2012: 59). Bennett (2010: viii) holds that ‘things’ have the capacity to act to a certain extent as forces or agents with propensities, tendencies or trajectories of their own, and that taking cognisance of these possible potencies of matter might lead to more effective ways of analysing policies for solving public problems. For instance, using the production of ‘waste’ materials as an example, Bennett (2010: viii) speculates ‘how patterns of consumption might change if we faced not litter, rubbish, trash, or “the recycling”, but an accumulating pile of lively and potentially dangerous matter’. Bennett (2004: 351) refers to this force that could be exercised upon humans by that which is not necessarily human, or even organic, as ‘thingpower’. She views this power, based on thingpower materialism, as an ever-changing flow of ‘matterenergy’ and regards the ‘thing’ as a ‘relatively composed form’ of that flow (Bennett,

2004: 349). She confesses that thingpower materialism represents a ‘rather presumptuous attempt’ to delineate the nonhumanity that flows not only around, but also through humans (Bennett, 2004: 349). Bennett (2004: 349) aims to promote, firstly, greater acknowledgement of the agential powers of both ‘natural and artificial things’; secondly, greater awareness of the thick web of their connections with one another and with human bodies; and, lastly, a more careful, mindful approach towards humanity’s interventions and interferences in that ecology.

### **Researchers’ thoughts**

It is one thing to read, think and talk about these notions and the exciting possibilities they offer for moving beyond a humanist mind-set, but we discovered that it is a different thing altogether to try to harness them in a diffractive analysis of the project. We thought about the enmeshed and entangled web of these theories, the project content, the learners, the matter/materials, the processes, the data, our analysis and our positions as researchers, and discussed it often with friends and colleagues. Mindful of Gayatri Spivak’s (2012) injunction that truthfulness is a necessary quality for an educator (which in our case is entangled with our role as researchers), we have to confess that we felt insecure, uncertain, unmoored, and destabilised, fearing that we might be writing something that went nowhere and came up with nothing. However, Alice Fulton (cited in Barad, 2007: 39), remarked that ‘nothing will unfold for us unless we move towards what looks to us like nothing’, and as we considered this sense of lack of certainty, of not-knowing, of indeterminacy, we began to realise that for the kind of post-qualitative attempt at analysis we aimed to do, and in terms of the notions that constitute diffraction as a methodology, this might not be a bad position to find ourselves in.

### **Methodology**

The research design comprised an attempt at post-qualitative analysis of data selected from the visual arts project (consisting of the set project itself, learners’ responses in terms of source book content and work produced, informal discussions, and videos and photographs taken of the learners during the work processes). MacLure (2013b: 228) notices the ‘capacity for wonder that resides and radiates in data, or rather in the entangled relation of data-and-researcher’. She calls for more wonder in research and in our engagements with data (MacLure, 2013b). While interpretation, classification, and representation as acts of qualitative research should not be dismissed as useless, post-qualitative research perspectives include the recognition of experiments, order and disorder and spaces for new connections to form among bodies, objects and ideas (MacLure, 2013b: 299).

The project was integrated into the Grade 10 visual arts course and presented as a practical assignment for the second term. The project brief required learners to bring materials found in their environment (e.g. maize, sand, clay, salt, grass, leaves, branches, or any other natural materials) to class. Learners then had to build a structure from these materials while allowing for the use of some man-made materials, such as wire and glue, for construction. Learners were encouraged to think about the material vitality of the materials and to try to let

themselves be led by the nature of the materials. After this, learners placed their structures in the courtyard and allowed them to intra-act with the elements of the garden. Finally, learners facilitated an intra-vention (Figure 2) where the artworks could intra-act with a variety of environmental substances/factors for example learners could: set it alight, pour water or sand over it, kick it, roll over it, deform or reshape it in order for transformation to take place. The twelve Grade 10 learners involved in the project partook in informal discussions and observations about the project and the process, and photographs and video footage were recorded by the researchers. Journals were kept to record thinking processes, observations and ideas of the researchers, always being mindful of the intricate entanglement with all the parts of the study (Figure 2). We recognised that the act of journaling can once again privilege language, which is why sketches and photographs were also included in the journals.



