

**A DIFFRACTIVE ANALYSIS OF A GRADE 10 ART PROJECT CONDUCTED AT THE TYGERBERG ART
CENTRE SITUATED IN PAROW, CAPE TOWN**

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ABSTRACT

Despite indisputable proof that humanity's attitudes and actions towards the earth pose alarming threats to both the earth's life-supporting systems and humanity's future as a species, we generally seem to exhibit little evidence of any real fear of the doom that might be awaiting us.

Traditionally these concerns fall within the parameters of environmental education. However, according to some theorists, current environmental education modules are failing to foster any meaningful engagement with the vast, complex, interrelated and intertwined problems facing the contemporary world. I am of the opinion that an alternative route to this end could be explored in art and art education, due to the fact that certain aspects thereof allow for open-ended exploration that may create spaces for transdisciplinary investigations.

My recent introduction to posthumanist, new materialist and affective theories opened up the possibility of interesting perspectives on issues related to our being (and doing) in the world, as they encompass notions of our dynamically shifting bodily enmeshment with the material world and our responsibility to be accountable from where we are in our situated position. They provided me with the theoretical tools with which these issues could be explored as interrelated entities in an integrated whole.

The research entailed an in depth, post-qualitative analysis of an art project that had been conducted at the Tygerberg Art Centre from April 2016 to June 2016. Diffraction was used as analytical tool to establish whether useful insights, which could fruitfully inform the development of art projects that critically examine how we as humans live in relation to the earth's systems and other life forms, might be revealed. The main aim of the study was therefore to explore the role of art education as medium in facilitating critical awareness in learners of the relation of humans to all non-human others on earth. Diffraction was chosen as analytical tool for its potential to elucidate insights that might not have come to the fore if other methods were used.

The study indicated that before learners will truly be concerned about the destruction of the earth, they first need to understand the materiality of their own bodies, and the latter's intra-active co-constitution with all other matter. Yet, theorists maintain that education curricula still mostly ignore the body as site of learning. These curricula are entrenched in humanism's dualistic thinking patterns with an inclination towards established, predetermined answers and outcomes to problematic questions, which foreclose the discovery of new possibilities.

Nonetheless, I argue that, even within our present education system, art education could begin to challenge the vast constructs of humanist-based education, particularly with reference to the latter's influences on the wider contexts of environmental education. However, in the long term, we will need education research programmes that are based on non-anthropocentric posthumanist and new materialist theories. Educators will then hopefully begin to explore ways in which curricula might be adapted to incorporate these perspectives. This, in turn, will hopefully pave the way for learners to engage more critically with humanity's relations with the non-human other and the earth's systems and matter(s).

OPSOMMING

Ten spyte van oteenseglike bewyse dat die mensdom se houdings en aksies teenoor die aarde onrusbarende bedreigings inhou vir sowel die aarde se lewensonderhoudende stelsels as die mensdom se toekoms as 'n spesie, toon ons merendeels min bewyse van enige werklike vrees vir die verdoemenis wat dalk op ons wag.

Tradisioneel val hierdie aangeleenthede binne die grense van omgewingsopvoeding. Sommige teoretici is egter van mening dat huidige omgewingsopvoedingmodules daarin misluk om enige betekenisvolle betrokkenheid aan te wakker by die groot, ingewikkelde, onderling-verwante en ineengeweeftde probleme wat die komtemporêre wêreld in die gesig staar. Ek is van mening dat alternatiewe roetes om hierdie doelwit te bereik in kuns en kunsonderrig nagevors kan word, aangesien sekere aspekte daarvan ope ondersoek toelaat wat ruimte vir trans-dissiplinêre verkenning skep.

My onlangse kennismaking met posthumanistiese, nuwe materialistiese en affektiewe teorieë het die moontlikheid van interessante perspektiewe oor ons wees (en doen en late) in die wêreld ontsluit, aangesien hulle idees omvat oor ons dinamies-veranderlike liggaamlike verwikkeling met die materiële wêreld en ons verantwoordelikheid om aanspreekbaar te wees vanuit die posisie waarin ons ons bevind. Hulle het my van die teoretiese gereedskap voorsien waarmee hierdie kwessies as ineengeweeftde entiteite in 'n geïntegreerde geheel ondersoek kon word.

Die navorsing het 'n diepgaande, post-kwalitatiewe ontleding behels van 'n kunsprojek wat van April 2016 tot Junie 2016 by die Tygerberg Kunssentrum uitgevoer is. Diffraksie is as ontledingsinstrument gebruik om vas te stel of nuttige insigte, wat bruikbaar sou wees vir die ontwikkeling van kunsprojekte wat kritiese ondersoek hoe ons as mense op die aarde leef met betrekking tot die aarde se stelsels en ander lewensvorme, na vore sou kom. Die hoofdoelwit van die studie was dus om die rol van kunsonderrig as medium te ondersoek vir die fasilitering van kritiese bewustheid by leerders van die mens se verhouding tot alle nie-menslike andere op aarde. Diffraksie is as ontledingsinstrument gekies weens die potensiaal wat dit bied om insigte te belig wat dalk nie met ander metodes na vore sou kom nie.

Die studie het getoon dat, voordat leerders werklik besorg gaan begin voel oor die vernietiging van die aarde, hulle eers die wesenskap van hul eie liggame, en laasgenoemde se intra-aktiewe medevorming met alle ander materie, moet verstaan. Nogtans voer teoretici aan dat huidige kurrikulums steeds die liggaam as setel van leer vermy. Hierdie kurrikulums is ingegrawe in humanisme se

dualistiese denkpatriene met 'n neiging tot vasgestelde, voorafbepaalde antwoorde en uitkomst op problematiese vrae, wat die ontdekking van nuwe moontlikhede uitsluit.

Nietemin voer ek aan dat kuns onderrig tog, selfs in die huidige opvoedingstelsel, 'n geskikte medium vir aanslae op die reuse-strukture van humanisties-gebaseerde onderrig kan wees, spesifiek met verwysing na lussgenoemde se invloed op die breër kontekste van omgewingsopvoeding. Op die lang duur benodig ons egter navorsingsprogramme in die opvoedkunde wat gegrond is op die nie-mensgesentreerde teorieë van posthumanistiese en nuwe materialisme. Opvoeders sal dan hopelik begin om maniere te ondersoek waarop kurrikulums aangepas kan word om hierdie perspektiewe te inkorporeer. Dit sal hopelik, op sy beurt, die weg baan vir leerders om meer krities om te gaan met die mensdom se verhoudings met en houdings teenoor die nie-menslike en die aarde se stelsels en materie.

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TABLE OF CONTENTS

CHAPTER 1: ORIENTATION TO THE STUDY	1
1.1 Introduction to the research	1
1.2 Background.....	5
1.3 Research statement, research questions and study aims and objectives.....	9
1.3.1 Research statement.....	9
1.3.2 Research question	9
1.3.3 Aims and objectives.....	9
1.4 Overview of the research design and methodology.....	10
1.5 Boundaries and limitations of the dissertation	11
1.6 Structure of the dissertation:	12
 CHAPTER 2: THEORETICAL PERSPECTIVES	 14
2.1 Introduction	14
2.2 Posthumanism	14
2.3 New materialism.....	18
2.3.1 Introduction.....	18
2.3.2 Agential realism.....	21
2.3.2.1 Diffraction.....	23
2.3.2.2 Material-discursive practices	24
2.3.3 Trans-corporeality	24
2.3.4 Interactionist ontology and viscous porosity	27
2.3.5 Vibrant matter	29
2.4 Affect theory.....	31

2.5	In conclusion: A summary of the conceptual framework of the study	34
CHAPTER 3: RESEARCH METHODOLOGY.....		36
3.1	Introduction	36
3.2	A description of the art project	36
3.3	Design of the study	38
3.3.1	Research approach.....	38
3.3.2	Research design.....	43
3.3.3	Barad’s notions about being and becoming: Phenomena, entanglements, intra-actions, agential cuts and the position of the researcher	44
3.3.4	Data analysis.....	46
3.3.5	Sample selection and data collection.....	47
3.3.6	Capturing data and ethical considerations.....	47
3.4	Conclusion.....	47
CHAPTER 4: PRESENTATION AND DISCUSSION OF THE DIFFRACTIVE ANALYSIS		49
4.1	Introduction	49
4.1.1	Background to diffraction as methodology.....	49
4.1.2	Diffraction as analytical tool: Rhizomatic mapping and the position of the researcher..	50
4.2	Presentation and discussion of data.....	51
4.2.1	The researcher: Thoughts and feelings	52
4.2.2	Diffraction analysis of an event involving the intra-active entanglements between two teachers, two learners, a garden, objects and fire	54
4.2.2.1	Intra-active entanglements: Spacematter.....	55
4.2.2.2	Intra-active entanglements: Introductory thoughts pertaining to the material-discursive.....	57

4.2.2.3	Intra-active entanglements: Art, the senses, affect and ethics	59
4.2.2.4	Intra-active entanglements: More of the conversation.....	66
4.2.2.5	Conclusion	73
4.2.3	A diffractive, rhizomatic analysis of Anna’s painting and the art practices involved in its making	74
4.2.3.1	Introduction	74
4.2.3.2	Intra-active entanglements: Images, concepts, materials, becomings – the creation of a painting	74
4.2.3.3	Conclusion	78
4.2.3.4	A rhizomatic line of flight: Waste	79
4.2.3.5	A rhizomatic line of flight: Conclusion.....	82
4.2.4	A diffractive analysis of the self-adornment activity: The body and the senses.....	83
4.2.4.1	Intra-active entanglements: Embodiment and embodied learning	84
4.2.4.2	Intra-active entanglements: A continuation of the exploration of embodiment and the senses	86
4.2.4.3	Conclusion.....	92
4.3	A brief summary of the chapter’s content and conclusions.....	93
CHAPTER 5: CONCLUSIONS AND IMPLICATIONS		96
5.1	Introduction	96
5.2	Insights and their implications for future projects and general education strategies	98
5.2.1	Insights about the body and matter.....	99
5.2.2	Implications for future art projects and art education.....	105
5.2.3	Possible implications for general education strategies.....	110
5.3	Critique and further research	111
5.4	Concluding thoughts.....	112

REFERENCE LISTS	114
APPENDICES	129
Appendix 1: Grade 10 practical project: Self, Local	129
Appendix 2: Grade 10 practical project: Global (continued from Self, Local)	139
Appendix 3: Images of collaborative artwork in progress	143
Appendix 4: Consent form for participation in research	146

LIST OF ILLUSTRATIONS

Figure 1.1: Chris Jordan, from the series <i>Midway: Message from the gyre</i> (2011), photograph (Available: http://i.telegraph.co.uk/multimedia/archive/01860/CF010533_1860712b.jpg).....	1
Figure 2.1: Alison Starr, <i>Baker</i> (2012), plastic bags and thread (Alaimo 2014:201).....	27
Figure 4.1: Art classroom and courtyard garden (2016) (photographs taken by the researcher).....	56
Figure 4.2: Anna and Sarah's objects (2016) (photograph taken by the researcher).....	58
Figure 4.3: Setting the objects alight (2016) (photograph taken by the researcher).....	58
Figure 4.4: Danae and the Tree-lady (2016) (photograph taken by the researcher).....	61
Figure 4.5: Tree-lady alone in the courtyard garden (2016) (photograph taken by the researcher)...	61
Figure 4.6: Image of a burning bus in Attridgeville, west of Pretoria (2016), (photograph taken by Aki Anastasiou, Eyewitness News, reproduced by the researcher from <i>Die Burger</i> , 23 June 2016:15).....	71
Figure 4.7: Anna and Sarah's intervention event: the burnt objects (2016) (photograph taken by the researcher).....	72
Figure 4.8: Anna, <i>Untitled</i> (2016), paint and photocopies on board (photographs taken by the researcher).....	75
Figure 4.9: Page from Anna's source book: Collage drawing, spider orchid, self-adornment image (2016) (photograph taken by the researcher).....	76
Figure 4.10: Page from Anna's source book: Intervention event (2016) (photograph taken by the researcher).....	76
Figure 4.11: Waste produced during my collage-making processes (2016) (photograph taken by the researcher).....	80

Figure 4.12: Chris Jordan, from the series *Running the numbers II: Gyre* (2009), plastic. 8m X 11m.
 (photographs courtesy of Chris Jordan, available:
<http://news.nationalgeographic.com/news/2009/04/photogalleries/chris-jordan-massive-photomosaics/photo2.html>).....81

Figure 4.13: Self-adornment images from learners’ source books (2016) (photographs taken by the researcher).....83

Figure 4.14: Author’s self-adornment images: In the garden and in the garbage (2016) (photographs taken by the researcher’s colleague).....87

Figure 4.15: Danae’s self-adornment images; Danae at work (2016) (photographs taken by the researcher).....90

Figure 4.16: Danae, *Untitled* (2016), paint, glue, soil, sticks, leaves, styrofoam containers, palette on paper, 150cm x 75cm (photographs taken by the researcher).....91

Figure 4.17: Danae, from her source book: *Refusing to think green album* (2016), collage (photograph taken by the researcher).....92

CHAPTER 1: ORIENTATION TO THE STUDY

1.1 Introduction to the research

I don't believe in a static objective reality that is out there. I believe in shifting, changing patterns of energy; the shifting, changing patterns of energy that we have begun to apprehend in nature and in the very molecules and atoms and DNA of our bodies. Nothing is solid; nothing is fixed. But this movement, this energy is not chaos. Science is just beginning to unravel the patterns and shifts and connections that seemed so impossible, so implausible. But art intuitively understands these patterns and shifts and connections, because that is exactly how art functions too.... [T]hrough art, we recognize life's intrinsic quality, that everything is connected (Winterson 2009: n.p.).

In the image below, the remains of a baby albatross frame the collection of plastic objects that had caused its slow, agonising death. Together with thousands of others, it had died due to lethal quantities of plastic fed to it by its parents, who mistook the plastic for food. The place where this is happening is called Midway Atoll, one of a chain of tiny, extremely remote atolls situated in the middle of the Pacific Ocean, more than 3 200 km away from the closest continent. It is situated close to what is known as the Great Pacific Garbage Patch, or trash vortex, a huge gyre filled with millions of tons of plastic, much of which had been broken down to plankton-size particles (Jordan 2010). Artist-photographer Chris Jordan (2010) visited the atoll several times and, vouching for the authenticity of the images in his photographs, made the following remarks during a video presentation about this experience:

If ...our plastic pollution is showing up in one of the remotest marine sanctuaries in the world, inside the stomachs of baby birds, that's major. That's like getting a diagnosis of cancer from your doctor – that's really bad. Because if it's there, if it's on Midway Island, that's like your doctor saying it's in your lymph system ... that means by implication it's everywhere.



Figure 1.1: Chris Jordan, from the series *Midway: Message from the gyre* (2011), photograph (Available: http://i.telegraph.co.uk/multimedia/archive/01860/CF010533_1860712b.jpg)

If we believe Jordan's statement to be merely metaphorical and that the phenomenon he is talking about is too remote for us to be concerned about, we are gravely mistaken. In a very literal sense, Jordan's words are proving to be true. Research has confirmed the presence of microplastic particles in shellfish species that are cultivated in natural conditions (that is, in coastal areas where they feed on algae naturally present in the seawater) for human consumption (Van Cauwenberghe & Janssen 2014:67). Experiments have shown that, once the plastics are inside the human digestive tract, intestinal uptake of the ingested particles may take place, and ironically, intestinal lymphatic tissue in particular has proven to be the predominant site of uptake. Among other serious health problems, it is possible that "monomers leaching from plastic can cause both acute and chronic effects in humans, such as cancer" (Van Cauwenberghe & Janssen 2014:68 & 69).

Regarding our lack of concern about the destructive degradation of the earth's systems, even as they threaten our own lives, Claire Colebrook (2011:53) asserts that, despite the abundance of information on the "dire threats posed" to both the earth's systems upon which present (human) generations are dependent for survival and humanity's future as a species, "there [seems to be] neither panic nor any apparent affective component that would indicate that anyone really feels or fears the sense of the end [with any intensity]". The information is experienced as abstract, and scenarios such as those described above are perceived as "spatially and temporally distant" and therefore, despite the very real possibility of serious bodily harm and death even to ourselves, "difficult to comprehend and connect with in any appreciable way" (Duxbury 2010:294).

Richard Kahn (2009:522) dramatically speaks of earth's living inhabitants poised "at the foot of a great wave of social crisis and global ecological catastrophe". He warns that, as shown by the ecosocialist and activist Joel Kovel's work, "institutionalized, transnational, phase-changing neoliberalism that acts as a cancer upon the earth, [presents] a form of 'endless growth' political economy that is literally over-producing and consuming the planet to death" (2009:523). Kahn (2009:525) further stresses the point that human production and consumption as practiced by transnational technocapitalists, whose view of both organisms (including the human) and their environment as being little more than resources for gain and profit often leads to massive ecological destruction, benefits only a few advanced capitalist nations, at the expense of the planet's poor. Taking cognisance of these warnings, it seems to me as educator imperative that both educators and learners alike, as concerned citizens of the world, pay serious and critical attention to our notions and attitudes about our place in the world and how we live in it.

According to Kahn (2009:528), environmental education seems to be failing dismally in achieving this goal. He criticises the way in which environmental education is often based on "outdated, overly-

essentialized” views held by the “white, male and middle class”, thereby proving itself insufficient and “even harmful towards promoting multi-perspectival ecological politics and environmental justice strategies that seek to uncover collective environmental action across differences of race, class, gender, species and other categories of social difference”. Furthermore, environmental education has become marginalised as an academic discipline; it is therefore not delivering on its goals of interdisciplinary exploration and an inquiry-based, student-centred curricular framework that could be used for “overcoming intractable conflict and ideology in society” (Kahn 2009:527 – 528).

Personally, for as long as I can remember I have been both keenly interested in and concerned about how we as humans live on the earth in relation to its systems and other life forms. I am therefore deeply interested in exploring the reasons for humanity’s ecologically destructive behavioural patterns in all the forms in which they manifest themselves, with emphasis on the humanist philosophical notions from which had developed the attitudes and worldviews - such as those espoused by neoliberal transnational technocapitalism referred to above - that ultimately determine our actions. Although the plight of hundreds of millions of humans due to poverty, war and other abuses is not the focus of my interest in this study, I agree with Kahn (2009:529) that the same attitudes that cause large scale environmental and biological destruction – such as the demise of thousands of innocent baby albatrosses – are also responsible for much of the human suffering that marks our times. Nathan Snaza (2015:21) echoes this by pointing out how practices grounded in specific humanist viewpoints – which determine who is regarded as being fully human and who is not – have over the centuries led to the dehumanisation of categories of marginalised people who are deemed less-than-human, including among others, women, slaves and colonised ‘savages’.

Simultaneously, I am deeply intrigued by the kinds of creativity that express themselves in the arts, in particular the visual arts, and also by how the capacity for creative thinking and expression could be nurtured and developed to flourish in the young. I have also been, since my own school days, acutely aware of the divides between the various disciplines, and have long felt that inter- or trans disciplinary modes of education could greatly contribute to the development of a more realistic and holistic understanding of our world and humanity’s place in it. Hence the fact that, as someone who holds a B-Sc degree in the biological sciences, a bachelor’s degree in the visual arts and a higher education teachers’ diploma – and have, apart from my current position as art educator, also taught biology and science and worked as educator in Cape Town’s Iziko natural history, social history and art museums – I feel compelled to investigate ways of combining and integrating my interests and training in a meaningful manner in order to create art projects that could deeply engage learners in a

critical examination of themselves and their perceptions of their own and, by extension, humanity's place in the world.

Taking into account Kahn's laments about the failure of current environmental education modules to foster any meaningful engagement with the vast, complex, interrelated and intertwined problems facing the contemporary world, I am of the opinion that an alternative route for such a journey could be explored in art and art education. Jeanette Winterson (2009:n.p.), as quoted at the beginning of the chapter, expresses a similar notion when she states that "[t]hrough art, we recognize life's intrinsic quality, that everything is connected", because the very working of art is based on the intuitive grasping of the fluidity of things, and of constantly changing patterns, shifts and connections of energy and matter discernible in the world's workings, some of which science, she states, is just beginning to unravel. When one considers the wide scope of investigations into a myriad of subject matters that are prevalent in international contemporary art today (of which Chris Jordan's work is a fine example), one could, I believe, regard art and art education as potentially suitable vehicles for the examination of the kinds of issues that interested me in this study.

Art could offer one the means for dealing critically with notions of the self in all its contexts as well as provide endless permutations of creative and alternative transdisciplinary investigations, in order to open up the possibility of new ways of thinking and experiencing. Pertaining to the latter, for instance, artist-researchers (such as Chris Jordan) who examine serious issues relating to lived realities "draw upon a vast array of information" ranging from scientific data and reports to private reveries and reflections, allowing the artwork to operate in multiple and multi-layered ways and offering both artist and viewer alternative means of imagining and knowing the world (Duxbury 2010:298). Therefore "an artistic representation of a scientific concept [may help to] open up the possibility for alternative understandings through translations of scientists' accumulated knowledge, data, and statistics" into something that can be grasped more holistically and intuitively (Duxbury 2010:296). This could be enhanced at least partly, I would suggest, by bringing affect into play. For instance, the sight of a tiny corpse filled with plastic ought to, in my opinion, leave few viewers unmoved.

In terms of engaging learners in a critical examination of how they view themselves and their position in relation to the non-human, I would argue that an investigation of notions of the self would be a necessary condition for such an engagement. Rosi Braidotti's idea of defamiliarisation, of questioning taken-for-granted ideas about the nature of self, comes to mind. This she describes as a difficult process by which a person moves from set ideas of a stable, independent self he or she had been conditioned into accepting as normative, towards the acquisition of a frame of reference that

is constituted by, “the open-ended, interrelational, ... and trans-species flows of [continuously re-] becoming by interaction with multiple others” (Braidotti 2012:35). Concurring with these ideas, Elizabeth Ellsworth (1989:313) criticises notions of critical pedagogy based on the idea of a stable, authentic self (1989:313). This kind of pedagogy upholds traditionally linear views of the processes of learning that “fail to loosen deep-seated, self-interested investments” premised upon ideals that typically uphold, as Kahn also pointed out, European, white, male, middle-class, Christian, heterosexual and able-bodied attributes as the norm for this so-called stable self. Ellsworth (cited in Burdick & Sandlin 2013:157) therefore echoes Braidotti’s notions in her views of the self as non-unitary and multi-dimensional, and posits an alternative view of critical pedagogy that focuses more on “embodied, holistic, performative, intersubjective, and aesthetic aspects of pedagogy and sees learning as more [of a non-linear] tentative and ambiguous [process]”. Critical learning is not a nicely neat and orderly process, but one in which people “fall into life as opened and unfinished” (Burdick & Sandlin 2013:157).