**Figure 2: A page from Anna's journal: intra-vention event (2016) (photograph taken by one of the researchers)**



Further data were generated through the practical and material aspects of the project, which entailed learners' research, photographs, activities, writings, drawings, collages and montages, paintings, and collaborative artworks, and also from entities such as the classroom and the garden and sensory perceptions such as smell and sound. Discussions and observations took place in the art classroom and courtyard garden of an art centre in Cape Town.

Assent and consent forms (for minors and their caregivers) were given to participants, Departmental Ethics Screening Committee approval was granted, Western Cape Educational Department Directorate of Research permission was given, and respectful and inclusive conduct with participants was prioritised. From a posthumanist perspective, ethical practice is about cultivating connections and intensification of interrelation with (human and non-human) others (Braidotti, 2009: 530). This ethical relation is the ability to have positive encounters with another entity which increases our capacity to enter into further relations and to grow (Braidotti, 2009: 531). Researchers were aware of the binaries adult/child, researcher/participant, teacher/learner, and human/non-human, and the power relations ingrained in these. We tried to dismantle these binaries and power structures by participating in the events (as participants) and by focussing attention on the potentiality of non-human elements that were present. We recognise our failure to completely dissolve these binaries and the presence of other binaries that we were/are not aware of.

Our engagement with the data led us to consider, in particular, the intra-relationships between the human participants and all the materials that 'partook' in the project. It also highlighted the intra-relationships between the learners and the physical and mental spaces and the contexts of learners and educators. The interplay and interlinking between these factors (living and non-living) were investigated as sources of agency in terms of the execution of the project. With attempting to pursue a post-qualitative approach to research and to the data, we acknowledge the 'trouble', the difficulty, and the considerable work that is part of such methodological disruption. Some examples of this include the difficulty in breaking the habit of prioritising language in data analysis and the trouble of writing this article without bending to the will of formal structure and traditional academic writing practices. We also had to manage constant feelings of failure and insecurity about the process and whether we were, in fact, using posthumanism as a navigational tool.

### *Diffraction as Methodology*

Diffraction, the physics of which are explicated in depth by Barad, brings to light the reality of entanglements through attention to fine detail, while being itself an entangled phenomenon (Barad, 2007: 73, 91). Diffraction patterns constitute a physical phenomenon that ensues when waves interfere or become entangled with one another through the intra-active agency of apparatuses – something new happens and the effects of differences are made visible. Diffractive analysis places the focus on specific details that emerge from the diffractive process that has the potential to lead to insights that might be lost when similarities, bigger themes and general principles are the focus (Juelskjær & Schwennesen, 2012: 13).

Barad (2007: 71), building on Haraway, reads queer theory diffractively through physics and deems diffraction to be a more suitable analytical tool than reflection, or reflexivity, which, operating from a distance, simply displaces ‘the same’ (give or take a distortion or two) to a different position, as in a mirror. Important for this research is Barad’s (2007: 29, 30) assertion that ‘diffractive methodology is respectful of the entanglement of ideas and other materials in ways that reflexive methodologies are not’. As a methodology for analysis, then, diffraction provides a way of attending to entanglements by reading data and important insights and approaches through one another in ways that help ‘illuminate differences as they emerge: how different differences get made, what gets excluded, and how those exclusions matter’ (Barad, 2007: 30). The non-linear, rhizomatic course of the diffractive analysis allowed for lines of flight to emerge from the readings of the data, by paying close attention to fine, specific details that might otherwise have been dismissed as inconsequential. This is a critical practice with a ‘commitment to understanding which differences matter, how they matter, and for whom’ (Barad, 2007: 90). We approached our analysis with the understanding that (the execution of) the project as phenomenon consisted of an entanglement of intra-active agencies.

The intra-active agencies entangled in this research were the assignments, the learners, the educators the emerging concepts, the environment, the art and other materials, which, through specific perspectives, choices and actions (agential cuts), made ‘visible’ particular material-discursive entities – various artworks, performances, events – to the exclusion of others. In the light of this, it is important to emphasise that insights or knowledge will always be incomplete – different ‘cuts’ produce different knowledges. MacLure (2013a: 662) talks about data that seem to ‘glow’ as they ‘resonate in the body as well as the brain’; and we become ‘caught in the forward momentum of becoming’. Therefore, researchers are selected by the data as much the data are selected by researchers (as agential cuts). Therefore, during analysis, only a few resonating entities were chosen for further analysis by researchers acting with agency, thereby performing further ‘agential cuts’. Analysis is a continuous, iterative, entangled process, just like the establishment of material-discursive entities themselves: never totally complete, and never done and established once and for all, always with open-ended possibilities for new ‘becomings’. Writing about a diffractive analysis has an experimental quality and includes the experiences of the writer (Bridges-Rhoads, 2015: 704). We re-read, re-watched, and discussed the data several times, paying attention to parts that seemed interesting (that seemed to ‘glow’ (MacLure, 2013b: 662)) and we tried to think about the data and the process as an entanglement where everything affects and is affected by everything else, as in Bennett’s (2004: 349) ‘thick web’. This diffractive analysis involved a careful and detailed reading of an event that resulted from the project.

## **Findings and Discussion**

Agential realism requires a queer reading of quantum physics and a disruption of linear time which in turn disrupts the research and writing process. Learners were invited to create structures out of natural materials and to enact an intra-vention in the art school’s courtyard garden. We

wanted to draw attention to the materials and the way they have agency and can participate in intra-actions such as burning, flooding, reshaping and transforming. Due to the unpredictability of this process, we had to recognise that these intra-actions could not be assessed or graded according to the traditional methods of art education and could not be planned exactly. One of these intra-ventions (The burning) is the agential cut that will be discussed and it includes entanglements with spacematter, the sensory and affective effects of art and the material-discursive.

### *The Burning*

Two learners, Anna and Sarah (pseudonyms), decided to do a collaborative work for the project, with each producing an object to burn during an intra-vention event in the garden. This event came to resonate in the body as well as the mind, as worded by MacLure (2013a: 662). Different entanglements with this event are discussed separately for the sake of clarity, but it should be noted that they are all inextricably interwoven with one another – mindful of Hofsess and Sonenberg’s (2013: 299, 307) reminder that, while embracing entangled multiplicities, multiple identities and ‘data as messy, shifting and unsteady’, one must ‘[acknowledge] the constraints of scholarship’

### *Intra-active Entanglements: Spacematter*

In the garden, the sun warms the skin as the researchers-as-participants and learners-as-participants move around freely without the unyielding, angular obstacles of tables and chairs hindering the flow of movement; leaves stir and rustle in the breeze. This allows for awareness, through the senses, of the specifics – the details – and the whole. The space and matter of the garden, from a materialist point of view, could be understood to intra-act with the bodies – the sensory faculties – of the humans differently from the space and matter of the classroom, in a way that changes the human. The learner’s be(com)ing in the classroom space is different from his/her be(com)ing in the garden. Therefore, ‘space[s] become working, mobile space[s] ... agential spaces [that] are not simply empty backdrops [to events]’ (Kuntz & Presnall, 2012: 740).

Carol Taylor (2013: 688) points out the following: ‘[O]bjects and things are not inert, fixed or passive matter awaiting “use” by human intervention; nor is the body a mere corporeal vehicle to be moved by the mind, ... [rather] ... bodies and spaces do crucial ... performative work as vital materialities’. The intervention by Anna and Sarah was entangled with spacematter influences. Anna’s object consisted of a small cage-like structure made of twigs, metal wire and glue, while Sarah’s consisted of a nest-like structure woven of green grass (Figure 3). We chose a place to sit and we sat down on the grass to prepare for the activity. The garden was devoid of structures – such as chairs and educators’ desks – with the kind of ‘thingpower’ that speaks of restrictions and hierarchies of power (It is worth noting that prescribed curricula or lesson plans can work in the same restrictive way), as well as specifically allocated spatial demarcations for separating learners and educators, both of which intra-actively co-constitute the hierarchical structures of the educator/learner binary in the classroom. In this sense the garden’s spacematter

blurred the distinction between ‘the teacher and the taught’ (where the latter refers to both ‘course content’ and ‘learning subjects’) (Hickey-Moody, Palmer & Sayers, 2016: 219). It did so, through the above-mentioned absences and its own specific spatial and material configurations, by acting as a facilitating force that enabled an affirmative concretisation of the notion that none of these elements are ‘simply preformed: teachers, learners, objects and spaces are equally material phenomena and similarly entwined with one another’ (Hickey-Moody *et al.*, 2016: 219–220). In this position, with hierarchies and pre-conceived notions at least momentarily and partially suspended, we were intensely interested and eager to ‘see’ what will happen with the burning, how the structures and the fire will intra-act to co-constitute matter differently.