I hold that art, and in particular the visual arts, in its 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), could prove to be a useful tool for the facilitation of these processes envisaged by Braidotti and Ellsworth. I also regard art (when fuelled by curiosity without preconceived ideas about outcome) as an open-ended process in a very fundamental sense, which starts from “not-knowing” and may result in “ambiguity and paradox” (Van Boeckel 2013:81). Therefore, Ellsworth’s idea (cited in Burdick & Sandlin 2013:159), of a need for spaces where we could “entertain strangeness and play in difference” in order to experience powerful pedagogical forces “through which we come to have the surprising, incomplete knowings, ideas and sensations that undo us and set us in motion towards an open future”, could be realised in the ‘spaces’ created by art.

In this section, the introduction, I have endeavoured to provide a broad outline of the rationale for and the larger context of this research. In the following section I explain the background to the study by introducing the context of the project I analysed and briefly explaining the specific theoretical perspectives on which I based my analysis of the project.

1.2 Background

As I explained in the introduction, I am particularly interested in developing art projects that will foster in learners the openness, curiosity and capacity to critically examine themselves and their own perceptions of humanity’s place in the world in a creative and productive manner. Therefore, in

answer to one of the assignments of the coursework for this master's degree, I developed a practical art project (entitled "Self, Local, Global") in which I attempted to bring the issues I have discussed here to the fore in the learners' minds in order to stimulate open-minded, critical and innovative thinking that would find creative expression in artistic processes and art works. I felt that the project could be used for further analysis, beyond that which was required by the assignment, in order to explore more fully the insights that could be gained from it, and to that end I adjusted the project slightly for execution by Grade 10 learners.

My recent introduction to theories relating to posthumanism¹ (see also Chapter 2) and new materialism² (see also Chapter 2) opened up the possibility of interesting perspectives of my issues of concern, and also provided me with the theoretical tools by which they could be explored as interrelated and intertwined entities in an integrated whole. It was my hope that these ideas might provide me with ways in which the project I referred to above could be analysed innovatively, and that they might thereby offer the possibility of finding creative and stimulating ways of thinking about, interpreting and understanding our place in and responsibility towards the (rest of) the world. It is important to note that the form of posthumanism that resonates with the issues at stake here is, in the words of Karen Barad, "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 non-living)" (2007:136).

Within this framework of posthumanism, which, with reference to new materialism, encompasses notions of our dynamically shifting bodily enmeshment and entanglement with the material world

¹ Posthumanism may be regarded as "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" (Pedersen 2010:242). Posthumanism is discussed in Chapter 2.

² Denoting a recently prominent "material turn" in certain currents of academic thought and comprising "an extensive conversation across the territories of the sciences and the humanities" (Iovino & Oppermann 2014:2), new materialism, broadly speaking, opposes transcendental and *dualistic* humanist traditions that promote dichotomous patterns of thinking, by enabling us to conceptualise how nature and culture and matter and mind move and mingle in processes of continuous flow (Barad 2012:48). Matter is not "a fixed essence; rather, matter is substance in its ... becoming – not a thing but a doing, a congealing of agency" (Barad 2003:828). New materialism is discussed in Chapter 2.

(Alaimo 2010:23-24) and our responsibility to be accountable from where we are in our situated position (Braidotti 2014), I decided, as explained above, to slightly adjust the afore-mentioned practical project, and redo it with a group of Grade 10 learners. This time, however, I did not only, together with one of my colleagues, facilitate the project; we also simultaneously partook in it. In this way I hoped to disrupt the educator- learner relationship in a way that would open up possibilities and ways for gaining fresh, unexpected insights and knowledge as educator/learner entanglements and interactions flowed and shifted. My hope was that the (partial) eschewal of the educator-learner relationship would take me into productive destabilisations and spaces of discomfort as I relinquished my “privileged position” within my research process (Chappell 2011:155). I wished to avoid a scenario where the world becomes “... for the researcher abstract sets of data as he/she subjects it to the probing, testing, manipulation and silencing of analytical processes” (Snaza & Weaver 2015:9). I also reminded myself to remain mindful of Barad’s notion that insights produced and gained not only depended on how data were interpreted, but also on which data were selected and which excluded, as well as how they were selected and by whom. Another factor of interest to me was Barad’s idea of the researcher being entangled with and co-constituted in multiple ways – resonating with the idea of an unstable self as discussed above – as part of the phenomenon he/she is studying (Højgaard & Søndergaard 2011:350–351).

I therefore had to be alert to the fact that I needed to be honest in my interactions with the content and matter of my writing, by being aware that as I repeatedly worked through the enmeshments of data and theory, they also worked through me. I had to be mindful of my own shifting motives and agendas, my own shifting selves, and how they influenced and became intertwined with what mattered and didn’t matter when I chose and analysed the data – what was included and what was excluded. I needed to be aware of how the ‘I’, intertwined with all the matter(s) (materials, bodies and ideas) that constituted the art project, by choosing to include some and exclude other data, brought about a different sedimentation of that ‘I’ – after all, as a form of matter, the ‘I’ never exists as a fixed, predetermined (id)entity, but is always “part of the world in its open-ended becoming” (Barad 2003:821). In relation to this liberating open-endedness, Cohen puts it as follows: “matter and its dynamic, diffuse meshworks generate strange stories and demand participations that move beyond the certainties of closure: not a study of so much as a movement with” (2014:x).

At this point it is important to state that, although I am excited about the possibilities for alternative forms of analyses that the posthumanist and new materialist theories briefly discussed here could offer, I am mindful of the fact that, like humanist notions, (some of) these ideas are ultimately also (human) perceptions and constructs. However, as indicated by the discussions in the introduction of this chapter, it is beginning to seem undeniable that we are experiencing, in a very real, material way

and on a scale unprecedented in human history, irreversible and irrevocable damage to and destruction of the very matter, in all its forms, of this planet, our home. This destruction seems to result directly from humanity's actions based upon its perceptions of its own elevated place in and unique rights to the world and in relation to the non-human other. It is this, I believe – a scenario of which we can hardly predict or gauge the outcomes and which is bringing us face to face with the possibility of our own self-induced extinction – that prompts us to seek and grope for ways of seeing the world, and our position in it, differently.

Ultimately, on a very personal level, these notions of posthumanism resonate very strongly with me, as I have always experienced a great sense of wonder and awe at the richness, uniqueness and complexity of life on earth in all its manifestations, hence my particularly deeply felt concerns about the importance of the maintenance of biodiversity; not for humanity's sake, but for the sake of life itself. However, I realise that knowledge alone is not sufficient to keep humanity from destroying rare and beautiful life forms, or, for that matter, the matter of the earth itself. We need to learn (or re-learn) to care about the 'non-human other'; we need to be deeply moved and disturbed by the suffering inflicted upon a baby albatross. I therefore endeavoured to integrate into my theoretical perspectives and analyses a look at ideas concerning the affective. This would include, for instance, ideas such as those of Astrida Neimanis and Rachel Walker (2014:564) of the possibilities of notions of trans-corporeality³ (see also Chapter 2) to help us "reconceptualise various routes of connection to [the] seemingly distance space [of the world] 'out there'".

I viewed the execution and analysis of the project and the writing of the dissertation as part of a journey entailing multiple entwined interactions and (re)connections between many entities and ideas, creating and recreating different configurations of materialisation, many of which I did not manage to include; this journey will, I hope, continue beyond the dissertation's completion. However, it has been my experience that, in performing the many choices, actions and interactions that constituted the making and writing of this dissertation, my sense of mindfulness, awareness, amazement, acknowledgement and appreciation of this world in all its manifestations has continuously expanded. I am intent on continuing this process as I, immersed in the world and part of it, grope and seek for meaningful, responsible and ethical ways of gaining knowledge, through my chosen profession as art teacher but also through all of my living and being, that will help us to move

³Trans-corporeality refers to the "material interchanges" across the bodies of human and non-human life forms and the encompassing material world – this has created both a "new material and posthumanist sense of the human as substantially and perpetually interconnected with the flow of substances and the agencies of environments" (Alaimo 2012:476). Trans-corporeality is discussed in Chapter 2.

towards the creation of a more just way of living in the world, not only for humans but for all of the earth.

1.3 Research statement, research questions and study aims and objectives

Keeping in mind the background as described in the previous section, the research statement, research question, and study aims and objectives comprised the following:

1.3.1 Research statement

An in-depth analysis of aspects of an art project that had been conducted at the Tygerberg Art Centre from April 2016 to June 2016, using a methodology of diffraction, was undertaken in order to establish whether useful insights, that could be implemented fruitfully towards the development of art projects aimed at a critical examination of how we as humans live on this earth in relation to its systems and other life forms, might be revealed.

1.3.2 Research question

With a view to the development of art education projects aimed at secondary school learners, what useful insights could be gained from an in depth analysis, based specifically upon a methodology of diffraction, of an art project (entitled “Self, Local, Global”) conducted at the Tygerberg Art with Grade 10 learners? This entailed a search for answers to the following questions:

- i. What insights could be gained from an in depth 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 all non-human others on earth?
- ii. How could these insights, if any, be applied to the development and execution of future art projects aimed at facilitating critical awareness of the relation of humans to all non-human others on earth?

1.3.3 Aims and objectives

The aim and objectives of this research were as follows:

Aim:

The main aim of the study was to explore the role of art education as medium in facilitating critical awareness of the relation of humans to all non-human others on earth.

The primary objective of this aim:

This was to critically analyse a Grade 10 art project in order to gain insights that will be useful in developing practical art projects (aimed at secondary school learners) focusing on facilitating critical awareness/acknowledgement of the human's 'place' in the world, and hence its relationships with all other matter and processes on earth (living and non-living). From this stemmed the following secondary objectives:

- i. To use diffraction as analytical tool in the hope of gaining these particular insights
- ii. To examine ways in which these insights could be employed in the development of art projects for secondary school learners
- iii. To examine my role as art educator in facilitating such art projects.

1.4 Overview of the research design and methodology

The research design comprised a 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). The analysis of the data revealed to a certain extent the interrelationships between the learners themselves, between the learners and the educators, and between the latter two, but it revealed in particular the interrelationships between the human participants and all the materials (art materials, equipment and any other matter such as plant materials) that 'partook' in the project. It also revealed the interrelationships between the learners and the physical and mental spaces and places in which they are situated at the school and beyond the school, as well as the background to the learners' and educators' experiences in relation to the ideas that informed the goal and objectives of this research. The interplay and interlinking between all these factors (living and non-living) were investigated as sources of agency in terms of the execution of the project. Due to the nature of diffraction as analytical tool, as discussed below, I had to be mindful of the fact that I as researcher was not separate from what was being studied and analysed, from the 'outside looking in', but that I was, as part of the study, also always intricately entangled with all its other parts.

Barad's research methodology of diffraction was applied as analytical tool. I chose this methodology for its potential to elucidate insights that could prove to be important in terms of my goal and objectives, but that might not have come to the fore if other methods were used. Barad (2007:29) informs us that diffraction (from optical and wave phenomena, as opposed to reflection) involves "reading insights 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) further holds that “diffractive methodology is respectful of the entanglement of ideas and other materials in ways that reflexive methodologies are not”. Of particular importance for this study, was Barad’s claim that diffraction is designed to focus on the details, however small, and the specifics that emerge, and that it therefore has the potential to lead to insights that might be lost when similarities, bigger themes and general principles are the focus (cited in Juelskjær & Schwennesen 2012:13). More detailed explanations of the research methodology are given in chapters 2 and 3.

The research was executed in compliance with Stellenbosch University’s Policy on Research Ethics. Confidentiality was maintained by means of keeping all written notes as well as voice and video recordings (on an electronic device) safe in a locked drawer in my classroom. I am the only person who has access to the keys for the drawer. Any participant could and may still request to look at the notes or listen to the voice or video recordings of their individual contributions at any stage. Participants could review or edit any information mentioned in conversations or observation sessions. Oral data collected from discussions were audio recorded and transcribed. Data were accessible only to the research supervisors, the researcher and the research participants. The data will be stored for as much time as needed for the reportage of research and possible resulting journal articles to be written. This would not be longer than 12 months. After this, the data will be deleted.

Any information that was obtained in connection with the study and that could identify the participant remained confidential and was disclosed only with the participant’s permission or as required by law. Results were reported in the MA study, but any learner or educator was entitled to edit or review his/her comments at any time before its publication. The publishing date was made available to all participants and a suitable time frame was allowed for responses.

1.5 Boundaries and limitations of the dissertation

As this is a mini-dissertation, the scope of my research project remained strictly limited to a particular form of analysis, namely diffraction, of a single practical art project. This type of analysis requires working with specific and fine detail rather than bigger, generalised themes, hence the fact that I worked with a restricted amount of data. Due to the fact that I am an art educator, the study was restricted to the processes and experiences of art production and their effects on the artists (in this case Grade 10 learners); the role of art in fostering awareness and concern in the viewer of the artwork was investigated only briefly.

The intention was to explore the potential of diffraction for producing insights that could be useful in designing future art projects for secondary school learners from the perspective of a particular definition of posthumanism. This definition pertains specifically to my stated field of interest, namely the implications and outcomes of humanity's attitudes towards and interactions with the living and non-living non-human other that constitutes the earth and its systems. In other words, the research excluded investigations relating to posthumanist notions in the field of the human's relations to, for instance, machines and other forms of technology, and the 'other' of humanity itself. I acknowledge that these would be intertwined with the afore-mentioned in a myriad of continuous (re)configurations, but the restraints of a mini-dissertation precluded such investigations.

However, it is my hope that the methodology and results of my research might be applicable and useful in a much broader context, as the particular method of analysis I have used (diffraction) purports to allow for substantial breadth and depth in terms of the insights that could be gained.

1.6 Structure of the dissertation:

The following explanation provides a brief outline of the chapters comprising the dissertation.

Chapter 1: Orientation to the study: This chapter provided an introduction as well as a background to the research. It furthermore included the problem statement, research question and the aims and objectives of the research while giving an overview of the research methodology. Lastly it provided, together with the boundaries and limitations of the study, the structure of the dissertation.

Chapter 2: Theoretical perspectives: This chapter consists of an explication of the theoretical perspectives that informed the study, and includes an introduction and a body that is organised into sections on posthumanism, new materialism and affective theory respectively. The discussions under new materialism include those of agential realism (which also entails diffraction and material-discursive practices), trans-corporeality, interactionist ontology and viscous porosity and vibrant matter. The chapter concludes with a summary in which the relevance of the theoretical perspectives to the study is elucidated.

Chapter 3: Research methodology: This chapter provides the methodology of the study, which includes the study design, research approach and paradigm, research design, data analysis, sample selection and data collection, data capturing and ethical considerations.

Chapter 4: Presentation and discussion of the diffractive analysis: This chapter comprises the discussions and findings of the post-qualitative research I have undertaken in this study. In the introduction, the aim of the study is restated in the form of the research questions. The implications

of a diffractive analysis are examined, as well as the position of the researcher in such an analysis. The data are analysed in a 'rhizomatic' manner, in line with notions of diffraction; the meaning of this is also explained in the introductory section of the chapter. The discussions are linked with the appropriate authors discussed in Chapter 3 and their theories integrated with the data and analysis.

Chapter 5: Conclusions and implications: This, the final chapter, consists of the conclusions drawn from the findings of the study and their implications. The conclusions drawn from the findings and their implications were derived from a diffractive reading of the data in terms of their factual, theoretical, material and interpretative components. These were then assessed in terms of their implications for and possible contribution to the field of research of the study. This is followed by critique of the research and suggestions for further research, followed by my concluding remarks.

CHAPTER 2: THEORETICAL PERSPECTIVES

2.1 Introduction

The theoretical perspectives in which this study is grounded revolve mainly around tenets of posthumanism, new materialism and affective theories, and ideas relating to post-qualitative methodologies. The latter are discussed in Chapter 3, while explorations of various categories of the former two are woven into the different components of the analysis, in line with the post-qualitative notion that “analysis is thinking with theory/ theoretical reading” (St Pierre 2013a:225). In this regard Elizabeth St Pierre (2011:621) explains how she “thinks with everyone’s words” as she writes what she had read and lived into analysis of the data. She 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”. St Pierre states that she (2011:622):

[I]magines a cacophony of ideas swirling as we think about our topics with all we can muster – with words from theorists, participants, ... friends, ... ghosts who haunt our studies, ... – and with our bodies and all the other bodies and the earth and all the things and objects in our lives – the entire assemblage that is a life thinking and, and, and ...

Theory, data, data collection and data analysis for St Pierre “becomes impossible to disentangle”, hence her statement that she sees no sense in separating into chapters theoretical perspectives and data analysis and interpretation (2011:621, 622).

However, for the sake of clarity, to give the reader an uninterrupted overview of the theories that informed my thinking, doing and becoming with the data, I expand on the main theories in this chapter. I understand ‘becoming’ here in the way that Nikki Rotas, citing Grosz, explains it when she states that “[i]t is not things, either subjects or objects, which become, but rather the virtualities latent in them, whose future actualities cannot be contained in the present” (2015:98). Therefore, Rotas (2015:98) states that it is not “a subject or object that becomes – indeed there is no subject of becoming or a thing that is the result of becoming – but only something in objects and subjects that transform them and makes them other than what they used to be”.

2.2 Posthumanism

Posthumanist ideas have been developed and used by various cultural and philosophical theorists, often in reaction and as a challenge to assumptions within humanistic and enlightenment thought. Thus, 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 concept of ‘the human’ when viewed in the light of current cultural and historical contexts (Miah

2007:12). While it is true that technological change has become a pertinent issue in contemporary thought about the posthuman (Miah 2007:2), this was not the focus of my study. However, it is worth mentioning here that, in terms of environmental ethics, technological solutions to global environmental problems that are more in keeping with existing natural processes are being sought, instead of technology merely taking advantage of these processes to further the cause of the human (Miah 2007:8).

Posthumanist ideas relate to the demise of certain perceptions of the human, perceptions that may anyway have been applicable to only that “fraction of humanity who had the wealth, power, and leisure to conceptualize themselves as autonomous beings exercising their will through individual agency and choice” (Hayles 1999:287). According to N. Katherine Hayles, human will is no longer regarded as the source from which arises “the mastery necessary to dominate and control the environment”. Hayles (1999:290) continues her argument as follows:

Rather, the distributed cognition of the emergent human subject correlates with ... the distributed cognitive system as a whole, in which ‘thinking’ is done by both human and nonhuman actors ... To conceptualize the human in these terms is not to imperil human survival but is precisely to enhance it, for the more we understand the flexible, adaptive structures that coordinate our environments and the metaphors that we ourselves are, the better we can fashion images of ourselves that accurately reflect the complex interplays that ultimately make the entire world one system.

Therefore, a pivotal premise of posthumanism is its critical position regarding the prominence given to humanity in the natural order (Miah 2007:2). When viewed from this perspective, “the ‘post’ of posthumanism need not imply the absence of humanity or moving beyond it in some biological or evolutionary manner” (Miah 2007:2). It should rather be seen as an attempt to recognise, acknowledge and understand that which has been omitted from an anthropocentric worldview, and this includes coming to grips with how the Enlightenment’s centring of humanity has been shown to be inadequate (Miah 2007:2).

Posthumanism, in how it is applicable as a theoretical premise for this study, may therefore be regarded as follows (Pedersen 2010:242):

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.

In a sense, posthumanism, as a group of diverse but related theories of continuously evolving notions grounded in thought about humanity’s place in the world, could be viewed as a

philosophical stance about what might be termed a “perpetual becoming” (Miah 2007:23). Helena Pedersen (2015:57) expands on this notion when she suggests that posthumanism investigates pertinent questions that troubles the humanist notion of an essential “human nature”, by locating “spaces of ontological/epistemological imperfection” (for instance, by linking education theory with fields such as animal studies), which creates notions of “radical intersubjectivities” and “open-ended ways of becoming in the world”. The notion of an essential human nature stems from the Cartesian construct that humans have a “true and immutable [and immaterial a priori] nature, essence, or form which is unchangeable and eternal”, and which forever sets them apart from and above everything else in the world (Jackson 2013:741). Posthumanist ontological theories defy these long held and ingrained ideas by focusing on the complexity, or entanglement, of the human and the non-human (Jackson 2013:742).

In line with the above, Barad (2007:136), whose ideas have been central to the writing of this study, relates her take on posthumanism to her theory of agential realism (see under ‘Agential realism’ in section 2.3.2), and 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) ... Posthumanism does not presume that man is the measure of all things .. Posthumanism doesn't presume the separateness of any-thing', let alone the alleged spatial, ontological, and epistemological distinction that sets humans apart.

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. According to Dennis Carlson (2015:x), this oversight needs to be urgently addressed. He predicts that if we do not succeed in moving beyond the human-nature binaries stemming from the deeply rooted humanist notions that have ruled Western thinking for so many centuries – with its naturalised views of human exceptionalism and superiority together with the perceptions, attitudes and modes of behaviour that stem from such views – the future of humanity looks decidedly “bleak and unsustainable” (Carlson 2015: x). Education is still steeped in the humanist tradition (Morris 2015:46), and the epistemologies and ontologies of humanism continue to inform and frame the discourses of contemporary education (Gough, cited in Pedersen 2015:61). For instance, the kind of education that promotes sustainability, which broadly speaking forms a meta-theme of my study, is according to Pedersen (2015:67), citing Kahn, in its present forms still too “anthropocentric, technocratic, too tied to governmental and corporate agendas, and failing to address issues of social justice”.

Pedersen (2015:71) therefore argues for an urgent and critical rethinking, from a posthumanist viewpoint, of the crippling force of “knowledge hegemonies”, prevalent in education policies, that have as their main goal the production of a particular kind of human that will “fulfil the imperatives of global capitalism”, to the exclusion of any other kind of subjectivity.