**Figure 3: Anna and Sarah's structures (2016) (photograph taken by one of the researchers)**

*Intra-active Entanglements: The Sensory and Affective Effects of Art*

As the structures burned, the pungent smoke and the heat invaded our bodies – through eyes, ears, skin and nose – to, simultaneously with all the other happenings and processes, facilitate direct ‘knowing [gaining of knowledge] through the senses’, as stated by Siegesmund (2012: 100). As part of all these multiplicities of mindbody-spacematter entanglements, the matter of the structures – natural and manmade, organic and inorganic – was being transformed through its intra-actions with fire and air, forming beautiful new configurations and different entanglements. We watched, voicing and feeling anticipation, intrigue and even delight as we bore ‘witness to the vital materialities that flow[ed] through and around us, ... induc[ing] in [our] human bodies an aesthetic-affective openness to material vitality’ (Bennett, 2010: x).

As pertaining to the senses, Anna’s response to a question put to her about how she felt about burning the object she had made led to thoughts about the sense of touch. Anna, despite deciding on burning as a method for facilitating the transformation of her object created from natural materials, responded: ‘*It feels a little bit ... like – in a way I’m reluctant to burn it*’. Adrienne Chaplin (2005: n.p.) holds that the ‘often nameless qualities’ of an object sensed during touch render the hands’ tactile sensitivity fundamental to the range of experiences known as aesthetic – in this instance relating to its meaning as a ‘process of knowing through the senses’ (Siegesmund, 2012: 100) – which ‘meet and merge’, like all aesthetic perceptions, with ‘emotional elements’. This statement resonates with Bennett’s (2010: x) statement of the human body’s ‘aesthetic-affective openness to material vitality’. Therefore, the mobilisation, through aesthetic experience, of the affective and cognitive as potential agential forces for ethical be(com)ing in the world springs from the intra-active entanglements between the senses, the body and the manifold processes and materials that constitute, through agential cuts, all the im/possible, open-ended materialisations in phenomena of artistic endeavours.

*Intra-active Entanglements: The Material-discursive*

With camera and recording cell phone at the ready, we (Anna, Sarah, and the researchers-as-participants) were all focusing intently on the structures as Anna and Sarah set about igniting them (Figure 4). Later, with repeated watching and listening to the video recording of the event in all its entangled, multisensory, multimodal, discursive-material complexity, it seemed to us every time as a kind of (re)becoming. We acknowledge the different analytic environment encountered in ‘repeated watching’ and the shift in the analysis process when researchers watch events on a screen. The memory of the event itself and all of its remembered sensory aspects became intertwined with the visual and aural data specifically en-framed by the camera technology. It is, therefore, important to consider the limits of real-time, in-the-moment analysis.

The honesty and lack of linearity, direction, and structure of the conversation, its ‘flying off’ in different directions, rendered it rich material for the diffractive analysis. Kuntz and Presnall (2012: 733) express something similar when they propose that ‘the movement of bodies ... and ... material wanderings encourage the metaphorical wandering of thought, the expression of affect such that what may not find proper expression in the visible strategic, finds



voice’. Critical assessments in post-qualitative research writings of the isolation of ‘voice’ or ‘speech’ in analyses led to the decision to treat these as integral parts of the whole. MacLure (2013a: 664) refers to language as material in that, when precipitating as voice or speech, it comes from the body and is shaped and also hampered by the body, which also exposes it to the possibility of affecting or being affected by other bodies that are not always necessarily human. Selections of the conversation that presented themselves as provocative were examined by the researchers and re-read through their memories of the physical experience while keeping in mind that human/speech cannot be disentangled from and selected to matter more than any of the other elements of this phenomenon.