Snaza and Weaver (2015:5) argue that due to our “saturation” in humanism, it is as yet extremely difficult to flesh out a theory of posthumanist education or determine the contours of a posthumanist pedagogy. However, they suggest with a note of urgency that this moment of dissolving solidities, destabilisation and indeterminacy – this “deterritorialization”⁴ – should be relished for its “potential drifts” and its openness exploited before the terrain becomes “reterritorialized” (Snaza & Weaver 2015:3). One of the exciting possibilities, they claim, is that the challenge to a humanist definition of “‘the human’ and its place in the world”, in its requirement for interdisciplinary thought, could trouble the “entirety of the disciplinary structure” by stimulating research that cuts across all of the humanities and the natural and social sciences (Snaza & Weaver 2015:5). This would contribute, through the vision and actions of “radical educators”, towards freeing education from the structures of humanist education in which are embedded the “dehumanizations enabled by state-administrated compulsory educational institutions [which are] ... segregated in so many ways” (Snaza 2015:21). It is this kind of education that allows “‘we’ humans to pass over in silence the extraordinary violence ‘humans’ do to animals, to ecosystems, to whole species, and, of course, to each other” (Snaza 2015:21).

Another vital aspect of posthumanist research resides in moving away from humanism’s idea of Descartes’ notion of consciousness as the determining factor in human identity towards embodiment, materiality and affect. On a very practical level, this implies that in research the subject-object relationship should be relinquished, as it tends to alienate the researcher from the world and therefore also from that which is being studied (Snaza & Weaver 2015:9). Instead, the entangled materialities and interactions (or intra-actions [see under ‘Agential realism’ in section 2.3.2]) between humans (including the researcher) and nonhuman sentient beings, and humans and non-sentient objects, should be considered (Snaza & Weaver 2015:9). Stephanie Springgay, citing Herzog, contends that humanist research methods proclaim fixed “correspondences, analogies, and associations between elements at the expense of their differences, their dynamisms, their

⁴ The notions deterritorialization and reterritorialization used here originate from Deleuze and Guattari and are expanded upon in their book *A thousand plateaus: Capitalism and schizophrenia*, first published in 1980 in French as *Mille Plateaux* and translated by Brian Massumi (1987).

movements and changes” (2015:77-78). From a posthumanist view point, however, all bodies, both human and non-human, exist as entanglements which, because they constantly move and change, do not define these bodies (Springgay 2015:81). Rather, it could be said that “an entity exists in multiple ways that may not be initially apparent, for entities’ entangled and dependant existences mean that none is fully defined by its entanglement in any one particular assemblage” (Springgay 2015:81). In this context, Springgay (2015:82) refers to the notion that bodies (and not only human bodies) exist in movement – which she terms ‘absolute movement’ – which implies that they are always differentiating, intra-acting, self-creating and productive. Movement-sensation – which relates to the affect generated by the sensory experiences of the ‘moving’ body – acts as a further dynamic force in the continuous processes of change, differentiation and becoming.

Very important in terms of the situation of the researcher, is Springgay’s (2015:79, 85) assertion that materialist posthumanist research cannot be done from the outside – the researcher is inextricably entangled with that which he/she is researching, co-emerging in the ongoing processes of change and differentiation. Carol Taylor and Gabrielle Iverson (2013:666) concur, stating that by properly acknowledging and understanding that we have no “bird’s-eye” view from which we may look down or back at our world, we are obliged to seriously consider and account for our “own messy, implicated, connected involvement in knowledge production”.

This brings me to the next set of theoretical perspectives in which this study has been grounded, namely new materialism. These theories, as can be deduced from the last two paragraphs, are intrinsically related to the notions of posthumanism that I have discussed here.

2.3 New materialism

2.3.1 Introduction

As discussed above, an important characteristic of posthumanist theorising, in its move away from anthropocentrism, denotes a move towards thoughts and experiences that are concerned with the bodily, the sensory and the material, and their interactions (or intra-actions [see under ‘Agential realism’ in Section 2.3.2]) in states of inextricable entanglements.

Rick Dolphijn and Iris van der Tuin (2012a:13) argue that new materialism may be regarded as a new metaphysics. A new metaphysics, they explain, results from the resonances between old readings, new readings and re-readings of old texts from an “unforeseen past”, which often include work that had largely been marginalised by, or even excluded from, prevailing main stream academic thought. A new metaphysics does not simply add something to thought, but rather “traverses and thereby rewrites thinking as a whole, leaving nothing untouched, redirecting every possible idea according to

its new sense orientation” (Dolphijn & Van der Tuin 2012a:13). During the 1970s and 1980s, French philosopher Gilles Deleuze, often in collaboration with Félix Guattari, a radical psychoanalyst, focused on rewriting the history of thinking by attending to the writings of those materialist authors who had long been rejected by mainstream academia. By re-reading radical thinkers such as Baruch Spinoza, he showed how they “actually offer philosophy a new way of thinking – namely, a philosophy of the body” (Dolphijn & Van der Tuin 2012c:95). From here they began to fully explore materialist/monist thought, creating the foundation upon which contemporary new materialist scholars construct their theories (Dolphijn & Van der Tuin 2012c:95).

Broadly speaking, this prominent material turn towards new materialism in certain currents of academic thought, which comprises “an extensive conversation across the territories of the sciences and the humanities”, opposes transcendental and dualistic humanist traditions that promote dichotomous patterns of thinking (Iovino & Oppermann 2014:2). By doing so, it enables us to conceptualise how nature and culture and matter and mind move and mingle in processes of continuous flow (Barad 2012b:47). It is exactly this “nomadic traversing of the territories of science and the humanities” that Dolphijn and Van der Tuin identify as the strength of new materialism (2012c:100 – 101). This notion resonates strongly with the posthumanist view on the desirability of inter- or transdisciplinarity in education, as discussed above.

Dolphijn and Van der Tuin, citing Braidotti, explain how the affirmation of a radical sense of materialism, or radical immanence, defines matter not as solid or stable, but as always changing or undergoing metamorphosis (2012c:107). 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”. At the same time, the relation between matter/materiality and language has been qualitatively shifted, so that matter is viewed not only as “spoken about or spoken with, but rather as itself simply speaking” (Dolphijn & Van der Tuin 2012c:108). Citing Vicki Kirby, Dolphijn and Van der Tuin (2012c:108) explain that “nature and culture, word and flesh are all emergent within a force field of differentiations that has no exteriority in any final sense”. This overrides the “primacy of either language/culture or matter/nature”, which results in the traversal of a “false dualism” (Dolphijn & Van der Tuin 2012c:108). This intra-active (see under ‘Agential realism’ in Section 2.3.2) co-constitution of language/discourse and matter from entangled states of indeterminacy through specific acts of boundary-drawing is known as “material-discursive” practices (see under ‘Agential realism’ in Section 2.3.2) (Dolphijn & Van der Tuin 2012:109). Therefore, “an object is no longer passive matter that has to be re-presented; meaning making takes place on a two-way track” (Dolphijn & Van der Tuin 2012c:110). According to Dolphijn & Van der Tuin (2012c:110), Barad calls

this an “onto-epistemology”, or even an “ethico-onto-epistemology”, which implies that “being and knowing (and the good) become indistinguishable”.

As pertaining to dualistic thinking, and the notion of difference supported by it, new materialist theorists move away from binary oppositions that represent relations of negativity, “according to which different-from is necessarily worth-less-than”, towards an affirmative approach in which difference is that which “refer[s] to other differences which never identify it but rather differentiate it” (Dolphijn & Van der Tuin 2012b:127, 130). In relation to this, Dolphijn and Van der Tuin, citing Quentin Meillassoux, state that there is “no reason for anything to be or remain self-identical”, thereby emphasising the notion “difference in itself” (2012b:127, 130). These ideas are supported by Deleuze’s observation that while difference does not need relations, it also at the same time does not exist in a void (Dolphijn & Van der Tuin 2012b:127, 130). They also resonate with Diana Coole and Samantha Frost’s (2010:8) assertion that the exponents of new materialism, with their avowed posthumanism, eschew oppositional ways of thinking founded in Cartesian dualism, preferring a “creative affirmation of a new ontology, a project that is in turn consistent with the productive, inventive [differentiating] capacities they ascribe to matter itself”.

In terms of the concerns of my study, as explained in Chapter 1, I am of the opinion that new materialist theories as theoretical foundation for my research, rooted as they are also in posthumanism with its antipathy towards the privileging of the human, offer interesting and potentially fruitful ways in which to approach and anchor the research. I agree with Coole and Frost (2010:3) when they assert that we need to return to the most essential questions about “the nature of matter and the place of the embodied human within a material world”. This means paying attention to developments in the natural sciences as well as to the ways in which we presently “produce, reproduce, and consume our natural environment”, while taking heed of current “shifts in the bio- and ecospheres” (Coole & Frost 2010:3). It also requires that we examine carefully and in depth our daily interactions with the natural environment, as well as with material objects; in short, with all (that) matter(s) (Coole & Frost 2010:3). It is also crucial to take cognisance of the idea that “materiality is always something more than ‘mere’ matter: an excess, force, vitality, relationality, or difference that renders matter active, self-creative, productive, unpredictable” (Coole & Frost 2010:9).

I will discuss particular ideas and/or theories that are grounded in new materialist thinking as explained above. These theories are Karen Barad’s ‘agential realism’, Stacy Alaimo’s ‘trans-corporeality’, Nancy Tuana’s ‘interactionist ontology and viscous porosity’ and Jane Bennett’s

‘vibrant matter’. As stated earlier, thoughts on these ideas are also threaded through and integrated with the analysis of the data and the discussions pertaining to my findings and conclusions.

2.3.2 Agential realism

Barad (2010:249) sketches the following picture of a classic Newtonian view of the world:

Determinism rules ... [Man is afforded] a God’s eye view of the universe, the universal viewpoint, the escape from perspective, with all the rights and privileges accorded therein. Vision that goes right to the heart of the matter, unmediated sight, knowledge without end, without responsibility. Individuals with inherent properties there for the knowing, there for the taking. Matter is discrete, time is continuous. Place knows its place. Time too has its place. Nature and culture are split by this continuity, and objectivity is secured by externality.

However, with the advent of the field of quantum physics at the beginning of the twentieth century, all these certainties about how the world works began to crumble as various experiments brought to light the Newtonian impossibility that both light and matter could behave like either waves or particles, which are “ontologically distinct kinds” and should actually therefore be mutually exclusive in constituting the nature of one and the same thing (Barad 2010:252). In order to reach a consistent understanding of the nature of light, the physicist Niels Bohr considered the nature of concepts and meaning making as expressed in language, and proposed that concepts should be understood as “*specific material arrangements* of experimental apparatuses” – concepts should therefore be regarded as “indeterminate” outside of the appropriate material conditions necessary for their intelligibility (emphasis in text, Barad 2010:253). This then also implies that, if certain concepts are made intelligible, others will be necessarily excluded (Barad 2010:253). These exclusions “constitute an irreducible openness” (Barad 2010:254).

Therefore, perceiving an intimate relationship between discourse and materiality, Bohr argued that the empirical finding of quantum discontinuity, together with the materialist understanding of concepts, “undermines the notion of an inherent fixed (apparatus-independent, Cartesian) subject-object distinction” (Barad 2010:253). Distinction between “observed” and “agencies of observation”, just like the meaning given to specific concepts to the exclusion of others, is also enacted by what could be termed “material-discursive apparatuses” (Barad 2010:253). No separately determinate individual entities that *interact* with one another exist; instead, “the co-constitution of determinately bounded and propertied entities results from specific *intra-actions*”, a Baradian neologism that recognises the “ontological inseparability” of entities and is explained more fully in the following paragraphs. Therefore, not only with concepts, but also with objects, “boundaries and properties ... become determinate, not forevermore, but rather, as an inseparable part of what Bohr

calls a *phenomenon* – *the inseparability (differentiated indivisibility) of ‘object’ and ‘agencies of observation’* (emphasis in text, Barad 2010:253).

According to Barad (2007:136), posthumanism, which refutes the anthropocentrism of humanism and recognises the important part played by non-humans in natural-cultural practices, aims to account for “the boundary-making practices by which the human and its others are differentially delineated and defined”. In this regard, Barad (2007:32) therefore views her theoretical framework of agential realism, which is rooted in Bohr’s investigations and understanding of the behavioural patterns exhibited by electrons and particles of matter in quantum physics experiments as related above, as 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). Intra-action could therefore be viewed as a key concept in Barad’s theory of agential realism. Opposed to interaction, which denotes encounters between pre-existing entities and therefore assumes “separate individuals that precede their intra-action”, intra-action signifies the “mutual constitution of entangled agencies” (Barad 2007:128). This means that the idea of intra-action “recognizes that distinct agencies do not precede, but rather emerge through, their intra-action” (Barad 2011:451).

Intra-action therefore accounts for the making of differences, rather than assuming the independent or prior existence of “individuals” (Barad 2007:33). It is not that individuals do not exist, it is rather they are not individually determinate, but only exist within phenomena (particular materialised/materialising relations) in their ongoing, iteratively intra-active reconfiguring, and this is held as true also for the human (Barad 2007:205, 210). ‘Phenomena’, in an agential realist sense, are the entanglements — the ontological inseparability—of intra-acting agencies (Barad 2007:206). Agency is to be understood as an enactment, not something someone has, or something instantiated in the form of an individual agent (Barad 2007:178). 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).

A specific intra-action enacts what is called an “agential cut” (in contrast to the Cartesian cut, which implies an inherent distinction between subject and object), effecting a separation between “subject” and “object” within the phenomenon, though “not once and for all” (Barad 2007:140,

179). In particular, agential cuts enact a resolution within the phenomenon of some ontological indeterminacies to the exclusion of others (Barad 2007:140). That is, intra-actions enact “agential separability” — the condition of exteriority-within-phenomena (Barad 2007:175). It is therefore not that there are no separations or differentiations; it is rather that they only exist within relations. Putting this point differently, it can be said that phenomena are differential patterns of “mattering” — diffraction patterns (see under ‘Diffraction’ below) dispersed across differently entangled spaces and times, or rather spacetimematterings (Barad 2012:32).

2.3.2.1 Diffraction

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. Diffraction, the physics of which are explicated in depth by Barad, brings through attention to fine detail the reality of entanglements to light, while being itself an entangled phenomenon (Barad 2007:73, 91). Pertinent then, in terms of my study, is the idea that diffraction is designed to focus on the finely detailed specifics that emerge from the diffractive process, however small they may be, which gives it therefore the potential to lead to insights that might be lost when similarities, bigger themes and general principles are the focus (Juelskjær & Schwennesen 2012:13).

Diffraction is “an optical metaphor for the effort to make a difference in the world ... diffraction patterns record the history of interaction, interference, reinforcement, difference” (Haraway, cited in Barad 2007:71). Barad takes up and expands upon Donna Haraway’s notion of diffraction as 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 (Haraway, cited in Barad 2007:71). Important for my study 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). This means that a diffractive methodology is a critical practice that aims to make a difference in the world, with a “commitment to understanding which differences matter, how they matter, and for whom” (Barad 2007:90).

2.3.2.2 Material-discursive practices

Like intra-action, the term ‘material-discursive practice’, coined by Haraway, also relates to Barad’s (2003:828) agential realism. It denotes a:

rethinking of the notions of discursive practices and material phenomena and the relationship between them: ...discursive practices are not human-based activities but rather specific material (re)configurations of the world through which local determinations of boundaries, properties, and meanings are differentially enacted. And 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.

Therefore, says Barad (2003:822), the material and the discursive (viewed as boundary-making practices through such measures as apparatuses of bodily production) carry equal weight; neither one exists before the other, can be explained in terms of the other, or is reducible to the other. Material-discursive practices can be regarded as “specific agential intra-actions through which matter is differentially engaged and articulated” (Barad 2003:822–823). In terms of ethics and accountability, Barad points out that different material-discursive practices, through agential intra-actions and agential cuts, produce different material configurations of the world. 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).

2.3.3 Trans-corporeality

Alaimo’s (2014:187) theory of trans-corporeality is a posthumanist mode of new materialism and material feminism, and draws among others upon Barad’s notion of intra-action, in which it is impossible to separate the subject from networks of entanglements with intra-active agencies. Other influences have been Haraway’s notions of situated and embodied knowledges (espoused also by Braidotti) and her adamant arguments for material-discursive practices and non-human agencies (on which Barad in part built her own theories) (Alaimo 2016:n.p.). Trans-corporeality has created both a “new material and posthumanist sense of the human as substantially and perpetually interconnected with the flow of substances and the agencies of environments” (Alaimo 2012:476). Put differently, trans-corporeality implies that as embodied beings, all creatures are enmeshed with the vigorous and vital material world, which crosses through them and in so doing transforms them while being also transformed by them (Alaimo 2016, n.p.).

Ontologically, trans-corporeality emerged from the position of the human as perceived by environmental health and environmental justice movements, beginning with human bodies situated in their environments (Alaimo 2014:187). However, as the interchanges of substances are traced, the human is revealed as permeable, so that the outline and borders of the human subject begins to dissolve (Alaimo 2014:187), breaking down the “figure/ground” relation between the environment and the human (Alaimo 2016, n.p.). This could be viewed as applicable not only to humans, but to all species who “find themselves at the crossroads of body and place” (Alaimo 2016, n.p.). It is in this sense that trans-corporeality moves towards a posthumanist account of the subject as being radically reconsidered and rethought as loci of material agencies situated within global networks and systems (Alaimo 2014:187). The posthumanist trans-corporeal subject is produced by and enmeshed with “biological, technological, economic, social, political and other systems, processes, and events, at vastly different scales” (Alaimo 2016, n.p.). Pertaining to its position within capitalism, trans-corporeality is not seduced and attracted by “shiny objects”, but rather takes cognisance of their (in some instances potentially devastating) effects (Alaimo 2016, n.p.). This means taking into account all that are entailed in events that range from the production and manufacturing processes of objects, to their eventual disposal, while facing up to the strange, often unexpected and unforeseen, agencies that link substance, flesh and place (Alaimo 2016, n.p.).

Trans-corporeality therefore demands a total reconceptualisation of ontologies and epistemologies, going radically beyond the boundaries of individual disciplines by involving and intermeshing “science, science studies, citizen science, feminist theory, environmental theories, critical race studies, disability studies, literature, art, and everyday activism”, as it considers the potency of material agencies that traverse substances, objects, bodies and environments (Alaimo 2016, n.p.). Echoing these assertions, Pippa Marland (2013:858), citing Serenella Iovino, contends that “trans-corporeality entails a hybridity that blurs boundaries and distinctions such that it becomes less and less possible to differentiate between human and non-human agency”.

The posthuman ethics of trans-corporeality, in alliance with (or diffractively read through) agential realism ideas of accountability as discussed above, confront us with an uncomfortable, yet inescapable, comprehension of the significance of the most quotidian of human activities (such as buying and using plastics) in terms of their impact on human and non-human lives, as well as on the earth’s non-living systems and matter across vast geographic and temporal dimensions, reaching even to the very bottom of the ocean (Alaimo 2016, n.p.). In a number of her writings, Alaimo concerns herself particularly with a topic that I have touched upon already in Chapter 1, namely the trans-corporeal properties of plastic when it finds itself in the ocean, which, when properly investigated, links humans to “global networks of consumption, waste and pollution, capturing the

strange agencies of the ordinary stuff of our lives” (Alaimo 2014:188). Studies on the impact of oceanic plastics have over a period of four decades gone from concluding that the inert nature of plastic rendered plastic pollution’s effect as “merely aesthetic”, to current knowledge that reveals it as capable of both absorbing and releasing deadly toxins, as well as breaking down to a size that allows it to enter and be absorbed into the bodies of animals, thereby entering the food chain (Alaimo 2014:194). Plastic, in its ‘ability’ to maim and/or kill marine creatures in a variety of horrific ways and, as the most recent studies show, its possible potential to cause cancer when ingested and taken up in (also human) bodies, is even regarded as being in a sense ‘predatory’ by authors such as Captain Charles Moore (Alaimo 2014:199). It was Moore who discovered, researched and publicised the facts about the Great Pacific Gyre with its massive assembly of plastics referred to in Chapter 1. Alaimo (2014:199), citing Moore, points out that we have lost all control over the plastics that have invaded the oceans, as it “mocks us and goes where it doesn’t belong”.

The vastness of the potentially catastrophic implications of oceanic plastic pollution touched upon here is comparable, Alaimo contends, to the devastating consequences of nuclear testing in the Pacific Ocean, such as human ‘jellyfish’ babies being born with transparent skins and no bones (2014:202). The scale and intent of the nuclear testing events seem so incommensurate with the everyday event of blithely using presumably ‘innocent’ plastic bags, that mentioning the two in the same breath seems unthinkable. It is, states Alaimo, “this very unthinkability that trans-corporeality ... seeks to disturb” (2014:202). It is exactly to this end that Alison Starr created the mixed media artwork *Baker* (2012) (Figure 2.1). In this work, the ambiguous image of the atom bomb called Baker – tested at Bikini Atoll in 1948 – has been stitched onto plastic bags (printed repeatedly with the words THANK YOU) to also simultaneously resemble a jellyfish (Alaimo 2014:202). The juxtaposition, but also fusion, of the plastic bags and the image stitched into it – which reminds one also of the transparent plastic swallowed by animals who mistake it for food – provoke the viewer into grappling with and making discomfiting and disturbing connections between the histories, forces and substances of capitalist imperialism, destructive militarisation and cheerful consumerism that facilitate and constitute the trans-corporeal networks in which these human practices are responsible for vast networks of harm (Alaimo 2014:202).

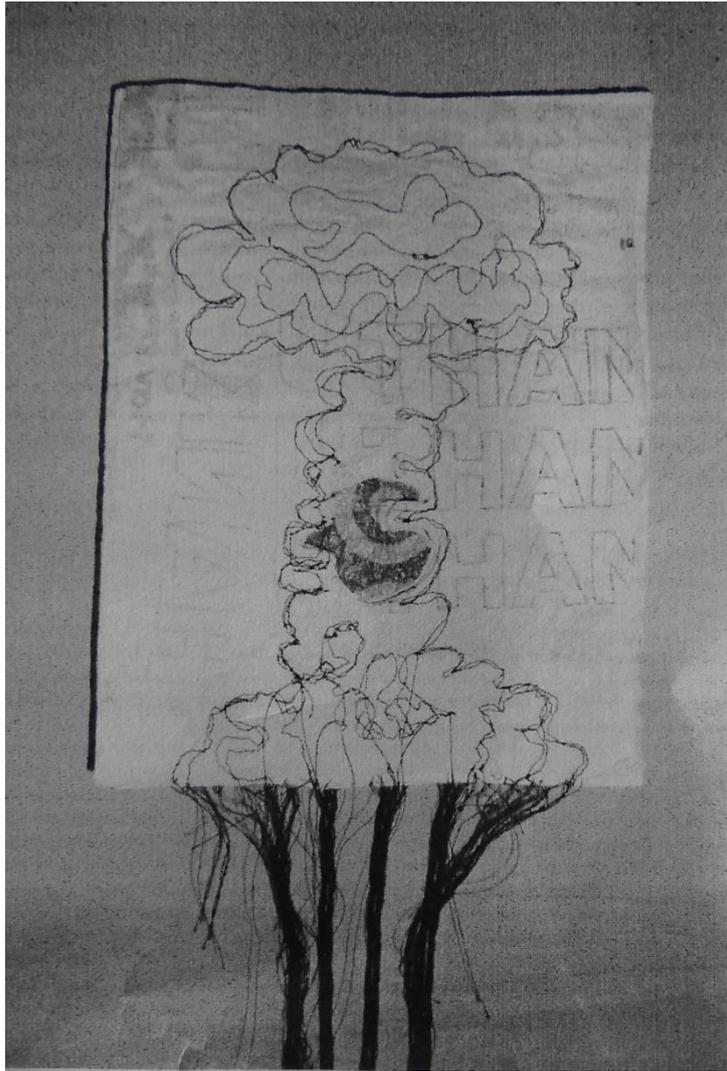


Figure 2.1: Alison Starr, *Baker* (2012), plastic bags and thread (Alaimo 2014:201)

2.3.4 Interactionist ontology and viscous porosity

As a concept, Tuana's interactionist ontology and viscous porosity have much in common with transcorporeality as well as agential realism, as the following discussion will reveal. Her theories, like Barad's, involve the understanding that the social and the natural do not consist of isolable, pre-existing entities, but rather of forces that shape the world by working into and through one another, thereby denoting an interactionist ontology (Tillman 2015, n.p.). Viscous porosity is a conceptual metaphor that assists in a better understanding of interactionist ontology, which denotes the "rich interactions [or, in Barad's parlance, intra-actions] between beings [and forces] through which subjects are constituted out of relationality" (Tuana 2008:188). An interactionist attention to the "processes of becoming" reveals unity as dynamic and always already interactive (intra-active), and

the performance of agency as dispersed in complex systems of relations (Tuana 2008:188–189). The dualistic separations of “the natural from human production, the biological from the cultural, genes from their environments and the material from the semiotic” that are so entrenched in our perceptions and comprehension of how the world works, lead to problems when it becomes apparent that these divisions are “both permeable and shifting” (Tuana 2008:189). Bodies, and not only human bodies, argues Tuana, should be regarded not as “fixed or inert”, but as “fluid and emergent”, and differences should therefore be seen as “fluid, evolving, and contextual” (2008:189).

Interactionism takes cognisance of both the porosity of entities and the agency of materiality, positing “a world of complex phenomena in dynamic relationality” (Tuana 2008:191). Therefore, there is no clear pre-existing and immutable divide between culture and nature (Tuana 2008:191). When we do make distinctions, it is done for particular purposes at particular times, which means that we take epistemic responsibility – and therefore also ethical responsibility – for the various effects (such as how they enable and limit possibilities, and for whom) of the distinctions we bring to bear (Tuana 2008:192). These ideas, the reader will notice, agree strongly with those of Barad’s agential realism. Tuana (2008:194–195) cites hurricane Katrina, which hit New Orleans in August 2005, and the many complex, interwoven and disastrous problems that followed in her wake, as an emblematic example of the viscous porosity that exists between “humans and our environment, between social practices and natural phenomena”. In order to elucidate her argument, she discusses the dismal effects of the forces generated by inter-(or intra-)acting factors such as climate change based on human activity, the geological characteristics of New Orleans (such as that it is built on land lying below sea level), its historical origins, political decisions that perpetuate poverty, bad maintenance of infrastructures, poor waste management and environmental degradation (2008:194–195).

The concept of ‘viscous porosity’ therefore implies, in terms of ‘porosity’, that the distinctions we employ do not signify a natural or unchanging boundary, and in terms of ‘viscosity’, that attention is drawn to “the complex ways in which material agency is often involved in inter-(or intra-)actions that include, but are not limited to, human agency” (Tuana 2008:194). Tuana (2008:199–200) explains further that ‘porosity’ is a “hinge through which we are of and in the world”, while ‘viscosity’ speaks of the “membranes that effect the interactions”. She states: “These membranes are of various types – skin and flesh, prejudgments and symbolic imaginaries, habits and embodiments. They serve as the “mediators of interaction” (Tuana 2008:200). Like Alaimo, Tuana (2008:200) also turns to plastics when she discusses a further example of viscous porosity, which strongly resembles and echoes the characteristics of trans-corporeality. Workers in plastic production have an abnormally high incidence of certain cancers, due to the fact that some

molecules that find their way into the body through inhalation mimic certain hormones of the human body, which ‘tricks’ the body into allowing them through cell and nuclear membranes into cells and cell nuclei, where they may change RNA and DNA structures (Tuana 2008:200). Thus, the viscous porosity of our bodies and that of the plastic allow for “an exchange of molecules, and plastic becomes flesh” (Tuana 2008:201).

Like Barad and Alaimo, whose theories interlink so closely with those discussed here, Tuana (2008:209) makes an urgent plea that we abandon all traces of ontological divides and fixed dualities between entities such as nature and culture, and matter and discourse, in order to better consider and understand our being in the world.

2.3.5 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 and successful ways of analysing and 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). Her hope is, however, that these explorations might reveal and bring to prominence the possibility that heedfulness of nonhuman things and their potency and agency could have a positive and worthy effect on humans, which would yield the dividends of being to humanity’s own advantage as well (Bennett 2004:348). Bennett (2004:348) asks: “In particular, might ... sensitivity to thingpower induce a stronger ecological sense?” She suspects that the perception of matter as dead or there purely for humanity’s use sustains “human hubris” and our “earth-destroying fantasies” of consumption and conquest by deterring us from

discerning, through our senses, a wider spectrum of the non-human powers that are all around us, and that could “aid or destroy, enrich or disable, ennoble or degrade us” (Bennett 2010:ix). Therefore ‘thingpower’ aims to foster recognition, respect and, at times, dread of the materiality of the ‘thing’, and to bring to the fore the ways in which “human being” and “thinghood” are imbricated (Bennett 2004:349). Bennett’s (2004:349) project therefore aims to promote greater acknowledgement of the agential powers of both “natural and artificial things”, 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.

Bennett (2004:349) claims that her labours to promote these ideas are based on a self-interest that drives an action-oriented concern for humanity’s survival and well-being; her hope is that changed perceptions will lead to a greener human culture. Inherent to achieving these aims is an understanding of the necessity to dissipate the “onto-theological binaries of life/matter, human/animal, will/determination, and organic/inorganic by using arguments and other rhetorical means to induce in human bodies an aesthetic-affective openness to material vitality” (Bennett 2010:x).

In terms of an ‘aesthetic-affective openness’ as mentioned above, Bennett (2010:xi) hopes that the sensitisation to the vibrancy and aliveness of matter and ‘thingpower’ that she advocates will induce “moments of sensuous enchantment” with quotidian matter(s). This implies enchantment with both so-called ‘natural’ and manufactured, culturally produced ‘things’, so that humans will be prompted to not only subscribe to ethical principles but also partake in ethical practices (2010:xi). She rightly points out that there will be no greening of consumerist practices, wealth redistribution, or extension and enforcement of (human and/or non-human) rights “without human dispositions, moods, and cultural ensembles hospitable to these effects” (Bennett 2010:xii). Bennett (2010:xii) is at pains to emphasise that the kind of affect at stake here is “impersonal”, and that the figure of enchantment points towards both the human who experiences feelings of enchantment and whose “agentic capacities” might thereby be enhanced and “the agency of the things that produce (helpful or harmful) effects in human and other bodies”. Bennett (2010:xiii) makes it clear that she equates this impersonal affect of material vibrancy with materiality as such, as inherent to matter, rather than with “a separate force that can enter and animate a physical body”. Once again, regarding the correspondence between ideas of new materialist theories discussed thus far, when one considers Bennett’s project as described here, it becomes apparent how strongly her ideas also resonate with tenets of these theories.

2.4 Affect theory

The concept of affect, of which certain tenets intertwine and overlap with new materialist ideas, has been a constantly recurrent theme in the history of philosophy (La Caze & Lloyd 2011:1). In recent times, since the mid-1990s, there seems to have been a decided affective turn in both the humanities and social sciences, denoting a “renewed and widespread scholarly interest in corporeality, in emotions, and in the importance of aesthetics” (La Caze & Lloyd 2011:2). Patricia Clough and Ruth Leys (cited in La Caze & Lloyd 2011:2) postulate that the watershed moment for this turn came in 1995 from the work of Brian Massumi, building upon Deleuze’s “Spinozist ethology of bodily capacities”, which was grounded in the ideas of Spinoza, as well as from the work of Eve Sedgwick and Adam Frank, who built upon Silvan Tomkins’s “psychobiology of differential affects”. According to Gregory Seigworth and Melissa Gregg (cited in La Caze & Lloyd 2011:2), the eight “vectors” which currently direct the “turn”, could be summarised as the following:

phenomenological and post-phenomenological theories of embodiment; cybernetics and theories of the human/machine/inorganic; non-Cartesian traditions in philosophy; aspects of psychological and psychoanalytical theory; traditions critical of normalising power including feminism, queer and subaltern and disability studies; a collection of attempts to react to the linguistic turn; critical theories and histories of emotions; and aspects of science and neurology.

I will briefly focus here only on those aspects of affective theory that I regard as pertinent to my study. Massumi (1995:94, 96) states that “[affect] is immanent to matter and to events, to mind and to body and to every level of bifurcation composing them and which they compose”. It may be viewed as “autonomous to the degree to which it escapes confinement in the particular body whose vitality, or potential for interaction, it is”. When perceptions and cognitions acquire form and become qualified and situated in order to fulfil functions of actual connection or obstruction, affect is captured and closed; emotion expresses the most intense or contracted form of that capture (Massumi 1995:96). In his translation of Deleuze and Guattari’s *A thousand plateaus: Capitalism and schizophrenia*, Massumi (1987:xvi) defines affect/affection as used by the authors as follows:

Neither word denotes a personal feeling (sentiment in Deleuze and Guattari). L 'affect (Spinoza's affectus) is an ability to affect and be affected. It is a prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act. L'affection (Spinoza's affectio) is each such state considered as an encounter between the affected body and a second, affecting, body (with body taken in its broadest possible sense to include 'mental' or ideal bodies).

My understanding is that ‘bodies’ here do not necessarily refer to what is human or, for that matter, alive. Seigworth and Gregg (2010:1), for instance, talk about bodies as “human, non-human, part-

body and otherwise” through which affect passes as “intensities” and “resonances that circulate about, between, and sometimes stick to bodies and worlds”. Affect, they claim, has an “always immanent capacity for extending ... into and out of the interstices of the inorganic and non-living, the intracellular divulgements of sinews, tissue, and gut economies, and the vaporous evanescence of the incorporeal (events, atmospheres, feeling-tones)” (Seigworth & Gregg 2010:2). Similar ideas are echoed by Massumi’s (1995:98) assertion, which also resonates strongly with tenets of agential realism and other new materialist theories as discussed above, that the application of the concept of the quantum outside quantum physics is not merely a metaphor. He states that “[f]or each level, it is necessary to find an operative concept for objective indeterminacy that echoes what on the subatomic goes by the name of quantum” (Massumi 1995:98). Therefore, pertaining to the difference between the physical and the biological, it becomes apparent, Massumi (1995:98) asserts, that there can be no definite dividing line between them, or between them and the human. Massumi (1995:99) then argues that affect, similar to thought or reflection, is extendable to any or every level, on condition that the singularity of its working on that level is taken into consideration. Therefore, the difference between the human, the living and the dead relates neither to structure or form, nor to the attributes inherent to embodiments of structures or forms, nor to the particular functions executed by those embodiments (their usefulness or capacity for doing work) (Massumi 1995:99). Massumi (1995:99) ascribes the “distinction between kinds of things and levels of reality” rather to the degree to which “modes of organization (such as reflection) are differentially present on every level”. These ideas clearly concur with various tenets of posthumanist and new materialist theories that I have discussed in this chapter, in which the human is not regarded as being separated from and elevated above the rest of the world’s matter and ‘matterings’, but rather as being inextricably intertwined with and co-constituted by and/or with it.

However, although the human is not the focus of my study, it was important for my analysis, in terms of the aims and objectives of the study (to investigate ways of sensitising learners to critically (re)consider their ethical stance towards the world and the non-human other), as well as the inherent bodily/sensorial and material qualities of art and artistic processes, that I examined the embodied and sensorial affective experiences of the learners in their execution of the project. Michael Hardt (2007: ix) explains that the affective turn focuses attention on the body and emotions, with affects referring equally to the mind and the body and involving both passion and reason. This is connected to the power we have to both affect the world and be affected by it, and includes the relationship between these two powers (Hardt 2007:ix). Hardt (2007:x) explains these ideas, derived from theories postulated by Spinoza, as follows:

[T]he mind's power to think corresponds to its receptivity to external ideas; and the body's power to act corresponds to its sensitivity to other bodies. The greater our power to be affected, [Spinoza] posits, the greater our power to act ... [and] ... every increase of the power to act and think corresponds to an increased power to be affected. We do not know in advance what a body can do, what a mind can think – what affects they are capable of. The perspective of the affects requires an exploration of these yet unknown powers. [This] ... gives us an ontology of the human that is constantly open and renewed.

Similar to these ideas, Bruno Latour (cited in Seigworth & Gregg 2010:13), holds that having a body means learning to be affected, which denotes being “put into motion” by other entities, both non-human and human. Seigworth and Gregg (2010:12) also refer specifically to the role of the senses in terms of affects when they suggest that one should unceasingly submit the full complement of one's sensorial faculties to new sensuous (the meaning here relating to the senses rather than the intellect) worlds that fit uneasily into one's ethos. These “experiments in living”, they suggest, will hopefully lead to the progressive production of “a passion for difference” that will help to facilitate the transmutation of ethos (Seigworth & Gregg 2010:12). Seigworth and Gregg (2010:12) therefore argue that affect theories must continuously work to find ways through which, via a productive “pedagogic nudge”, a body may become “an ever more worldly sensitive interface, towards a style of being present to the struggles of our times”. Here I wish to point out, too, Jan Jagodzinski's (2015:126) assertion that it is the task of arts-based research (which forms, of course, the basis of my study) to “redistribute the sensible beyond the limitations of [the human]”. By this he means that we need to include and explore, through aesthetic acts as “interventions within the distribution of the sensible”, 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 ‘belonging’ to the world and realisation that the bodymind has as yet unexplored powers, as described above, could elicit in us a feeling of the importance of moving towards discovering the powers that will transform the matter(s) of affect into a simultaneously ethical, aesthetic and political task (Seigworth & Gregg 2010:3). In terms of our task concerning ecological ethics, Anthony Smith (2012:49) points out that the current environmental crisis, which is all too real, is inextricably interwoven with the most serious and urgent ethical questions of human society. He too proposes that Spinoza's theory of affect, aspects of which have been briefly discussed here, is the most powerful facet of the latter's thinking for an interdisciplinary ecological theory, in which the human and non-human can form an ethical relationship through a focus on affect (Smith 2012:50). Smith (2012:64) argues that changes in ecosystems, of which the health is inseparable from that of the human social communities that inhabit them, depend on both our material, embodied actions and our theoretical ideas or thinking. Therefore, by considering the powers of affect and their ‘ability’ to

permeate both these levels – by investigating how they function – we may begin to find ways of nurturing and promoting more joyous and ethical relations with the rest of the world and the non-human other (Smith 2012:64).

In terms of my approach to the analysis of the project, I regard as very relevant Seigworth and Gregg's (2010:4) observations that the emergence of affect "out of muddy, unmediated relatedness" instead of "some dialectical reconciliation of cleanly oppositional elements or primary units ... makes easy compartmentalisms give way to thresholds and tension, blends and blurs". This requires that inquiry begins with "movement rather than stasis, with process always underway rather than position taken" (Seigworth & Gregg 2010:4). I discuss my analytical approach (post-qualitative) and further aspects of my methodology (diffraction, as discussed under 'Agential realism above) in Chapter 3.

2.5 In conclusion: A summary of the conceptual framework of the study

The study was underpinned by a number of closely related theoretical perspectives: It was grounded in posthumanist perspectives, with the emphasis being specifically on overlapping and inter-(or intra-)active theories that developed from posthumanist and new materialist thought, namely agential realism, trans-corporeality, interactionist ontology and viscous porosity and vibrant matter. Of importance are also theories relating to the affective turn. Crucial for the kind of insights I wished to gain from this study are also ideas relating to diffraction as a methodology for analysis, as explained in this chapter, and elaborated upon in Chapter 3, within the context of notions of post-qualitative analysis, discussed in Chapter 3.

The study was inspired by my interest in ecological issues, pertaining specifically to environmental degradation and loss of biodiversity – which therefore provide the broader framework of the study – and how these could be addressed by and integrated with practical art projects at secondary school level. I hold that contemporary art practices, in being non-prescriptive and open-ended in terms of context, content, methodologies and materials, offer endless opportunities for inter- or trans-curricular investigations and integrated learning, which allow teachers the freedom to explore any terrain with the learners when developing practical projects.

In my opinion, the specific theories that underpin the study offer, in their non-anthropocentric and materialist approach, the ideal means for prising open new and unexpected insights pertaining to the question of how we as humans might perceive ourselves differently in relation to the multitudes of 'others' that share the planet with us and how this might influence how we live in the world. Therefore, the research questions were formulated specifically to facilitate such an investigation.

The questions firstly entailed an in-depth analysis, by means of diffraction (which integrates well with new materialist-inspired post-qualitative analyses as discussed in Chapter 3) as methodological tool, of an art project aimed at facilitating critical awareness of the relation of humans to all non-human others on earth, in order to see what insights, if any, could be gained specifically from such an analysis. The second brief was to then determine how, if any insights were gained, they could be applied to the development and execution of future art projects with similar aims.

In the following chapter on my research methodology and research design, I discuss, as stated above, ideas relating to post-qualitative research and my reasons for opting for this kind of research, as well as notions relating to a diffractive analysis, which is well suited, as stated before, to the kind of post-qualitative research I envisaged and implemented for this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The main aim of the study was to explore the role of art education as medium for the facilitation of critical awareness and exploration among learners of the relation of humans to all non-human others on earth.

The research question was formulated as follows: With a view to the development of art education projects aimed at secondary school learners, what useful insights could be gained from an in depth analysis, based specifically upon a methodology of diffraction, of an art project (entitled “Self, Local, Global”) conducted at the Tygerberg Art Centre with Grade 10 learners? This entailed a search for answers to the following questions:

- i. What insights could be gained from an in-depth 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 all non-human others on earth?
- ii. How could these insights, if any, be applied to the development and execution of future art projects aimed at facilitating critical awareness of the relation of humans to all non-human others on earth?

In the next section the art project is described, and in the section after that all aspects of the design of the study are discussed. This will include the research approach and methodology, as I have come to understand it in terms of posthumanist post-qualitative research practices, as well as Barad’s notion of diffraction as ‘analytical tool’ as I understood and applied it. This will go hand in hand with a discussion of relevant factors such as the position of the researcher in relation to the researched and the research environment. It will also entail a consideration of the naming, but also the meaning, of ‘data’ in a study such as this one and the relationship between data and theory in the context of posthumanist notions such as phenomena, intra-action and agential cuts, which were explained in Chapter 2.

3.2 A description of the art project

The art project consisted of a range of activities aimed at inspiring the learners to investigate their involvement with their environment and everything it entails – in other words the ‘other’ – in various ways. It comprised a series of processes that required of the learners to engage with

themselves in their situatedness in local contexts (see Appendix 1 for a copy of the project). These activities of engagement and their effects and affects were recorded and responded to by the learners in various forms of writing, ranging from scientific, factual reporting to creative writing; and art making, ranging from drawings, prints and 'earthwork' interventions to collages, montages and paintings. Each learner recorded his/her ideas, thinking and writing processes, preparatory work and experiences of the project in a compulsory resource book.

In order to serve as research project for this dissertation, the art project was adapted for Grade 10 learners from an assignment for Grade 11 learners which formed part of the practical component of the coursework for this master's degree. It was designed as a guide to stimulate creativity and was not meant to be prescriptive, and this point was brought to the learners' attention. The process was intended to be open-ended, and any learner who discovered something in the process that he/she wanted to pursue or who wished to deviate from the guidelines was encouraged to do so. Provided they had the time, inclination and capacity, they had the freedom to go beyond the 'boundaries' of the project to come up with new ideas. To demonstrate the qualms and difficulties I experienced in terms of achieving the aim of open-endedness while having an agenda grounded in particular theories, and of not knowing where the research might take me, I cite the following from my own writing on 29 March, 2016:

I decided this morning while reading a paper on public pedagogy that I was going to create new data from scratch by doing the project with the Grade 10's. And we ([my colleague] and I) are going to do the project with the learners ... [My colleague] came and we worked on the project together ... I found/find it very difficult to come up with anything that is not somehow prescriptive, or pre-planned or 'worked out' to achieve particular outcomes. I seek: open-endedness, searching-in-between, acceptance of ambiguity, uncertainty. However, I find that I battle to express it – is it even possible? I don't have the words; I'm out of my depth ...

The last part of this quotation also begins to give an inkling of the reasons for my decision, which is explained more fully in the following section, not to employ qualitative research methodologies that rely on coding and broad, generalised themes in my analysis of the project described above – it is my opinion that such an analysis does not lend itself so easily to searching for the 'in-between', for elusive or unexpected insights while courting ambiguity. The explanation will also elucidate my desire to do things 'differently'; I therefore also expand upon my understanding of the term 'difference', which informs my ideas of thinking and doing (things) differently, in the following section.