**Figure 4: Setting the structures alight (2016) (photograph taken by one of the researchers)**

Diffraction readings of selections from the conversation include those remarks and comments that somehow seemed to command attention. The conversation was co-constituted

with and threaded through all the other material discursive intra-actions of the intervention event. While Anna and Sarah, hunched close to their structures, were negotiating about how to start an effective flame, Anna pointed out how she came to each art lesson *'thinking what's going to be next – it's always something really new'*. She referred to the experimentation, saying that it *'becomes completely different – and we have no idea what the outcome is, but it's more exciting'*. Wanting to know what will happen to the structures and seeing *'what will be left and stuff'* (See Figure 5) were what eventually convinced her to burn her structure.

Anna, always already diffracted through other human and more-than-human others, thought aloud:

*It's almost like weird, because we're now involving a lot more how nature is – we're like almost making art with nature. I mean, we really are – like we're taking nature, not painting nature, we're not trying to like copy nature, we're actually using it. We realise that what we have now done, for the past years and years, like we have almost – not destroyed – but maybe actually even destroyed ... because it's not the same as what it used to be – it's now almost manmade ... like this, this garden was never like this – it was just green trees ... And it's quite strange – it's almost like this [the burning] is a statement, like this is nature, and we all bundle it together and we are burning it, we are destroying it and what's left is just the metal – it's just manmade, ... nature is now being held together by manmade stuff ....*



**Figure 5: Anna and Sarah's intravention event: The burnt structures (2016) (photograph taken by one of the researchers)**

After some conversation (resulting from the meandering remarks of Anna) between the learners about how the manmade elements in their structures perhaps could be seen as reflecting

the fact that there are no totally pristine natural areas left on earth, Anna concluded with the following remark:

*If I could put this whole project in one tiny quote: We used to rely on nature, now nature actually relies on us... It's like almost – you know, like cavemen and everything, we relied on nature, we relied on rain to bring us food and everything – now it relies on us.*

The speech that tumbled, albeit with a groping for words and many hesitations, unprompted from Anna's lips as she grappled with setting alight the structures, with the researchers sitting comfortably but also with interested anticipation, on equal footing, so to speak, with her and Sarah, displayed a sincerity and a gradual 'coming to' insight that she truly *felt* as she voiced it. She was expressing a kind of 'becoming different' in that moment, which probably would not have happened during a formal interview within a traditional qualitative research approach. Particularly, her observations about making art with nature, using it directly and not copying it, and about the burning being almost like '*a statement, like this is nature, and we all bundle it together and we are burning it, we are destroying it and what's left is just the metal ... nature is now being held together by manmade stuff*', seem to come from her physical intra-action with the structures in their actual material manifestation – their 'thingpower'. Anna's use of the words '*weird*' and '*strange*' could be read through the idea that the power of making art (here inextricably entangled with 'thingpower') could 'bring about sensations ... of what is unknown, unexperienced, traces not of the past but of the future, not of the human and its recognised features, but of the inhuman' (Yusoff, 2012b: 982); therefore, 'sensations that allow our becoming-otherwise' (Yusoff, 2012a: 972).

Anna's conclusive quip that '*we used to rely on nature, now nature actually relies on us*' was initially dismissed as a naïve statement but read diffractively through the ethical dimensions with which the notions of Barad's agential cuts and Bennett's vibrant matter concern themselves, it actually seems insightful and intuitive. Yet, 'nature relies on us' could also be read as an anthropocentric remark. Ambiguities such as these made the data analysis complex.

The physical and sensory entanglements of the researchers with the data during data collection and data analysis allowed for a feeling of 'touching [the] data [in a way that] enabled [the researchers] to approach the research aesthetically, affectively, vitally and as movement' (Springgay and Rotas, 2015: 269). This movement refers to the fluidity and slipperiness of 'data' and 'conclusions' due to 'the vibrancy and ontological mobility of all matter, the agential capacities of nature, and the attendant ... [endless] potential [for different becomings] attached to materialities' (Tiainen, Kontturi and Hongisto, 2015: 7).