3.3 Design of the study

3.3.1 Research approach

After much internal deliberation about how I should approach the study, I concluded that more conventional methodologies of qualitative research, which are mostly based on humanist world views, would not be suitable for a project that explicitly stated itself to be informed by and grounded in posthumanist notions and of which the structure did not allow for generalised themes and categorisations set in the framework of a strict design. It rather asked for fluidity and mixing and a 'spilling over' into and onto as yet unknowable and maybe not-yet-existing spaces. In my search for alternative routes I unearthed a wealth of literature on post-qualitative research which pointed me towards different ways of doing research; that I would be following such alternative routes has in fact already been indicated by my assertion in previous chapters that I would be doing a diffractive analysis of the project.

In order to explain my decision for doing things 'differently', in the following paragraphs I first divulge my personal reasons. Thereafter I discuss the ideas of post-qualitative theories that presented themselves as meaningful to me and in my opinion were in sync with my intentions for this study with its theoretical perspectives of posthumanism, new materialism and notions of affect, as explicated in Chapter 2. The emphasis, as indicated in the research questions, fell on a search for insights pertaining to a non-anthropocentric, critical investigation of the human's relations with the 'other' as manifested in all manners of both living and non-living matter.

The writing of this dissertation, the particular type of research project with which I wanted to engage, the specific choices I made about its form and content, and the theories that had attracted me and lured me into making those choices in the first place, set me thinking about what prompted me to do so, about why I had chosen a somewhat difficult and 'less travelled' road, so to speak. I believe that the answer resides in my ongoing longing and quest to see and experience the world in ways different to those I have been taught by upbringing and conditioning. Writing this dissertation in the context of what I perceived to be the vibrant worlds of posthumanist, new materialist, affective and post-qualitative research theories afforded me the opportunity to attempt to do just that.

My impulse to find ways of seeing things differently stems from my childhood. As someone who grew up in apartheid South Africa, in a community where state, church and Christian national education conspired to create citizens who would think, act and be the same in all aspects of life (and the hereafter!) in the service of doctrines that remained unexamined in blind adherence to

dubious ideologies, and where difference and change were regarded as anathema, I managed to find spaces – or spaces found me – where I could begin to see, think, feel and live differently. One of those spaces happened to be the art classroom, and I will be forever grateful for art's role in opening up my mind and life to the possibilities of thinking, doing and being differently. Therefore, I am pleased to be able to continue this (ongoing) process of 'differencing' once again in an art classroom, this time from the perspective of an art educator (but also as participating 'art-maker' and learner). I could not have put it better than Rita Irwin (cited in Holbrook and Pourchier 2014:758), when she asserts the following: "Our research stance is that we 'live a life of awareness, a life that permits openness to the complexity around us, a life that intentionally sets out to perceive things differently'".

Before briefly discussing some of the theories that allow and invite different ways of seeing, I wish at this point to remind the reader why I assert that it has become not only necessary, but maybe even imperative that we begin to see the world differently from how we had been conditioned to view it from humanist perspectives. My aim with this is to emphasise that my study is not meant to be a mere indulgence in self-gratifying experimentation with difference and being different. It has as its impetus the need for us to begin to critically scrutinise the nature of humanity's relationship with the non-human other, and I cite my observation from Chapter 1:

It is beginning to seem undeniable that we are experiencing, in a very real, material way and on a scale unprecedented in human history, irreversible and irrevocable damage to and destruction of the very matter, in all its forms, of this planet, our home. This destruction seems to result directly from humanity's actions based upon its perceptions of its own elevated place in and unique rights to the world and in relation to the non-human other. It is this, I believe – a scenario of which we can hardly predict or gauge the outcomes and which is bringing us face to face with the possibility of our own self-induced extinction – that prompts us to seek and grope for ways of seeing the world, and our position in it, differently.

My hope is to create openings and spaces through art projects in which the change, the difference, that could bring something new – that is also ecologically ethical – in terms of how we live in the world, may begin to emerge and take shape. While asking the reader to bear these thoughts in mind, I will now proceed to briefly investigate the notion of *difference* (also see under 'Affect theory' in Section 2.4) and with it thoughts that trouble certain aspects of more conventional qualitative research when viewed from the perspective of particular post-qualitative research theories. These theories developed in the wake of a multitude of 'post'-theories – among them posthumanism – in which humanist epistemological and ontological ideas, and therefore the place and meaning of research, among others, had been challenged and rethought.

Maggie MacLure (2013b:228) holds that the “typological thinking” demonstrated in interpretation, classification and representation of data, which still forms the “staple repertoire of ‘conventional enquiry’”, is problematic in its obsession with “sameness and the establishment of fixed, hierarchical relations among entities”. Citing Deleuze, MacLure (2013b:228) explains that it can therefore only allow for difference that manifests as opposition between “already stabilized entities”, instead of being open to the “manifold movement of difference ‘in itself’”. In similar vein, St Pierre (2011:616; 2013a:225) points out that, rooted in humanist notions, the Western ontological notion of essentialism (the belief that a person or a thing has a separate, unique, unchanging and irreducible core or essence) informs conventional qualitative research methodologies that are typically aimed at finding and describing givens in order to “tell us what the world is really like so we can know it and adjust our lives accordingly”. Deleuze (cited in St Pierre 2013a:225), however, turns this around, and proposes that we “first think possible worlds in which we might live differently”. This affirmative, experimental work of thinking the world differently calls for “a belief in the world ... and belief in the possibilities of the world(s) we haven’t yet thought” (St Pierre 2013: 225–226). It also demands the rejection of a stagnant logic of identified and concretised categories of established binaries in favour of “a logic of connection, movement and *becoming* rather than [already fully and permanently formed] *being* (my emphasis, St Pierre 2013: 225–226).

Alecia Jackson and Lisa Mazzei (2012:87) concur, stating that “with Deleuze, difference is liberated from its subordination to sameness”, while becoming is an ongoing, non-linear process that has “no origin, no destination, no end point, no goal”. Becoming happens in relationships and connections, creating newness; it is the “movement through a unique event that produces experimentation and change ... [and] ... the continual production of difference immanent within events” (Jackson & Mazzei 2012:87). This resonates strongly with Barad’s (2014:9) view that “[d]ifference is understood as differencing: difference-in-the-(re)making. Differences are *within*; differences are formed through intra-activity, in the making of ‘this’ and ‘that’ within the phenomenon that is constituted in their inseparability (entanglement)” (emphasis in text) (see under ‘Agential realism’ in Section 2.3.2 for explanations of the various Baradian terms used here). Difference in this sense, as I understand it, is therefore not being different from something else, as we tend to regard it in binary thinking, often with negative connotations associated with one of the binary opposites. Rather it refers to all the (as yet even unthought of) ways in which a ‘thing’ could be(come) different in itself, which offers instead of oppositions an infinite number of possibilities of be(com)ing.

The rethinking of the nature of being, as briefly discussed here, is important in the light of my earlier reminder of why we need to see the world differently and my statement of creating something new

that is also ecologically ethical (which provide the broader context of this study and reasons for why it came into being at all) when considering the following assertion by St Pierre (2013b:655):

As long as we think the nature of being as subject/object, materiality does not matter and we live in the world accordingly. Deeply embedded in the new ontology are ethical concerns that acknowledge the destruction of the world humanism and its science projects encourage with their man/nature, human/nonhuman binaries. Refusing that binary logic which pervades our language and thus our living is a priority, because if we see ourselves as always already entangled with, not separate or superior to matter, our responsibility to being becomes urgent and constant.

This assertion is strongly echoed by Barad's (2010:264–265) insistence that “only in this ongoing responsibility to the entangled other ... is there the possibility of justice-to-come; [e]ntanglements are not intertwinings of separate entities, but rather irreducible relations of responsibility”.

According to Patti Lather and Elizabeth St Pierre (2013:630), together with the shift away from humanist ontological essentialism, the notion of entanglement referred to in the previous paragraphs also problematises humanist qualitative research. Questions arise in relation to such factors as the determination of the “object of our knowledge”, the possibility of disconnecting from the “mangle” in order to stand outside of it and observe, and the thinking of a “research problem” (which implies stability) in the imbricated assemblage of a diversity of elements that are never stable and never the same in their constant intra-action (Lather & St Pierre 2013:630). Resonating with these statements and queries are A. D. Martin and George Kamberelis's (2013:669) assertions that post-qualitative research eschews notions of essentialist identities, brute data and fixed categorisation of phenomena and processes found in more conventional qualitative research. Instead they favour dynamic, contingent and situated understandings of complex human (and non-human) interactions and events, in order to “produce theoretically motivated, complex and nuanced accounts of research endeavours” (Martin & Kamberelis 2013:669).

In the preceding paragraphs, I have endeavoured to provide reasons for why I chose not to work with conventional qualitative methodologies – for why it might not even have been possible for me to do so – and also to convey what kind of thinking about research interested and intrigued me. As my intention and concern is certainly not to critique these methods and disparage excellent work that is produced following them, I will refrain from further discussion of their ‘unsuitability’ for a study that denotes an attempt to break away from humanist-inspired and -related structures and confinements. However, it might be reassuring, if one wishes to break away, to remember St Pierre's (2011:613) point that, by repeating particular structures of research methodologies in countless handbooks until they were believed to be “true and real, *[w]e've forgotten that we made it up*”

(emphasis in text). She envisages inquiry that will be “provocative, risky, stunning, astounding[;] [that would] take our breaths away with its daring ... challenge our foundational assumptions and transform the world ...” (St Pierre 2011:623). To this she adds: “My desire is for post inquiry to remain *unstable* as we create different articulations, assemblages, becomings, mash-ups of inquiry given the entanglement that emerges in our different projects” (emphasis in text, St Pierre 2011:623). Although I continue to feel humbled and, I must confess, somewhat intimidated by St Pierre’s vision of what inquiry should be, I nonetheless found these ideas inspiring and, as pointed out earlier, more in tune with what I was ‘looking for’ in the writing of this dissertation.

In terms of writing a research dissertation, I was also inspired and intrigued by Eileen Honan and David Bright’s (2016:733) statement that, if the challenge of educational research writing is “to be one of creation ... then what is required is a style and structure that eschews the already thought; a writing that is against style and against structure”. This writing, if one could achieve it, has the potential to bring forth a language that “vibrate[s] with a new intensity”; it could therefore be a writing that is not done in terms of the expected, but rather to create something that has the potential to be brought to life (Honan & Bright 2016:733). I can confirm that, whether I always succeeded or not, these were aims worth striving for.

With the ideas about post-qualitative research as guidance, and taking the theoretical perspectives discussed in Chapter 2 as being intertwined with, and almost part of, the data, I selected specific ‘segments’ of data that seemed to ‘speak’ to me, and attempted to read them through the theoretical perspectives. I also in some instances attempted to read data through data, and theory through theory – in other words, data and theory became inextricably entangled in a variety of different ways.

Before I move on to the next section to discuss the research design, I wish to indicate how I chose to think about the ‘riskiness’ of research as I wished to do it in this study, as expressed by Jackson and Mazzei (2012:30):

[W]e do not start out with themes that we will plug the data into, but must live with the uncertainty that we are unsure of what may emerge until it happens. We could be paralyzed by this potential irruption of deconstruction everywhere, unable to make meaning, ... [o]r ... we might relish the exhilaration of missed meanings and destabilizing moments – of voices and identities [and researchers] in trouble (last square brackets in text).

As daunting as this turned out to be, it revealed itself in my opinion to be a path well worth following.

3.3.2 Research design

In the light of the discussion in the previous section, it will be clear to the reader that the research was not conducted within the parameters of the more conventional qualitative research methodologies. As indicated before, I chose to employ Karen Barad's notion of diffraction as my specific analytical tool, and in the following paragraphs I briefly explain again what the concept, and relevant concepts related to it, entail. (Diffraction is also discussed under 'Agential realism' in Section 2.3.2.)

Karen Barad (2007:72), who holds a PhD in quantum physics, regards diffraction, which describes the physical phenomenon of the effects and patterns of difference that occur when waves are superimposed upon and interfere with one another, as a useful tool of analysis for "attending to the effects of difference". Unlike reflections, which like in a mirror "reflects the themes of mirroring and sameness" from a distance, diffractions "are attuned to differences" (Barad 2007:72) and focus on fine details. A diffractive methodology, says Barad (2007:90), is "a critical practice for making a difference in the world, ... a commitment to understanding which differences matter, how they matter and for whom[;] ... [therefore it is] a critical practice of engagement", as opposed to a "distance-learning practice of reflecting from afar". Diffraction does not fix "object and subject beforehand" and therefore presents a way of paying attention to entanglements by reading insights and approaches through one another in ways that help elucidate differences as they emerge: "how different differences get made, what gets excluded, and how those exclusions matter" (Barad 2007:30). Diffractive readings facilitate the building of new insights, being attentive and careful to look for "differences that matter in their fine details", and are therefore good to think with (Barad 2012:50). They are "respectful, detailed, ethical engagements" (Barad 2012:50).

Mazzei (2014:743) states that a diffractive analysis moves one away from the usual normative readings that focuses on sameness towards the "production of readings that disperse and disrupt thought". Thus data is not reduced to a series of concepts; rather a diffractive analysis "takes a rhizomatic form ... that leads in different directions and keeps analysis and knowledge production on the move" (Mazzei 2014:743). It focuses on difference by "breaking open the data (and the categories inherent in coding)" and by "decentering and destabilizing the tropes of ... humanist identity work necessary in conventional qualitative research" (Mazzei 2014:743). Therefore, says Mazzei (2014:743), diffractive analysis does not layer a set of codes or a theoretical concept onto the data, but rather it reads data and theory through one another, resulting in "multiplicity, ambiguity, and incoherent subjectivity".

Bronwyn Davies (2014:735), when talking about diffractive readings, refers to analytic work as a “tangle of intra-acting encounters”, with the very act of writing, of documentation, being one more element in a complex spectrum of entangled movements. The analysis engaged in “necessarily *interferes* with the research problem and the questions being asked, and the questions *interferes* with the analysis”, which is “emergent and unpredictable, a series of encounters with the new” (emphasis in text, Davies 2014:735). In similar vein, Lis Højgaard and Dorte Marie Søndergaard (2011:350) emphasise the importance of awareness and sensitivity to all manners of complexities in inter-(or intra-)acting processes, and that the foci of analyses should be alert to “multiple realities, multiple selves and matters, multiple relationships and intra-actions among varying entities across what we have formerly known as subjects and objects”.

Therefore, in summary, it could be stated that diffraction makes evident “the entangled structure of the changing and contingent ontology of the world, including the ontology of knowing[;] [i]n fact, it not only brings the reality of entanglements to light, it is itself an entangled phenomenon” (Barad 2007:73). Therefore, in my analysis, I endeavoured to not simply reflect on the data I collected and selected from the project from afar or ‘after the fact’, but attempted rather to focus on the fine details as they emerged from reading the data through one another and through the theories in order to try to make visible hidden, unexpected insights that might otherwise have been lost.

3.3.3 Barad’s notions about being and becoming: Phenomena, entanglements, intra-actions, agential cuts and the position of the researcher

Although these concepts are discussed in Chapter 2 under ‘Agential realism’ in Section 2.3.2, they are important for understanding the underlying premises of my research approach and methodology, and I therefore recap certain of Barad’s ideas here due to their complexity. Like Deleuze, Barad (2007:128) holds that the primary entity of being does not consist of independent objects with individual, predetermined boundaries and properties. Based on outcomes of quantum physics experiments, Barad (2007:128) asserts that “[s]ince individually determinate entities do not exist, measurements do not entail an interaction between separate entities; rather, determinate entities emerge from their intra-action”. The latter term denotes a concept she created “in recognition of entities’ ontological inseparability, in contrast to the usual ‘inter-action’, which relies on a metaphysics of individualism” (Barad 2007:128). Barad (2007:128) therefore holds that what she calls ‘phenomena’, which are specific intra-actions of an ‘object’ and the ‘measuring agencies’ that both emerge from rather than precede the intra-action that produces them, take the place of the object-in-itself as basic units of reality. Put differently, phenomena are the “ontological inseparability of agentially intra-acting components” and “distinct agencies do not precede, but

rather emerge through their intra-action” (Barad 2007:33). It is crucial that ‘distinct’ agencies are understood as being so only “in a relational, not absolute, sense, that is, *agencies are only distinct in relation to their mutual entanglement; they don’t exist as individuals*” (emphasis in text, Barad 2007:33). In order to make sense of these notions, I read them through the ideas of difference discussed above, and conclude that they refer to the endless possibilities for be(com)ing different (in the sense described above). However, be(com)ing different does not happen in isolation. It happens exactly within and through our own or any given (human or non-human) entity’s entanglements, and is determined by how the intra-actions in these entanglements play out – and there are of course endless possibilities for the latter. Therefore, for instance, having been alerted to these ideas I could, in the analysis of the data with which I chose to work, pinpoint moments of (different) ‘becomings’ of my ‘self’ as an entangled part of the event or phenomenon that generated the data, as the reader will see in Chapter 4.

The above is elucidated further by Barad’s (2007:348) assertion that by performing what she calls agential cuts within a phenomenon, “ontological indeterminacy” is temporarily resolved, and conditions for objective description of a particular materialisation within the phenomenon are possible – until the cut changes. It is, says Barad (2007:348), “*all a matter of where we place the cut*” (emphasis in text) and “we [humans] are responsible for the cuts that we help enact” (2007:178). She further states the following (2007:179):

The cuts that we participate in matter. Indeed, ethics cannot be about responding to the other as if the other is the radical outside to the self ... ; ‘others’ [which, for Barad includes all matter, both living and non-living] are never very far from ‘us’; ‘they’ and ‘we’ are co-constituted and entangled through the very cuts ‘we’ help enact. Cuts cut ‘things’ together and apart. Cuts are not enacted from the outside, nor are they ever enacted once and for all.

Given these notions and Barad’s (2007:136) posthumanist stance that 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 non-living)”, humans are therefore also differentially constituted in phenomena through specific intra-actions (Barad 2007:342). The (human) researcher is therefore a constantly intra-acting, integral and ‘becoming’ part of the phenomena that he/she purports to research, and the agential cuts the researcher makes when s/he observes and collects ‘data’, which then come to matter, will inevitably lead to exclusions, which also matter. Hillevi Lenz Taguchi (2012:271, citing Alaimo) describes this as a co-constitutive process in which the “bodymind of the researcher” is being “understood to engage and interfere with the data in a process of trans-

corporeality”⁵ (also see ‘Trans-corporeality’ in Section 2.3.3); hence the suitability of diffraction – which focuses on emergences, differences and details – as a tool for analysis.

3.3.4 Data analysis

Post-qualitative data analysis is characterised by an eschewal of the quasi-scientific premise that it is possible to separate out, code, organise and interpret data in ways that will yield ‘scientifically verifiable’ results, as with say the closed system of a clinically-observed and controlled physics experiment, with the observer located outside of and beyond the observed. This is because data in the arts and humanities consist of layered, constantly shifting entanglements of factors such as, amongst others, ideas, thinking, bodily sensations, language, silences, emotions and effects of places, spaces and other non-human elements. In support of this, St Pierre claims that in terms of post-qualitative theories, data as “transparent, neutral, independent of theory [and] waiting to be analysed” is a problematic concept (St Pierre 2011:621). Furthermore, St Pierre (2011:622) asserts that it is ultimately impossible to disentangle data, data collection and data analysis. Svend Brinkmann (2014:721) points out that data, which from the Latin means “something given”, should rather be called “creata”, in reference to data being “taken, constructed, and selected – rather than given”.

These views on the nature of data, and all that has been discussed thus far in terms of the aims of post-qualitative analysis, as well as of diffraction and its constellation of notions integrated with Barad’s ideas of being and becoming as explained above, became the basis upon which I attempted to analyse the data. I selected small ‘cuts’ of data that presented themselves as meaningful to me and tried to read them in their specific and nuanced details and their manifold shifting entanglements, rather than to fit them into broader, generalised themes – while always being mindful of my own inseparability of what I was attempting to observe – in order to pry open nuances of meanings that might otherwise have become lost. In a sense, the analysis was experimental in that it was done according to my own interpretation of what a post-qualitative, diffractive analysis might entail in practice.

⁵ Transcorporeality, the reader will remember, refers to the “material interchanges” across the bodies of human and non-human life forms and the encompassing material world – this has created both a “new material and posthumanist sense of the human as substantially and perpetually interconnected with the flow of substances and the agencies of environments” (Alaimo 2012:476).

3.3.5 Sample selection and data collection

The project was integrated into the Grade 10 visual arts course and presented as the practical assignment for the second term. The twelve Grade 10 learners involved in the project partook in informal discussions, and I made informal observations and took photographs and video footage. I also kept a journal to record my own thinking processes, observations and ideas, both as researcher and as participant in the project. Furthermore, I recorded informal discussions with my colleague, in whose classroom and with whose Grade 10 learners I worked, and who also assisted in conducting the project with the learners.

Further data were generated through the execution of the project, which entailed learners' research, photographs, activities, writings, drawings, printed works, 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.

3.3.6 Capturing data and ethical considerations

Casual discussions were electronically recorded. Electronic voice recordings, video recordings and consent forms in hard copy (see Appendix 4) and electronic format were kept confidential and stored in a locked drawer in my classroom. The participants could request to look at the video footage or listen to the voice recordings at any stage. The study was approved by the Western Cape Education Department Directorate of Research, as well as by the Departmental Ethics Screening Committee of the Department of Visual Arts of Stellenbosch University. The information will be deleted a year after the submission date of the study.

Discussions and observations took place in the art classroom and courtyard garden of the Tygerberg Art Centre in Parow. All participants were briefed and their participation was voluntary. Consent forms were completed and signed by all the participants. No names were used in order to keep the participants' identities confidential.

3.4 Conclusion

The methodology used for this study was discussed in this chapter. The chapter contains a discussion of the art project, the approach to and design of the research study, the ethical issues that were considered, the capturing of the data, and the data analysis process that was followed. The study was done from a posthumanist perspective with diffraction as the main analytical tool. The next chapter presents an analysis of selections (or 'cuts') of the data gathered from conversations,

observations and all the entangled materials and matter that were part of the phenomena that constituted the project.

CHAPTER 4: PRESENTATION AND DISCUSSION OF THE DIFFRACTIVE ANALYSIS

Einstein on Bohr: “He utters his opinions like one perpetually groping and never like one who believes himself to be in possession of definite truth’ (Barad 2007:121).

4.1 Introduction

As stated before, I adapted the project (see Section 3.2 and Appendix 1), with only minor changes, from a required practical coursework assignment that I had to do for this master’s degree, as I felt that it related to the notion of promoting a conscious, lived experience of being in and of this world and that it could be suitable for the kind of analysis I wanted to do. The aim was to determine whether, through art projects and art education, without such projects being didactic and/or prescriptive in their approach, the learners will move towards becoming more inspired to live consciously in their relationships with the non-human – be it other life forms or the matter and systems of the earth itself – and also what might be necessary for this to happen. This formed the basis for the research questions, which entailed the following. Firstly, what insights could be gained from an in-depth 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 all non-human others on earth, and secondly, how could these insights, if any, be applied to the development and execution of future art projects aimed at facilitating critical awareness of the relation of humans to all non-human others on earth? However, it is important to keep the following in mind (McNiff 2008:40):

Artistic inquiry, whether it is within the context of research or an individual person's creative expression, ... starts with the realization that you cannot define the final outcome when you are planning ... the work [and that] ... the defining aspect of knowing through art, is the emanation of meaning through the process of creative expression.

4.1.1 Background to diffraction as methodology

Considering Barad’s posthumanist take on the position of the human and her theories of agential realism as discussed in Chapter 2, which include concepts such as phenomena (which are entanglements of intra-acting agencies), agential cuts and material-discursive co-constitutions of object and subject, I approached my analysis with the understanding that (the execution of) the project as phenomenon consisted of an entanglement of intra-active agencies. These comprised the assignments, the learners, the teachers, 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 the insights or knowledge that might be gained from a diffractive analysis of these entities reflect the agential intra-actions and cuts that created these entities, and that therefore knowledge will always be incomplete – different ‘cuts’ produce different knowledges. Furthermore, as I decided to choose from all the material for analysis available to me only a few entities that resonated with me, I performed, as researcher who is understood to be always already entangled in the phenomenon being analysed, further ‘agential cuts’. This implies, once again, that that which had been excluded is still there, waiting to come to ‘matter’ (in more than one sense of the word). Meanwhile, the entities that I analysed became phenomena in themselves. I therefore argue that 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’.

Therefore, as stated, I focused mainly on a diffractive analysis of a few selections from the collected data and materials of the project. These consisted of the project itself, the source books of the learners, as well as their artworks, recorded conversations with learners and my colleague and photographs and video clips taken during the performance of various activities. Having already discussed diffraction under Barad’s agential realism in Chapter 2 and under my research approach in Chapter 3, I next explain how I used it as analytical tool.

4.1.2 Diffraction as analytical tool: Rhizomatic mapping and the position of the researcher

A diffractive analysis will more often than not take a rhizomatic rather than a linear form, which means it may lead in different directions, resulting in multiplicity and ambiguity, keeping analysis and knowledge production “on the move” (Mazzei 2014: 743). The rhizome is “not a closed or static system; rather, it is ... non-hierarchical, with no beginning or end ... always working with/in the middle” (Stewart 2015:1177). The rhizome enables mapping, which implies openness, connectedness in all dimensions, detachability, reversibility, susceptibility to constant modifications, and multiplicities of entryways (Martin & Kamberelis 2013:670). Therefore, rhizomatic mapping could lead to “lines of flight”,⁶ which are “centrifugal, decentering, dispersing discourses and

⁶ Notions of the rhizome, mapping and lines of flight as employed by Stewart and Martin and Kamberelis have their origin in Deleuze and Guattari’s ideas as expressed in the introductory chapter of their book *A thousand plateaus: Capitalism and schizophrenia*.

practices” (Martin & Kamberelis 2013:670) that enable escape from “the hegemonic actual and the manifested knowledge” (Johansson 2016:463).

Of particular interest for the purposes of this study is the idea that in a diffractive approach the researcher actively participates in a “process of knowing-in-being (onto-epistemology)”, rather than doing an analysis in a position of separation that puts him/her at a distance from the data (Lenz Taguchi 2012:277). Not only as researcher, but also as teacher and participating artist, I am “implicated in the enmeshing of bodies and environments, creation and thought” in multiple entangled and enfolded ways (Hickey-Moody, Palmer & Sayers 2016:226). Furthermore, bodies should not be thought of as separate entities with distinct borders, but viewed more in terms of “processes of entanglements and interdependences in processes of an ongoing co-constitutive co-existence of ideas and different kinds of bodies (human as well as non-human or more-than-humans)” (Lenz Taguchi 2012:271). In these intra-active processes the bodymind (the entangled thoughts and ideas and bodily involvements and experiences) of the researcher engages and interferes with the data through trans-corporeality (Lenz Taguchi 2012:271), as discussed in Chapter 2. In terms of this study, specifically the distinction between the ‘teacher and the taught’ (where the latter refers to both ‘course content’ and ‘learning subjects’) could therefore be problematised, as none of these elements are “simply preformed: teachers, students, objects and spaces are equally material phenomena and similarly entwined with one another” (Hickey-Moody *et al.* 2016:219 – 220).

As indicated earlier, I treated the selection of data for diffractive analysis as the execution of a series of agential cuts. I may well echo the words of Davies (2014:735), who states that her “analytical work ... will be an entanglement of intra-acting encounters, and [that] the very act of trying to document them ... will be one further element in the complex array of entangled movements”. I have therefore elected to not treat the project as a linear process (even though it was given to the learners in a format where each activity was intended to flow from and build upon the previous one) in order to maintain the openness that the rhizomatic form of a diffractive analysis creates for the possibility of new and unexpected insights to be brought to light.

4.2 Presentation and discussion of data

I read a host of articles and books on the numerous theories and ideas inspired by and derived from posthumanism, new materialism such as agential realism, trans-corporeality, interactionist ontology and viscous porosity and vibrant matter, and affect and post-qualitative research. It was in particular agential realism and its contingent perspectives, which includes the concept of diffraction as a

physical phenomenon, but also as a useful analytical tool in qualitative research, that inspired me to do the study in the way I had chosen to do it.

4.2.1 The researcher: Thoughts and feelings

As I have discussed previously, the reason for my interest in these theories and ideas has to do with the possibilities that they offer for us to reconsider and challenge prevailing (Western) concepts relating to epistemology and ontology, so that new and different ways of thinking about our being and doing in relation to the rest of the world may be opened up and explored. I found these ideas engrossing, invigorating, stimulating and immensely inspiring, and I could go so far as to say that my encounter with them has changed *my* be(com)ing in the world in meaningful and crucial ways – I am beginning to feel that this might even prove to be the primary value of writing this dissertation.

However, it is one thing to read, think and talk about all of these notions and the exciting possibilities they offer for moving beyond a (Western) mindset that always, at all and any cost(s), privileges the human (and often only certain humans at that) above all other earthly matter(s). I discovered that it is a different thing altogether to try to harness them in a diffractive analysis of the project that formed the basis of my study. I thought endlessly about the enmeshed and entangled web of these theories, the project content, the learners, the matter/materials, the processes, the data, my analysis and my position as researcher, and discussed it often with friends and colleagues. And, mindful of Gayatri Spivak's (2012) injunction that truthfulness is a necessary quality for an educator (which in my case is entangled with my role as researcher), I have to confess that I felt insecure, uncertain, unmoored and destabilised, fearing that I might be writing a dissertation 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 I considered this sense of lack of certainty, of not-knowing, of indeterminacy, I began to realise that for the kind of post-qualitative analysis I aimed to do, and in terms of the notions that constitute diffraction as a methodology, this might not be a bad position to find myself in.

Stephanie Springgay, Rita Irwin and S. W. Kind speak (2005:902) of a life of inquiry, where "issues in question may permeate a life", as being one of "dis/comfort" and anxiety, where the researcher, in engaging in a "continual process of not-knowing", is often "unable to come to conclusions or settle into a linear pattern of inquiry". Jackson and Mazzei (2010:10) remark on how "the 'I' of the researcher is always *becoming* in the process of researching, listening, and writing" and Susan Hekman (cited in Jackson and Mazzei 2010:10), calls the "'I' ... a mangle of multiple elements" (my emphasis). Barad (2012:32) explains that "identity is a phenomenal matter; it is not an individual

affair. Identity is multiple within itself; or rather, identity is diffracted through itself – identity is diffraction/différance/differing/deferring/differentiating”. I understand this as an endless process through which my identities – for instance struggling researcher, immersed teacher, insecure doubter, hesitant writer, cautiously optimistic thinker, jubilant discoverer (when some bright insight flames up for a moment or two), and other indeterminate identities not yet thought of, and with all the adjectives being interchangeable with one another – are constantly being made, unmade and remade differently through all the intra-actions that constitute the matter(s) of ‘my’ world, part of which was (the writing of) this dissertation.

Therefore, I concluded that I should not view the situation that I was experiencing as the impasse and stumbling block that my first instincts made me inclined to believe it to be. Rather, it in fact already offered me a starting point for the employment of diffraction as a way of reading, if I read it through the notions of Barad and others about identity and the ‘I’, and how they play in on the processes of doing research and be(com)ing (as) a researcher. Diffraction asks that we reconsider what a material-discursive entity manifested through agential cuts essentially means (Sehgal 2014:189). It causes the total distribution of subject and object, words and things, knower and known and words and worlds to be reconsidered (Sehgal 2014:189). Therefore, when one becomes involved in a process of knowing, one becomes “part of the equation, [and] entangled in intra-action” (Sehgal 2014:189). So, in a state of destabilisation and indeterminacy, I was open to the possibility of becoming with the data, and re-becoming differently with different data or different viewings of the ‘same’ data, and happy at the prospect of this “fluidity [and] the open interplay of elements [bringing me] the possibility of infinite recombinations” (Springgay *et al.* 2005:906). Also, Jackson and Mazzei (2012:ix) hold that data are incomplete, partial, and continuously subject to processes of “re-telling and ... re-remembering”. These ideas led me to understand that it would be how I became with the data and they with me, or how we co-constituted one another, and how accessible I was to the opening up and proliferation of knowledge rather than its simplification (Jackson & Mazzei 2012:vii), that would determine whether I ended up finding ‘nothing’, or whether I would experience the extraordinary liveliness (and richness) of the world made manifest through diffraction (Barad 2007:91).

In the following section I diffractively analyse the events and entities I had selected from the project, mindful of MacLure’s (2013a:660) assertion that, from a post-qualitative perspective as inspired by notions of new materialism, data possess the power to make themselves accessible to us – to lure us towards themselves. 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”. It

is with this in mind then that I selected (as agential cuts) the data that, in a way, also seem to have selected me. I endeavoured to select events and entities from the whole spectrum of the project in its unfolding, although, as stated before, I eschewed linearity and chronology in order to maintain the openness that the rhizomatic form of a diffractive analysis creates for the possibility of new and unexpected insights to be brought to light. Brooke Hofsess and Jennifer Sonenberg (2013:300) confirm this idea when they state that the rhizome encourages us to “think with/in a horizon of multiplicity, entering and exiting at any point, resisting tidiness, or closure[;] ... [this] activates and enlivens data”. As what I describe here precipitated mainly in the form of writing (itself, as stated earlier, “one further element in the complex array of entangled movements” (Davies 2014:735)), I find Bridges-Rhoads’s thoughts pertaining to writing insightful and meaningful for a further diffractive reading, in conjunction with the above, of how I view my resistance against and qualms about doing diffractive post-qualitative inquiry. Like her, I feel that I am writing as an “experimenter” who writes “in order to change myself and in order not to think the same thing as before; ... [that my] project [is not] *interpretation* but rather *experiencing and experimenting*” (Bridges-Rhoads 2015:704, 706, my emphasis).

4.2.2 Diffractive analysis of an event involving the intra-active entanglements between two teachers, two learners, a garden, objects and fire

This diffractive analysis involves a careful and detailed reading of an event that resulted from one of the assignments included in the project. The learners were required to create and enact some form of intervention to be performed in the art school’s courtyard garden, and were given the option of either working individually or with a partner. In order to provide some guidance, they were shown images of the work of artists such as Ana Mendieta, Andy Goldsworthy and Christina Oiticica, all of whom work directly with the earth and natural materials and processes.

Two learners, for whom I will use the pseudonyms Anna and Sarah, decided to do a collaborative work, with each producing an object that was to be joined with the object of the other in a burning ritual in the garden. It is the latter event, its unfoldings and entanglements that, for me, came to “resonate in the body as well as the brain”, as stated by MacLure (2013:662). In order to create a level of clarity for the reader, I engage separately with selected ‘cuts’ from the event – with the understanding that they are all in actual fact 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”.

4.2.2.1 Intra-active entanglements: Spacematter

I will therefore begin – as stated – not at the beginning of a linear, chronological account, but by considering the agential potencies of entangled spacematter. Jackson and Mazzei (2012:125), inspired by Barad’s notion of the entangled states of agency, assert that we interact with the matter of our worlds “in ways in which we are transformed by matter and *vice versa* ... [with] ... matter being a dynamic and shifting entanglement of relations” (emphasis in text). This includes how space constitutes bodies in particular ways, and my focus here is specifically on the entanglements of spacematter relations between (the bodies of) the garden and other bodies. I therefore attempted to avoid focusing on the humans by resisting presenting them as “pre-constituted subject[s] entitled to prioritising treatment”, but rather endeavoured to “disperse them into emergence-with”, as recommended by Milla Tiainen, Katve-Kaisa Kontturi and Ilona Hongisto (2015a:33) (Although, being so thoroughly saturated with my humanist upbringing and education, I found it difficult). This required that I considered and used “all of [my] bodily faculties and [my] imaginary ... [in other words my] bodymind ... to explore the co-constitutive relationships between discourse and matter”, based on Lenz Taguchi (2012:267). Important also was therefore the concept of trans-corporeality, in which the researcher is alert to those bodymind faculties that register smell, touch, temperature, pressure and other sensory experiences that emerge from the entanglements between different matter and matter and discourse (Lenz Taguchi 2012:267). This strategy supports the researcher in his/her endeavour to “displace the differentiated center [the human] that most often dominate our interpretive eye” (Kuntz & Presnall 2012:740).

The art classroom consists of a rectangular, walled-in cubicle that is a strictly confined, geometric space filled with mostly rectangular objects ranging from tables to cupboards and picture frames to windows, in which neither the eye nor the body is invited or drawn to wander and explore beyond the mundane and familiar. In contrast, the courtyard garden is open to the sky and edged with beds of plants and trees with organic shapes where hardly a straight line is to be perceived (Figure 4.1). Shapes of different plant bodies merge into one another, and one is constantly surprised by unexpected bits of matter that momentarily ‘detach’ themselves from the surrounding shapes to catch the eye as one yields to what could almost be described as a compulsion to look around and up: spider webs glistening in rays of sunlight that penetrate the shadows, cables of spider silk stretching from treetop to treetop, shed spider exoskeletons and snail shells hidden inside plants.



Figure 4.1: Art classroom and courtyard garden (2016) (photographs taken by the researcher)

The sun warms the skin as one moves around freely without the unyielding, angular obstacles of tables and chairs hindering the flow of movement, leaves stir and rustle in the breeze. One seems to become simultaneously aware, through the senses, of the specifics – the details – and the whole. This resonates with Richard Siegesmund’s (2012:101) citing of John Dewey’s assertion that: “in the direct sensory participation in the on-going world around us ... the varied wonder and splendour of the world are made actual for [us] in the qualities of experience”. Therefore 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(coming) in the garden. Also “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.

This brings me to the ‘intervention’ performed by Anna and Sarah – the burning of the objects in the garden. 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 4.2). My colleague and I sat down on the grass with the two learners as they began to prepare for the activity. The garden is devoid of structures – such as chairs and teacher’s desks – with the kind of ‘thingpower’ (see ‘Vibrant matter’ in Section 2.3.5) that speaks of restrictions and hierarchies of power, as well as specifically allocated spatial demarcations for separating learners and teachers, both of which intra-actively co-constitute the hierarchical structures of the teacher/learner binary in the classroom. In this sense the garden’s spacematter therefore managed to trouble specifically the distinction between “the teacher and the taught” (where the latter refers to both “course content” and “learning subjects”) (Hickey-Moody *et al.* 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, students, 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 suspended, I found myself, with my colleague and the learners, interested and eager to ‘see’ what will happen with the burning, how the objects and the fire will intra-act to co-constitute matter differently – therefore I was anticipating a form of ‘becoming-with’ the other humans, the objects, the fire, the space and the knowledge. Therefore, also as researcher, I was being co-constituted intra-actively with all these entities, not observing from a distance as a separate entity, but integrally part of the phenomenon.

4.2.2.2 Intra-active entanglements: Introductory thoughts pertaining to the material-discursive

With camera and recording cell phone at the ready, we were all focusing intently on the objects as Anna and Sarah set about igniting them (Figure 4.3). Later, as I repeatedly watched and listened to the video recording of the event in all its entangled, multisensory, multimodal, discursive-material complexity, it unfolded every time as a kind of (re)becoming. I realised that I was experiencing it like the unfurling of intricate, multi-layered structures that opened up not linearly over time, but in all

directions simultaneously. The objects in their “moment of vitality” (Bennett 2004:348) drew from us spontaneous, unplanned, meandering, fragmentary conversation (details of which are discussed under following headings) that wove itself through the intense watching, the silences and the sounds: of other humans, of matches being struck, of the crackling of the fire, of an airplane flying overhead, of the garden’s rustlings and of the calls of birds. Bits of discourse were becoming constituted by and entangled with the entanglements of objects, the shadows of hands falling over them, the hands as they worked, the moving human bodies, the flames, the grass, the garden; and all of these elements and entities constitute the video footage. Not once during the conversation did it even occur to me to focus the camera on the faces of the speakers.



Figure 4.2: Anna and Sarah’s objects (2016)
(photograph taken by the researcher)



Figure 4.3: Setting the objects alight (2016)
(photograph taken by the researcher)

Such conversation could not have occurred in the classroom – it was integral to that particular phenomenon, elicited, drawn forth, by the specific event of the burning of those objects in that space, and not more central or important than any of these. In other words, there were particular

material-discursive, intra-active agential cuts into the entanglements of this singular phenomenon that brought some things to matter (in more than one sense of the word), while simultaneously excluding others. I realised, when I listened to it again, that the honesty and very lack of linearity, direction and structure of the conversation, its ‘flying off’ in different directions, rendered it rich material for the diffractive analysis, with its rhizomatic form, that I was endeavouring to accomplish in my study. Aaron Kuntz and Marni 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”. I examined selections of the conversation that presented themselves to me as provocative, keeping in mind that in my diffractive analysis, as explained before, the human/speech cannot be disentangled from and selected to matter more than any of the other elements of this phenomenon. This is echoed by Karin Hultman and Hillevi Lenz Taguchi’s (2010:538) assertion that we should ...

try to engage with our data without a thinking that formulates itself from a hierarchic division between humans and non-humans, between what should count as subjects and objects ... [and that] ... assumes that individual human beings or discourse are the only proper ontological units or locations from which to produce knowledge.

4.2.2.3 Intra-active entanglements: Art, the senses, affect and ethics

As the objects 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). More than that, we were experiencing what Tuana (forthcoming 2016:5) calls the “viscous porosity of flesh – [our] flesh and the flesh of the world” – as smoke, heat and the sun’s ultra-violet rays penetrated our bodies. Tuana (forthcoming 2016:5) states that this porosity “is a hinge through which we are of and in the world”, referring to it as viscous due to various types of membranes that affect and mediate intra-actions such as those I talk about here. And as part of all these multiplicities of mindbody-spacematter entanglements, the matter of the objects – 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, at this point I wish to take, as my rhizomatic approach suggests I could and should, a line of flight (a concept that I discussed earlier) that had opened up for me in considering Anna's response to a question that I put to her about how she felt about burning the object she had made. I will also refer to another learner's response (I will give her the pseudonym of Danae) to a similar question when she performed her intervention (she had decided to work alone). Marjorie O'Loughlin (1998:293) points out how vision, and to a lesser degree, hearing, are the "privileged senses in our technological culture", and how this is reflected in the school curriculum by the fact that subjects with the highest status are inclined to foster a sense of solitude and detachment in the learner. She then suggests that learners should be exposed to multi-sensory experiences "in order to redress the imbalance brought about by the hegemony of sight" (O Loughlin 1998:293). In this regard I wish to explore in particular the sense of touch.

Anna, searching for words, responded as follows to the question above: *"It feels a little bit ... like – in a way I'm reluctant to burn it – because it's so much work"*. These few hesitant words, in conjunction with and read through some of the theoretical reading I was doing when I listened to them for the first time, set me thinking about what the role of touch might have been in the process of making the object, and what part it might have played in Anna's affective response. Danae, whom I mentioned earlier, responded similarly when it came to destroying, with an axe, the 'tree-woman' she had built with much care, and as a matter of fact, in the end she did not have the heart to complete the mission (Figure 4.4). Her decision to let Tree-lady live on was applauded by everyone. Tree-lady is still standing in the courtyard garden and will be fondly watched over as she slowly disintegrates in her re-becoming as integrated garden matter from which she will again re-become as some new form of growth, and so on – matter constantly re-organising itself (figure 4.5). As Bennett (2010:xvi) remarks, "[w]e need to cultivate a bit of anthropomorphism – the idea that human agency has some echoes in nonhuman nature – to counter the narcissism of humans in charge of the world".

Getting back to touch: Susanne Langer (cited in Chaplin 2005: n.p.), describes how "the sensory reactions of the skin and underlying structures are engaged together in the tactile perception of substances", with the result that we become aware of not only surfaces and edges, but also of volume infused with "multimodal, often nameless qualities". Adrienne Chaplin (2005:n.p.) holds that these "often nameless qualities" 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" quoted above.



Figure 4.4: Danae and the Tree-lady (2016)
(photograph taken by the researcher)



Figure 4.5: Tree-lady alone in the courtyard garden (2016)
(photograph taken by the researcher)

O'Loughlin (1998:280) reminds us that learning does not occur without the learner's emotional involvement. These emotions, she states, in resonance with the notions about affect as expressed above, are situated in the "depths of our actual embodied engagement with the world in all its complexity" and adds that they are, when properly understood, "never reducible to the individual who expresses them" (O'Loughlin 1998:280). Bennett (2010:xii, xiii) calls upon a Spinozist notion of affect, which refers broadly to the "capacity of any body for activity and responsiveness", as well as upon Cole's take on Deleuze and Guattari's idea that "affects entail the colliding of particle-forces delineating the impact of one body on another, [which] could also be explained as the capacity to feel force before [or without] subjective emotion". Here our intra-action with the fire could serve as an example: We were acutely aware of its force and agential power to 'rearrange' matter; it fascinated us and affected us to the point where we simply had to watch it until it had completed its transformative intra-action with the matter, as the discussion of fragments of our conversation

further down will show. I would therefore argue that our response to the affective effect of fire as an awe-inspiring force of destruction, but also of purification and transformation, demonstrates exactly this “capacity to feel force before [or without] subjective emotion” (Bennett 2010:xiii).