For the final diffractive reading of the intra-vention event, remarks from Sarah that surfaced during the course of the conversation included:

*But it's actually turned out to be very interesting and unpredictable ... We don't normally do it like this, we would make fire to eat with [for cooking] and not to ... not to experience what's happening.*

Sarah's responses and comments seem to resonate with Garoian's (2015: 489) observations about his art students' responses relating to a task he had set them: '[They] relished in ... its



unpredictability, its disequilibrium, and its making of sense a never ending, interminable process; all of which constituted a learning event that was unexpected within the overly determined, familiar context of their education and schooling. In other words, they delighted in the impertinence of the experiment insofar as it resisted representational relevance'. Considering the co-constitutive agency of 'vibrant matter' itself to affect through direct sensory participation (Siegesmund, 2012: 101), what seemed to crystallise from Sarah's comment is that art and art practices and processes, as 'object[s] of fundamental encounter', offer unique opportunities for 'challeng[ing] one's way of being in the world by suggesting new kinds of becomings' (Kontturi, 2014: 47).

## **Conclusion**

The main conclusions from this research process involve and emphasise materiality and sensory learning, the value of conversation as an entangled entity, and the results of our attempts at using posthumanism and new materialist perspectives as a navigational tool for teaching practice and research. In addition, art education is presented as an ideal way of facilitating posthumanist ideas and methods, as well as fostering awareness of the relationship between the human and nonhuman.

One of the main aims of the project was to sensitise learners to the materiality of their own bodies and their bodies' intra-active co-constitution with all other matter/manners of bodies. In the diffractive analysis of the garden intra-vention, the focus on sensory perception seemed to help the learners forego the effects of preconceived knowledge, ideas, viewpoints and expectations and engendered an open, yet critical and multi-faceted, engagement with the world in all its complexities. Sensory experience, in other words, could assist learners in perceiving the world around them directly and holistically, beyond the fragmented understanding of the world that inevitably follows from formal education curricula that separate knowledge into discreet disciplines. This focus on the senses emphasised the intra-action between various 'bodies': bodies of smoke, heat, light and sound penetrated *our* bodies from all around us. We could, therefore, literally experience, through the senses, the incessant intermingling of differently composed and formed bodies. An experience like this could be used to introduce an understanding of the notion that matter is never permanently and separately constituted as fixed entities. Therefore, the importance of the role of the senses in learning and affect should be emphasised in art education.

The (art) educator should become aware of his/her own 'embodiedness' and all it implies in terms of living and learning experiences. This should be done in order to enable the (art) educator to understand how the constantly shifting intra-actions of the entanglements referred to here play into how learners experience their worlds at any given time, and how these experiences in turn influence and are entwined with how they perceive their existence in the world and their relationship with all earth's non-human others. It would be desirable for education practices to therefore be structured in ways that integrate the body with the mind in learning experiences, that maintain mindfulness towards the influences (recognising that it is not possible to perceive all

these influences) that determine how and what learners learn, and that allow for flexibility and adaptability, according to the fluxes and changes that are inevitably part of the constantly reconstituted outcomes of intra-active entanglements. The value of intrigue and surprise to lure the learners into enthusiastic participation should not be underestimated. Constructing curricula with a rhizomatic approach would be complex and challenging and would require constant re-thinking and re-doing as new lines of flight emerge from material experiences.

The learners are entangled with other phenomena, beyond the art class, which include home life, school life, social life and other subjects and their demands – the result of the compartmentalised way in which we live our lives in contemporary society. The fragmented manner in which learners had to try to engage with the project, plus the restrictions on contact time at the art centre, might have made it difficult for learners to become engaged and involved in the projects in any truly meaningful and worthwhile manner. Hence our proposal that, before launching into an investigation of humanity's relationship with the non-human other and the world's matter(s) in general, a project should be developed that acknowledges, includes and explores, is even based upon, the entanglements in the totality of each learner's own life and particular 'world'.