Springgay and Rotas (2015:554) argue that art, when understood materially, could be envisaged as an “affective event,” which renders art irreducible to function, form and technique (2015:554). Instead it becomes, in Deleuzian terms, a “force of relations that makes learning felt and inarticulate”, a “force that activates becoming”. Creativity, enabled through aesthetic acts such as art, generates a new Deleuzian “ethico-aesthetic paradigm” by “break[ing] codes, regulations, and homogenizing gestures... [to] ... engender unprecedented, unforeseen and unthinkable qualities of being” (Springgay & Rotas 2015:554). Therefore, the mobilisation, through aesthetic experience, of the affective as potential agential force 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. It is my contention that the points made here about the capacity of art and creativity to bring about qualities of being and open up possibilities for ethical be(com)ing as described above could be viewed as being confirmed by the fact that both Anna and Sarah seemed to relish the experimentation and the unpredictability of the outcomes of the project’s assignments.

This assertion, demonstrated by the segments of conversation that I analyse more fully under the heading ‘Intra-active entanglements: More of the conversation’ in Section 4.2.2.4, resonates with Charles Garoian’s (2015:489) observation that his art students “delighted in the impertinence of the experiment [referring to a task he had given them] insofar as it resisted representational relevance”. Garoian (2015:489) then argues, in line with the Deleuzian notions discussed above, that when learners become involved in such open-ended, playful artistic exploration and experimentation, opportunities are created for them to become “threshold people” who are open, “liminal entities” unfettered by “law, custom, convention and ceremonial”, and therefore capable of entering into a new Deleuzian “ethico-aesthetic paradigm”, with all that it implies as discussed above (Springgay & Rotas 2015:554). Here I cite Anna’s musings and insights, analysed more fully under the heading ‘Intra-active entanglements: More of the conversation’ in Section 4.2.2.4, about what ‘we’ are doing to nature, uttered as she watched the burning of the objects. I argue that her insights, and how she came to have them through the experience of the burning of the objects, could be regarded as a possible example of the mobilisation, through aesthetic experience, of the affective as potential agential force for ethical be(com)ing in the world, as stated above.

In Baradian/Harawayian diffractive terms, as “‘we’ are always/already entangled within everything”, our “intra-acting from within and as part as the world in its becoming” gives us “*response-ability with others* that creates an ethical imperative” that eschews the notion that some bodies are more worthy than others of mattering (emphasis in text, Thiele 2014:213). This resonates strongly with Tuana’s (forthcoming 2016:8) notion of how, in terms of ethics, viscous porosity – as “a continual reminder that we, each thing, each event, is what it is and is becoming through exposures to others and to the world” – encourages a “mindfulness toward and practice of response-ability”. In other words, it could help instil the “ability to be affected by and respond to the interrelations that constitute ... all of us” (Tuana, forthcoming 2016:8). This fosters in us an understanding of the “dependency of [not only human] future others on the lives we live today” (Tuana, forthcoming 2016:8). For her part, Bennett (2010:xi) expresses the hope that “sensuous enchantment” with “things” in the everyday world – with “nature” but also with “cultural products” such as art – might boost the motivational energy required to “move selves” beyond the mere endorsement of ethical principles to the actual implementation of ethical behaviours.

Echoing this, Colebrook (2011:51) suggests the need for us to develop a “more nuanced understanding of affect that distinguishes it from affections”. She states (Colebrook 2011:51, 54):

If art and art theory had always had some orientation or sense of affect this was never that of a simple bodily response or lived feeling, not an affection but a force that would yield an affection. Affects would be ‘stand alone’ powers, possessing a certain autonomy. ... Affect would have to do with the art work’s capacity to create circuits of force beyond the viewer’s own organic networks[;] ... [this could be viewed as] particularly important today when the distinction between affect and emotion may go some way to allowing us to envisage life beyond the organism.

In resonance with these statements, I cite my own almost physical response of thrilled fascination and intrigue to Anna’s painting (Figure 4.8), which I analyse more fully under the heading ‘A diffractive, rhizomatic analysis of Anna’s painting and the art practices involved in its making’ in Section 4.2.3. One could say that my response demonstrates the art work’s capacity to create circuits of autonomous affective force: I felt that the painting, the creature in it, had the potential to transform for a moment one’s experience of the world, and to challenge one to come up with different, as yet ‘unthought of’ ways of being in the world, by suggesting through its own difference and strangeness the possibility of new kinds of becomings.

(Here, though, prompted by my observations about the painting, I wish to yet again rhizomatically digress for a moment into a line of flight that I will have to leave unexplored due to constraints of space, but yet feel needs mentioning for its implications concerning the loss of biodiversity, which was the initial impetus for the explorations I have undertaken in (the writing of) this dissertation.

Kathryn Yusoff (2013:209) alerts us to the fact that the vast majority of biotic subjects are imperceptible to humans – therefore “insensible” – and disappear without perceptible trace. Therefore, in terms of ethics, this problem needs for us to “get over ourselves and seek out what is truly strange and wonderful in the cohabitation of worlds that we will never be at home in”; it means finding new and different ways of thinking “about stretching out into the untimely, insensible spaces of many differently configured others” (Yusoff 2013:225)).

While acknowledging the importance of the aesthetic-(as knowing through the senses) affective as potential vehicle for ethical be(com)ing as explained here, and Colebrook’s elaborations on affect, I consider affect in relation to an emotional response when I now focus again on the notion of touch, as I propose that this kind of subjective emotional involvement could still be integral to the effects of affect in its wider role and capacities as Colebrook would have it. Here I think of Dewey’s argument (cited in O’Loughlin 1998:287), that “an emotion may have the effect of over time deepening into an ... emotional character”; this notion resonates in my opinion with the ideas of aesthetic-affective openness/ethico-aesthetic paradigms as discussed above. So, as far as touch is concerned, I shall, as researcher whose bodymind (entangled thoughts and ideas and bodily involvements and experiences) engages and interferes with the data, follow the example of researchers Hillevi Lenz Taguchi and Helen Palmer (2014:768), who use their own experiences and stories to discover possible “lines of flight”. Therefore, in the following paragraph, I shall endeavour to read the data about the learners’ attachment to the objects they had fashioned by hand diffractively through a memory story of my own relating to the power of touch to move the one who touches.

Several years ago I did research for an art work in which I wanted to investigate facets of the phenomenon of migration of animals and humans. I came across old *Time* magazines that contained reports and photographs of the suffering of Tutsi people during the Rwandan genocide that took place 10 years prior to my encounter with the magazines. The article described how countless children who had become separated from their parents ended up dying of epidemic diseases in overcrowded makeshift camps, where serious deficiencies in sufficient medical care led to huge numbers of deaths on a daily basis. This led to situations where people had to be buried in mass graves. Two adjacent photographs depicting the same confused scene of many people milling around such a grave caught my eye. In the first photograph, among all the bodies, dead and alive, the body of a small girl of maybe about seven years old lay curled up in a foetal position on a piece of cardboard next to the grave. In the second image, her body was being dipped into the grave. I felt moved by the lonely and anonymous death of this child, who had no one to hold and comfort her as she lay dying, and on the spur of the moment I decided to cut her small body out of the photographs. The moment I *touched* (the image of the) girl and started cutting around the contours

of her body, my emotions seemed to greatly intensify, and I was overwhelmed with such deep sorrow that it took me totally by surprise – it was as if, as my hand covered the image of the body, the image *became* the body. Time and space seemed to rearrange themselves, folding back on themselves, thereby putting me right there with that dying child, so that at last someone could truly mourn her death and the terrible injustices she had suffered. My touching of and (agential) cutting out of the little figure made her materialise, made her come to matter, in a way so intense and real that it affects me to this day.

Considering my own powerful affective experience precipitated by specifically the touching of a mere image, as recounted here, I postulate that Anna and Danae's strong affective responses to the objects they had created were at least in part due the fact that the relationship between creator and object were to a large extent fostered by touch. It would be interesting to determine, for instance, whether they would have expressed similar emotional involvement with a structure that they had created on a computer screen and had not touched at all. By this I do not mean that such images have no emotional impact, I simply suggest that touching seems to *intensify* such impacts. Through touch, the whole of the skin, they could gain instant and intimate embodied knowledge of the object's physicality and materiality in all its phases of development in a way that could not be achieved through sight alone – the object could be touched almost everywhere simultaneously, for instance, by folding the arms around it and holding it against the body.

Touch seems to be vital to the thriving and even survival of very young creatures, and affectionate interactions expressed by all creatures seem to be grounded in touch more than in any of the other senses. I therefore propose that, due to the strong association between touch and affection, humans may develop more readily the kind of deep-felt sensibility (both literally and metaphorically) towards 'vibrant matter' – which could then inspire ethical consciousness as proposed by Bennett – through touch than through the other senses. It has perhaps the best potential to enhance "more readily the thingpower" of "vibrant matter" that "emphasizes the closeness, the intimacy, of humans and nonhumans". And it is here, Bennett (2004:365) argues, "in a heightened sense of that mutual implication, that thingpower materialism can contribute to an ecological ethos". Clearly the arts, and in particular those art processes and art works that require a large amount of tactile bodily involvement, are well suited to explore the role of touch, as postulated here, in our lived experiences of the world and our understanding of our place in it.

I wish to leave the mattering of touch and the touching of matter as open-ended as I found it – "for matter is never a settled matter; [i]t is always already radically open" (Barad 2012c:214) – with this citation from Barad (2012c:208, 214, 217) on touch. (She grounds these ideas in what she calls the

“queer” behaviour of matter in terms of quantum physics, the explanation of which is beyond the scope of this dissertation):

In an important sense, touch is the primary concern of physics. Its entire history can be understood as a struggle to articulate what touch entails ... All touching entails an infinite alterity, so that touching the Other is touching all Others, including the ‘self’, and touching the ‘self’ entails touching the strangers within. Even the smallest bits of matter are an unfathomable multitude. Each ‘individual’ always already includes all possible intra-actions with ‘itself’ through all the virtual Others, including those that are noncontemporaneous with ‘itself’. That is, every finite being is always already threaded through with an infinite alterity diffracted through being and time ... Ethicality entails hospitality to the stranger [Other] threaded through oneself and through all being and non-being.

4.2.2.4 Intra-active entanglements: More of the conversation

I now turn to more diffractive readings of selections from the conversation that I described earlier, those remarks and comments that somehow seemed to command my attention when I heard them again while listening to the recordings. As stated before, 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 objects, were negotiating about how to start an effective flame, I asked them whether they were enjoying the project. Both Sarah and Anna responded positively, with Anna pointing 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 objects and seeing *“what will be left and stuff”* were what eventually convinced her to sacrifice the object. I was, of course, pleased with their responses, that they were not daunted by the uncertainty and open-endedness of the process, but actually seemed to relish it. I made a note about incorporating into my conclusions and suggestions for future projects the value of intrigue and surprise to lure the learners into enthusiastic participation, so that these qualities may be exploited more fully. As researcher, I was also reminded of how my own ‘not knowing’ what the outcomes of the processes and activities of the project might be elicited in me, too, a sense of intrigue and anticipation to see ‘what will happen’, especially as I took part in the project. This helped to concretise for me my ‘becoming-with’ the learners as the materialisations of the project’s processes unfolded. In this I experienced a realisation of Barad’s (cited in Lenz Taguchi 2012:277) assertion that *“[i]n diffractive analysis, the researcher partakes in a process of knowing-in-being ..., and cannot be understood to perform an analysis from a position ontologically separated and at a distance from the data”*.

However, Anna's response to my simple question as stated above did not end with her comments of how she enjoyed the experimentation and unpredictability of the outcomes. Without stopping, and without any further prompting from me, after "... *but it's more exciting*" (quoted above), she spontaneously launched into a monologue in which thoughts and insights developed as she went along:

And – become – like aware of how – nature is ... 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, and on along the way we learn it – like, oh, now, wow, this is actually, you know, like alive, this is what we're actually doing to 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, you know, this garden was never like this – it was just green trees – and now it's like ... 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, nothing is ... nature is now being held together by manmade stuff

After some conversation between the learners, and my colleague and I, about how Andy Goldsworthy's interventions never contained manmade materials, but how the manmade elements in their (the learners') objects perhaps could be seen as reflecting the fact that there are no totally pristine natural areas left on earth, Anna concluded with 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. Because – if we just keep destroying it, it's gonna be like there's nothing left and ... it's like almost – you know, like caveman and everything, we relied on nature, we relied on rain to bring us food and everything – now it relies on us.

As stated before, the spontaneity and honesty of the meandering conversation, and therefore of the excerpt quoted here, were a function of its inextricable entanglements with and constitution by all the other elements of the event in its unpredictable unfolding. I am of the opinion that 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 objects, with us as teachers 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 (as referred to in the discussions of affect earlier in the chapter), which probably would not have happened if I had had a formal, premeditated classroom interview with her. 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 have been drawn from her through her physical intra-action with the objects in their actual material manifestation – their ‘thingpower’. This seems to be similar to Springgay and Rotas’s (2016:568) explanation of Bennett’s response to things she encountered on a walk: “Within one moment Bennett recalls these *things* as ‘calling’ her out and producing affects. Within another moment, Bennett becomes aware of the effects of these *things*, such as the mass production of plastic water bottle caps and the litter that they become on the side of the road” (emphasis in text). Anna’s use of the words “*weird*” and “*strange*” could be read through the idea that the power of art and the artistic act, 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).

Moreover, although I initially dismissed her conclusive quip that “*we used to rely on nature, now nature actually relies on us*” as a rather naive statement not worthy of much attention, when I reread it diffractively through the ethical dimensions with which the notions of Barad’s agential cuts, Bennett’s vibrant matter and Tuana’s viscous porosity concern themselves, as pointed out earlier, it actually struck me as being insightful in an almost intuitive way. As a matter of fact, these words echo very closely Guattari’s admonition (cited in Bennett 2010:116), that the health of the planet is “increasingly reliant upon human intervention, and a time will come when vast programmes will need to be set up in order to regulate the relationship between oxygen, ozone and carbon dioxide in the earth’s atmosphere”.

In terms of my own becoming as researcher, my actual physical and sensory entanglement with the event of the burning and all its elements put me in a position where I as researcher felt that I was ‘touching’ [the] data [in a way that] enabled [me] to approach the research aesthetically – affectively, vitally and as movement” (Springgay & Rotas 2015:269). I view movement here as referring to 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 & Hongisto 2015b:7).

Anna’s and my becoming selves, the objects, the fire, other human participants and all other elements of the event, including my interaction with the data, were “mutually implicated in a production of possibilities both thought and *unthought*, actualised and *unactualised*” (my emphasis) as worded by Mazzei (2013:783). On the other hand, as Christopher Schulte (2015:549) reminds us, “possibilities do not readily sit still, *they* were always being figured and reconfiguring *our* being” – they, too are entangled with everything else. Therefore we are reminded of how that which is

always already excluded “when, in a given moment, we come to value one thing and not another” (Schulte 2015:549), implies that the process of co-constitution of the material-discursive, and that includes ourselves, is never completed and the mattering never final. Although mutual implication, or agential cuts as Barad has it, may provide the condition for “the possibility of situated knowledge as a practice that can make a difference”, cuts are “never enacted once and for all” (Hughes & Lury 2013:794) and knowledge is always open to iterative reworking.

For my final diffractive reading of the intervention event, I turn to remarks from Sarah that surfaced during the course of the conversation. When asked whether she was enjoying the project, she responded as follows:

When we started this project I sighed and – wow – not again ... I've done quite a few courses on this kind of thing – but this has turned out to be completely different and I've actually really enjoyed it – whereas in the beginning I thought: This is going to be boring! [laughter] But it's actually turned out to be very interesting and unpredictable.

This was followed by talk about the burning, suggestions to get it going, the direction of the wind, taking of a video and so on. Upon my remark that, as a scout, Sarah should be at ease with lighting fires and my colleague's query about whether that was what she meant by having done this kind of thing before, she responded:

No ... I've done courses separate to that ... but not as art. I've done marine biology courses and that kind of thing – where we learned about all [these kinds of things]. It was pretty boring, because it wasn't art – and I like art! My mom tends to say that I'm more arty than Cal [pseudonym for her older brother] ... because I'm always constantly doing art where he just does what he's told.

I commented, with reference to the experience of the burning, that it was as if one went into a different mode, with watching the burning so intently and being outside in the open, and then said to Sarah that maybe for her as a scout, it was not such a different experience. She responded: “*Well – it's quite different, because 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*”. Here the conversation became totally interwoven with comments about and actions towards setting the objects alight, until they started to burn.

Sarah's responses and comments seem to resonate strongly with Garoian's (2015:489) observations (which I briefly referred to in connection with affect earlier in the chapter) 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.

Victor Turner (cited in Garoian 2015:490), argues that learners who engage in such playful exploration, experimentation and improvisation may become irreducible “threshold people . . . liminal entities [who] are neither here nor there; they are betwixt and between the positions assigned and arrayed by law, custom, convention, and ceremonial”. This is reminiscent of Hekman (cited in Jackson and Mazzei 2010:10), calling the “‘I’ ... a mangle of multiple elements” or Barad’s (2012b:32) statement that “identity is multiple within itself”.

I proceeded to read Sarah’s views on the project and her ‘arty’ self diffractively through the ideas set out in the previous paragraph, as well as through ideas of the co-constitutive agency of ‘vibrant matter’ itself to affect us through direct sensory participation in the continuously changing world around us, so that the magnificence of the world becomes real for us in the properties of experience (Siegesmund 2012:101). What seemed to crystallise from this reading (as, in part, with my reading of Anna’s comments) was 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). They have the potential to promote experience as a participatory co-composing act that creates the potential for producing difference and the new, thus opposing and resisting the reduction of thought to “ready-made concepts and opinions” (Springgay & Rotas 2015:556). In the following paragraph I once again take the liberty of sharing, as participatory researcher, artist and teacher, an encounter of my own with the kind of experiences I have discussed here.

On Friday morning, 24 June 2016, I was confronted by the image in Figure 4.6 as I paged through the previous day’s newspaper. These were the things that I thought about, that presented themselves to me, as I looked at it: the almost painterly quality of the image; the terrible beauty of the fire and the smoke as they rose up into the sky, creating the feel of an almost apocalyptic landscape (I could imagine the fierce heat, overwhelmingly acrid smell and the roaring noise of the fire); the awe-inspiring ‘thingpower’ of the burning bus; the way the transformed bus, through having lost the practical use which probably rendered its actual, independent material ‘being’ ‘invisible’ most of the time, would make its presence ‘felt’ – the way people’s gaze would be drawn to it so that perhaps, subliminally prompted by the echoes of experiences of traumatic change in their own bodies, they will discover in its reorganised and unfamiliar structure “the miracle of expression”, as worded by Maurice Merleau-Ponty (cited in Bennett 2004:350); the fate that awaited the bus once the burning and the reasons for it had been given their due consideration by those whose attention was being sought – it certainly was not simply going to disappear into no-thingness.



Figure 4.6: Image of a burning bus in Atteridgeville, west of Pretoria (2016)

(photograph taken by Aki Anastasiou, Eyewitness News,
reproduced by the researcher from *Die Burger*, 23 June 2016:15)

The article that accompanied the image 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 I 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. I am 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 I do know is that they took me beyond “ready-made concepts and opinions” (Springgay & Rotas 2015:556), and that I felt excited by the fact that I had had them at all – I *was* 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 intervention, and my thinking and writing into/of/about/through all of these.

What follows next are the intertwined exclamations and comments about the burning itself (Figure 4.7) that concluded the conversation of the intervention in the courtyard garden.



Figure 4.7: Anna and Sarah's intervention event: The burnt objects (2016) (photograph taken by the researcher)

They speak for themselves, so to speak, in terms of the complete immersion of the speakers in the event of the burning objects and their matter(ing) – demonstrating once again, I believe, Bennett's (2010:6) observations on the "curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle" – and that's where I will leave them.

Anna: *It's lovely!* **Sarah:** *How beautiful!* **My colleague:** *Look how the colours change inside.* **Anna:** *I love how the smoke comes out of it.* **My colleague:** *Wow!* **Sarah:** *Look at that!* **Anna:** *The twigs are burning away.* **Me:** *Look at the glue ... the glue is doing the burning.* **My colleague:** *Now it's coming undone.* **Sarah:** *Look at how it's burning away, and like you said, it's now leaving the wire. [There is a short silence, with the sound of*

the crackling fire]. Sarah: It's pretty cool that we have the green one and then the dry one. Me: ... still that smell ... [of the burning glue]. Sarah: I love the smell of fire [laughter from other learners somewhere in the background]. Me: It's created its own little shape ... My colleague: Skeleton-like ... look how pretty it is inside ... look how pretty it is there. Sarah: It's like the nature part of it has been burned – but there's still something left. Anna: Yup. Sarah: It was nice to have the green and the dry ... it's still alive [the green] – the other one – there's the dead on top of the green. Maybe there's a deeper meaning ... you said [to Anna] that nature's coming to rely on us, but maybe we just think it is, where it's actually still there, thriving beneath – we can't see it. Anna: Hmm.

4.2.2.5 Conclusion

In this diffractive analysis, based on Barad's notions that different material-discursive agential cuts will facilitate the manifestation of determinate entities differently from the entangled matter that constitute a phenomenon, I endeavoured to read the event of the garden intervention rhizomatically in order to allow for the possibility of lines of flight that might bring unexpected insights. I selected data as agential cuts, and read them through notions of materiality relating to Bennett's vibrant matter, Tuana's viscous porosity and Alaimo's trans-corporeality; read, in turn, through notions of the role of the senses, especially touch, of the human body to facilitate affect and the possibility of ethically caring for the world and all its matter. The analysis pointedly did not privilege the human, but aimed to emphasise the value of all matter, however it is manifested, and therefore the analysis of the conversation focused mostly on how the learners might have begun to think differently about (the world's) matter(s), and why/how it matters.