Art education, or facilitating art processes with learners, is an opportune field for the integration of posthumanist and new materialist ideas into current education practices. Within the context of the current art syllabus, it might be possible to integrate different knowledges in order to 'break with the conventions of linear education narratives' (Holmes & Jones, 2013: 359). The art learner might begin to ask questions, to see differently, to make connections, while working with and through open-ended material-discursive processes. Art already implicitly deals with the senses, the body and the material. The art learner feels, touches, smells and experiences matter, and could be given opportunities to experience mind and body as an integrated whole. These processes will be difficult to execute within a dominant humanist context, but even within the confines of the education system as it operates at present, certain aspects of art education, in allowing for open-endedness, could be a suitable vehicle for making inroads into the vast constructs of humanist-based education and its desire for control in ways that only truly benefit some to the exclusion of all the world's 'others', including also the human 'other'.

In the long term, education research programmes should be spaces to attempt the searching-in-doing of non-anthropocentric posthumanist and new materialist theories, in order to begin to assess how curricula might be adapted to incorporate perspectives other than those of humanism. This will probably require a radical shift in the way humans are viewed and taught – so much so that a significant amount of un-learning and discovery might be necessary. This shift must happen first in educators before they will begin to encourage learners to engage critically with humanity's attitudes towards the non-human and all of the earth's systems and matter(s). In attempting to use posthumanist and new materialist perspectives as navigational tool for this research, we acknowledge the contestation, difficulty, inconsistency, contradictions and struggle, both within the literature and in relation to the attempt to carry through 'ethico-onto-

epistemological' positions in practice. Many more attempts are necessary in order to live out these complex perspectives in teaching and research.

**Roline Kotze** is an educator and researcher. After having worked as an educator at the Iziko Natural History Museum in Cape Town for many years, she currently teaches art to both primary and high school learners at the Tygerberg Art Centre in Parow, Cape Town. She completed her Master's Degree in Art Education at the University of Stellenbosch in 2016. At present, Roline is particularly interested in the characteristics and processes of creativity and how to enhance creative problem-solving skills in learners.

**Karolien Perold-Bull** is currently a lecturer at the Visual Arts Department of Stellenbosch University and coordinates the Visual Communication Design division. Her research interests include design theory, philosophy and education, particularly from new materialist and posthuman perspectives. She is currently completing her doctoral studies in this field. Recent publications include 'Design and its education in 'post' South African society: A way forward' in *Educating citizen designers*, edited by Elmarie Costandius and Herman Botes (forthcoming 2018) and 'Exploring the transformative potential of collaborative art projects in South African higher education' in *South African Journal of Higher Education*, 29(6):206-225 (2015).

**Elmarie Costandius** is an associate professor in Visual Arts and coordinates the MA in Visual Arts (Art Education) at Stellenbosch University, South Africa. She studied Information Design at the University of Pretoria and continued her studies at the Gerrit Rietveld Academy, Amsterdam, and completed a master's in Globalisation and Higher Education at the University of the Western Cape. Her PhD in Curriculum Studies (Stellenbosch University) focused on social responsibility and critical citizenship in art education. Elmarie published her first book with Professor Eli Bitzer, titled *Engaging higher education curricula: A critical citizenship education perspective*, in 2015 and in 2016 edited the book *The relevance of critical citizenship in Africa* with Professor Freeborn Odiboh from the University of Benin, Nigeria. Elmarie has published in the field of art education, critical citizenship, decolonisation and social justice in various journals in South Africa and abroad.

**Neeske Alexander** is an academic writer, lecturer and artist working and studying at the Visual Arts department at Stellenbosch University. She has BEd (Foundation Phase), BHons (Learning support), and MA Visual Arts (Art Education) degrees. Recent publications include 'The 'human colour' crayon: Investigating the attitudes and perceptions of learners regarding race and skin colour' and 'Investigating 'othering' in visual arts spaces of learning' in *Education as Change* 21(1) (2017) and '#FeesMustFall and decolonising the curriculum: Stellenbosch University students' and lecturers' reactions' in *South African Journal of Higher Education* 32(2) (2018). Forthcoming (2018) is 'Exploring Barriers and Strategies for Critical Citizenship Education: A

Reflection on Practice' in *Educating citizen designers*, edited by Elmarie Costandius and Herman Botes. Neeske is currently completing a postgraduate degree in illustration and researching the field of posthumanism.

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