I tried to consider the manners in which the material and the discursive interacted to take into account how matter and discourse are understood to co-constitute each other in knowledge production (Mazzei 2013:777). The ultimate goal, important to remember, is to determine how insights gleaned from this analysis might be useful for setting future projects that could open up opportunities for learners to truly engage with the materiality of the world ethically so that they will work towards being citizens of the world through whom all of the world may experience justice (and yes, I acknowledge that this is a rather grand ambition). However, I stay mindful of Barad's (2007:179) reminder that "agential [c]uts cut things together and apart", while they "are not enacted from the outside, nor ... enacted once and for all". Therefore, different agential cuts may yield different readings, insights and becomings. Nonetheless, I argue that what Barad (2012c:207) says of theory is also true of research - it requires always "being open to the world's aliveness, allowing oneself to be lured by curiosity, surprise and wonder", and enthusiastic about the "possibilities of fostering just relationships among the world's diverse ways of being/becoming". Being constantly mindful of that which has been excluded, that which has yet to be thought,

discovered and experienced when agential cuts are made differently, form an integral part of what is required.

4.2.3 A diffractive, rhizomatic analysis of Anna's painting and the art practices involved in its making

4.2.3.1 Introduction

The different activities of the project built upon one another up to the 'final' work, which therefore resulted, as a kind of synthesis, from the specific choices (or agential cuts) in terms of ideas that the learners made as they executed the project's assignments, and from the materials and images that were used and created to execute their ideas. Prompted by the mysterious allure of the creature in Anna's painting, I chose the painting (Figure 4.8) for diffractive readings through tenets of new materialism, focusing on the multiple material processes interwoven with it and its creation.

4.2.3.2 Intra-active entanglements: Images, concepts, materials, becomings – the creation of a painting

The image manifested itself not as a preconceived entity painted from Anna's imagination – she could not have imagined it in its specific, material particularities. Rather, its manifestation, its 'becoming', is the material-discursive materialisation of numerous intra-active agential cuts in the entanglements of Anna, her self-adornment image, the image of the spider orchid she had chosen to work with, and the creation of a collage (Figure 4.9), as well as the intervention event in the courtyard garden (discussed in the previous section), as shown in her source book (Figure 4.10), and the materials – paint, photocopied images, board – with and on which she created the image. The re/combinations, through collages, of images and ideas that would not otherwise have become intertwined, allow for the possibility of multiple becomings of difference. Therefore, I hold that, in Barad's (2014:168) parlance, collages in which images and ideas are re/worked and re/configured, are as such diffractive processes, as "diffraction is not a set pattern, but rather an iterative (re)configuring of patterns of differentiating-entangling".



Detail



Detail

Figure 4.8: Anna, *Untitled* (2016), paint and photocopies on board (photographs taken by the researcher)



Figure 4.9: Page from Anna's source book: Collage drawing, spider orchid, self-adornment image (2016) (photograph taken by the researcher)



Figure 4.10: Page from Anna's source book: Intervention event (2016) (photograph taken by the researcher)

The particular intra-active agential cuts that produced Anna's collage – merging her head (from the images of the self-adornment activity) with the spider orchid (that she chose to research) – created a new floating, squid-like creature, set in a context different to those of the entities from which it originated. Around and into Anna's painted creature, based on the collage, bits of images of the fire, smoke and burnt matter of the intervention event were also integrated. The painting therefore became an almost literal incarnation of the following assertions made by Barad (2014:168) (if the fact that Anna could have created an infinite number of different creatures/objects/abstract configurations through different intra-active agential cuts in the creation of the collage is also taken into consideration):

There is no absolute boundary between here-now and there-then. There is nothing that is new, there is nothing that is not new. Matter itself is diffracted, dispersed, threaded through with materializing and sedimented effects of spacetime-mattering, traces of what might yet (have) happen(ed). Matter is sedimented intra-acting, an

open field. Sedimenting does not entail closure. (Mountain ranges in their liveliness attest to this fact.)

Tiainen *et al.* (2015a:29) argue that an analysis that focuses on the “meaning” of the art work tends to result in concerns with things “through or beyond the art work”, rather than focusing on its “ontological becoming” in order to seek out its “material peculiarities and connective capacities”. They claim that a new materialist understanding of an art work entails the “appreciation of the ‘liveliness’ of the studied entity in terms of its agentic or co-constructive capacities”, as the latter relate to its material peculiarities and connective capacities or its particular characteristics (Tiainen *et al.* 2015a:22). By “framing” an artwork, these distinctive material characteristics that contribute to its liveliness are carefully mapped; framing is thus not meant to “explain and contextualise so much as to enable the liveliness of the object [to come to the fore] and to live on, by capturing its becoming in a manner that offers it a new tangle of relations in which to carry it forward” (Tiainen *et al.* 2015a:24 – 25). When I looked at Anna’s “framed” painting, I was aware immediately of the “multiple material processes involved, intertwined into it”, as stated by Kontturi (2014:43), and also that it had exceeded those processes in its ‘final’ becoming – that it had become more than the sum of its (entangled) parts. I was struck by the particularity of the creature that ‘sedimented’ ‘just so’ through these processes; it affected me in an almost visceral way through the thrilled fascination I felt at its existence – and yes, its liveliness – and its strangeness and beauty. As stated before in my discussion of the affective under the heading ‘Intra-active entanglements: Art, the senses, affect and ethics’ in Section 4.2.2.3, it had, to me, the potential to transform for a moment one’s experience of the world, challenging one to think of different ways of being in the world by suggesting the possibility of new kinds of becomings (Kontturi 2014:43).

The undulating movements of the floating ‘tentacles’ and hair, caught in momentary suspension, and the implied movement of the fire and smoke images incorporated into the creature’s body, invoking their transformative, but also sensory and trans-corporeal capacities, emphasised the fact that “[m]atter is not still, concrete, but always on the move, taking shape in relation to other matters in movement, human and non-human alike” (Kontturi 2014:43). This remains true, Kontturi (2014:43) claims, even when matter seems inert, as there is always imperceptible movement, such as paint shrinking, cracking and/or reacting with other chemicals (and when this happens in the painting, the creature will ‘move’ too). Reading diffractively the capacity and potential of Anna’s painting to evoke experiences such as those that I attested to here through the notions discussed above, I can vouch for its inherent “liveliness” and “co-constructive” capacities (Tiainen *et al.* 2015a:22). These capacities are generated by its own, particular material qualities, its multiple intra-active discursive-material entanglements with all other entities that materialised in the non-linear

processes of its making, and its potential for making further connections beyond the confines of the practices, processes and image-making suggested in the assignments of the original project.

However, although my focus of analysis relates to tenets of new materialisms, interpretative analysis still remains an important factor when dealing with artistic production. As Chaplin (2005:n.p.) proposes:

[I]t is the unique role of art to be able to articulate or symbolize the world to the extent that it is affectively experienced. Put differently, art responds to the shapes, forms and rhythms of the world to the extent that they can carry expressive meaning that resonates with the way we affectively experience the world. ... [E]ven though the making of and responding to art ... involve embodied actions and reactions, nevertheless these should always be recognized [also] as symbolic practices and therefore as open to ... interpretation and metaphoric understanding within the context of a broader horizon that lend them their meaning.

Integral to this is also the potency inherent to coupling the affective qualities of the physical presence of materials used in art-making with their metaphorical meanings (Marshall 2009:92). This brings us back to, or iteratively re-entangles with, the notions of affect discussed earlier in this chapter under the heading 'Intra-active entanglements: Art, the senses, affect and ethics' in Section 4.2.2.3. I will discuss notions of the concept of embodiment as mentioned in the citation in more detail in the following section.

One last point that I want to emphasise, in the light of the posthumanist tenets that inform this dissertation, is that, by integrating herself with and thereby *be(com)ing* this 'other', this strange creature whose body, form and function are so alien to our own (Johnson 2015:297), Anna manages to diffractively entangle the eschewal of anthropocentric privileging of the human with Barad's (2012b:47) assertion that the other is always "irreducibly and materially bound to, threaded through, the 'self'".

4.2.3.3 Conclusion

Although the project's focus had been very much on the entangled materialities, activities and processes of material artistic practices and production, rather than on end or 'final' products as such, it remains an inescapable fact that learners have to be given marks for the work they produce, and a 'final' work is usually a curricular requirement. It is also true that a stand-alone art work is a material object with its own qualities and potencies. Therefore, I reasoned that it was necessary to attempt a diffractive reading based on new materialist perspectives of a 'final' work, while keeping in mind the entanglements and agential cuts that constituted it and gave it its existence, so to speak, in order to see whether and how future projects could pay more attention to 'final' works. For

instance, I did not attempt a discussion, such as the one here, of the final works with the learners. However, after having done the analysis here, I have come to the conclusion that not doing something similar with the learners deprives them of an opportunity to apply the theoretical knowledge they have acquired in Visual Culture Studies in order to hone their skills for analysing artworks. Moreover, and maybe more importantly, new materialist perspectives do not appear in the syllabus, and this might provide a good opportunity to introduce the learners to some of the concepts in an accessible manner.

4.2.3.4 A rhizomatic line of flight: Waste

I end this section with an extension (despite the numbering of the sections, this part actually still 'belongs' to the previous section) – a line of flight that relates to a diffractive reading of waste. A factor that I hadn't considered when I set the project, but that had become impossible to ignore as it presented itself as a 'line of flight' in my rhizomatic analysis of Anna's art practices, is (the fate of) the materials that are excluded and discarded as waste in the creation of an art work. When our art production is read through Barad's notions of the exclusions brought about by agential cuts, and how it matters ethically, as well as through Bennett's (2004:351) thingpower, where even trash is regarded as consisting of material entities "not entirely reducible to the contexts in which (human) subjects set them", these materials simply cannot be ignored.

It was specifically when I did my own collages for the project that I realised how much of the images – images printed on paper – I chose not to use, and therefore how much material 'waste' I was producing (Figure 4.11). Therefore, as experienced by Springgay and Rotas (2015:569), I found that "[my own] creative events became [diffractively] entangled into the milieu of the research". For instance, subsequent to my own experience, I became acutely aware of the paper, card board, and paper towel impregnated with printers' ink and turpentine that gradually filled a large trash can during a printing session my colleague conducted with the learners. However much we might choose to ignore it, with an 'out of sight, out of mind' attitude, the waste produced in the processes of art-making is intrinsically connected to, or entangled with, us and our art through our intra-active agential cuts (sometimes even literally, as in the case of the waste I generated).

Bennett (2004:354) describes thingpower materialism (as discussed under 'Vibrant matter' in Section 2.3) as a "(necessarily speculative) onto-theory that presumes that matter has an inclination to make connections and form networks of relations with varying degrees of stability". She continues by proposing that "[h]ere, then, is an affinity between thingpower materialism and ecological thinking: both advocate the cultivation of an enhanced sense of the extent to which all

things are spun together in a dense web, and both warn of the self-destructive character of human actions that are reckless with regard to the other nodes of the web” (Bennett 2004:354).

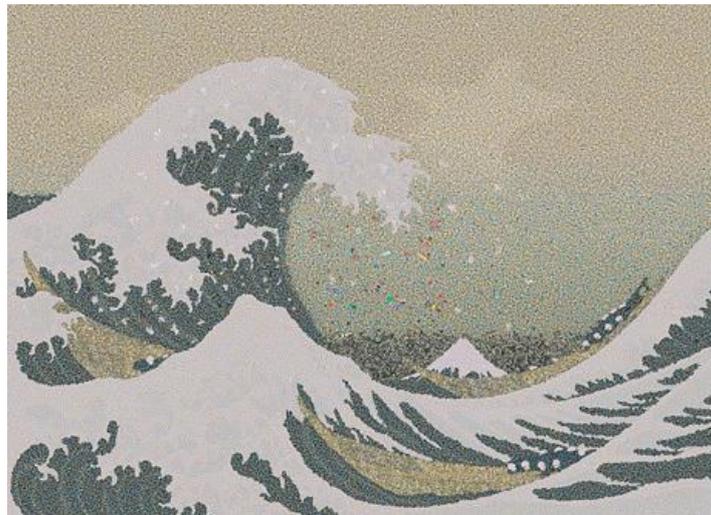


Figure 4.11: Waste produced during my collage-making processes (2016) (photograph taken by the researcher)

In this regard, Fatma Aykanat (2014:13) refers to the vast assemblages of trash in landfills and other areas (similar to where our art-making waste would have been dumped) and their agential capacities to ultimately penetrate our material bodies through the release of poisonous, damaging chemicals and gases (such as the turpentine, inks and glues in our case) that contaminate and pollute soil, water and air resources. This confirms the (in this case dangerous) agency of matter in its “inclination to make connections and form networks of relations” (Bennett 2004:354), as pointed out in the discussions on trans-corporeality and viscous porosity in Chapter 2. However, the discarded materials we have produced provide us, through different agential cuts, with open-ended possibilities of different becomings for all the ‘materialities’ (including humans) involved in this network of relations (or intra-active entanglements).

One such possibility could be the creation of complementary artworks. In this way, re-organised and put into a different context, the waste materials gain different agency, “namely the narrative capacity of immediately turning into a non-human system of signs which can produce alternative meanings” (Aykanat 2014:13). Aykanat (2014) discusses the work of two contemporary artists, Vik Muniz and Jeff Wall, who, by using junk as their material of choice for creating art works, show us, among other things, how the junk that we produce ultimately also produces us on multiple levels. I

wish to do something similar by briefly discussing an art work by Chris Jordan, whose photographic series entitled *Midway: Message from the gyre* (2011) I referred to in Chapter 1. After collecting 2,4 million pieces of plastic – which is according to Jordan the estimated number of pounds of plastic that enter the world's oceans every hour – from the gyre or trash vortex (mentioned in Chapter 1) close to Midway Atoll, he constructed with it an eight metre by eleven metre triptych called *Gyre* (2009) (Figure 4.12), depicting a version of Hokusai's coloured woodprint *The Great Wave of Kanagawa* (1829).



Detail

Figure 4.12: Chris Jordan, from the series *Running the numbers II: Gyre* (2009), plastic, 8 m X 11 m (photographs courtesy of Chris Jordan, available: <http://news.nationalgeographic.com/news/2009/04/photogalleries/chris-jordan-massive-photomosaics/photo2.html>)

This remarkable and ingenious work contains, of course, obvious references to the devastation that will follow in the wake of the tsunami, as it sits poised on the brink of breaking. It is, however, the entanglements of the agential potency of matter, human choice and actions, knowledge, ethical responsibility; and the spectre of the extreme trans-corporeality of “toxic bodies” of deadly substances that invade human and other bodies (Aykanat 2014:15), that create multiplicities of meanings that come to us immediately and unmediated through our sensory experience of the work. If the visual impact of a photograph of the work, which shows viewers dwarfed by its immense size, has so much potency, standing in its actual presence cannot be anything but an overwhelming sensory, bodily, material experience – a sensuous immersion, which would, I suggest, make it impossible to maintain uninvolved disinterest from a distance, and the illusion of not being responsible.

Although wonderful contemporary artworks such as these are being created with waste products, I propose that the waste produced by art itself should be considered and investigated. I therefore conclude that it would serve my aims and objectives for this dissertation well if future projects focus on the ‘junk’ as much as on the artwork being produced, and more particularly, on their irreducible entanglements with each other and with us, and what this implies.

4.2.3.5 A rhizomatic line of flight: Conclusion

As further food for thought about exactly how entangled the materialities of a given phenomenon are, and how difficult, if not impossible, it is to set boundaries to the reach of the consequences of any agential intra-action in terms of viscous porosity and trans-corporeality, I wish to again briefly consider the position of the researcher in terms of his/her own agential cuts and the ethical responsibility they imply.

Jussi Parikka (2015:58) discusses an art project by Martin Howes, entitled *Earthboot*, in which a computer is booted directly from the earth, instead of from a disk or hard drive. In this way, “dirty mining activities of raw minerals, and the expensive refining and doping of raw minerals” are sidestepped, and “environmentally wasteful production techniques for the construction of data bearing devices such as hard drives and USB memory sticks” thereby avoided (Parikka 2015:58). Moreover, dispossessed people, who live in poor countries where wealthy nations indiscriminately dump deadly waste products such as redundant computer components often undertake life-threatening processes in order to recover rare and precious metals and minerals from discarded computer parts (Parikka 2015:57). So, although they (barely) manage to eke out a meagre living in this way, it poses dire threats to their health (Parikka 2015:57). It goes without saying that there are also direct and indirect harmful consequences for the environment as lethal substances dissolve and

filter into the matter of the earth. As these very same (data-bearing) devices are integral to the writing of this dissertation, it is important to emphasise once again that the researcher and his/her research devices are (sometimes in unexpected ways) always already intimately entangled and re/constituted with all the other entities of the research phenomenon with its constantly shifting, permeable boundaries.

4.2.4 A diffractive analysis of the self-adornment activity: The body and the senses

The self-adornment activity of the project was aimed at facilitating physical involvement of each learner with his/her environment, the actual place where they live, in order to create awareness, in turn, of the physicality and specificity of that particular place. The idea was to create an opportunity for each learner to engage with his/her own particular environment in a way that rendered it more than just the mere back-drop against which humans performed their daily activities and had their lives played out. However, I found that, judging by the self-adornment images of the learners of which a few are shown here (Figure 4.13), with the exception of one or two, most of the learners were extremely tentative in their explorations. Some learners did not do the assignment at all – they had nothing about it in their source books – which compromised their further engagement with the project, as following assignments were built upon this one.



Figure 4.13: Self-adornment images from learners' source books (2016) (photographs taken by the researcher)

I initially ascribed the learners' lack of engagement with the self-adornment assignment to factors such as lack of dedication and being loathe to put in anything beyond the barest minimum of effort, and in some instances they are probably applicable. However, all the learners I show in Figure 4.13 are diligent workers, yet they did nothing more in terms of the assignment beyond what is shown here. As my research into new materialist theories brought me into contact with various notions and assertions about the body in education, a diffractive reading through these notions revealed the possibility of other reasons that might at least in part explain the learners' lack of engagement with the assignment.

4.2.4.1 Intra-active entanglements: Embodiment and embodied learning

Anna Hickey-Moody, Helen Palmer and Esther Sayers (2016:214) point out how the “co-implicated and relational nature of the ‘matter’ of new materialisms”, and the field’s embodiment of a “profound movement beyond a Cartesian mind-body dualism” are “pedagogically significant in that bodies are endowed with agency and complexity, and resist being posited as inferior to language and discourse”. However, in most Western education systems, learners experience “modes of disembodied learning that are based on the disavowal or suppression of the body” (Hickey-Moody *et al.* 2016:218). This, according to O’Loughlin (1998:291), is not surprising, considering how Cartesianism’s hold on Western culture has led to emphasis on the development of mind; therefore, dualistic thinking had over centuries greatly influenced educational structures, to the point where it had become central to our “general self-understanding”.

This suppression, in my opinion, is enhanced by the entrenchment of dualistic thinking in religious contexts in which bodily expressions stand in opposition to spiritual values, so that the body is viewed as being a, or often even *the*, source of sin and shame. These perceptions are often demonstrated when learners, as well as adults, who visit the art centre express disapproval and sometimes even disgust at the slightest hint of human nudity in exhibited images – to the point where the staff were even requested to cover up such images when certain groups visit the centre. These images are regarded as being “inextricably linked to [sinful] sexualisation and provocation” (Hickey-Moody *et al.* 2016:218). Therefore, substantive pedagogical work needs to be undertaken to explain that exploring the body in different art forms, such as the visual arts and/or the various performative arts (especially in movement, such as dance), “might not be explicitly sexual or necessarily provocative” (Hickey-Moody *et al.* 2016:218).

On the other hand, we are exposed on a daily basis to images of scantily clad bodies (mostly female, but also male) that establish themselves in our perceptions as examples of what the perfect body should look like, thus setting standards that we feel we should aspire to, but could never attain. As

Hickey-Moody *et al.* (2016:214), citing Coleman, point out, “subjectivities are not merely affected but rather produced through girls’ [and, I would propose to an extent, boys’] relationships with such images”. Therefore, the shame of not having the ‘perfect’ body, entangled with the kind of shame generated by religious taboos, exacerbates the problem of learners’ discomfort when it comes to exploring and discovering their bodies’ agency and complexity.

There is also a further factor that might add to the complexities of how and to what extent learners are prepared to engage in exploring the agency and potentialities of the body for “resisting dominant discourses and showing new ways of being” (Hickey-Moody *et al.* 2016:220). In racially and culturally diverse communities such as we find everywhere in South Africa, and also at the Tygerberg Art Centre where we receive learners from all races, cultures and walks of life, much effort is put into ensuring that all groupings have equal opportunity for participation. However, O’Loughlin (1998:290) suggests that “how the idea of embodiment is implicated in individuals’ conception of their own agency and performance” should also be investigated. This includes considering how learners from different groupings experience their embodied selves, in terms of emotion and affect, in a class situation that constitutes “a relational matrix” that include “aspects of otherness” (O’Loughlin 1998:290).

Hickey-Moody *et al.* (2016:218) contend that it is imperative to redress “an educational social imaginary” that creates learners who are “so uncomfortable with using their bodies to learn”. Arts-based education offers learners the opportunity and space “to rethink, re-feel and remake their understandings of their bodies, together with their imaginings of *what a learning body might be*, by working practically and inventively through movement and gesture” (emphasis in text, Hickey-Moody *et al.* 2016:214). Learners may learn to challenge the “domination of conscious rationality” in order to experience new and transformed ways of becoming through “embodied and creative learning processes that are open-ended, nomadic and affirmative” (Hickey-Moody *et al.* 2016:215, 223). Jake Burdick and Jennifer Sandlin (2013:157) echo these ideas when they purport that “embodied, holistic, performative, intersubjective, and aesthetic” modes of pedagogy engender learning that is “tentative and ambiguous”. Elizabeth Grosz and Peter Eisenman (cited in Ellsworth 2005:122), also concur when they observe the following: “A body in the process of learning is a body blurred by its own indeterminacy and by its openness to an elsewhere and an otherwise. This implicates a pedagogy in the promise of an indeterminate, unspecifiable future and an unlimited openness”. These ideas resonate with Barad’s notions, discussed earlier, of the indeterminacy – the possibility of endless re/becomings – of all bodies, including the human, so that how we are

constituted and reconstituted depends on the intra-active agencies of all matter that constitutes our environment.

This approach stands in direct opposition to curricula that are designed to linearly work towards predetermined outcomes that provide the 'right' answer in every instance. I do then also often find that learners are concerned and anxious about doing things the 'right' way in order to achieve the 'right' results. Therefore, learning through the body in open-ended, non-linear ways, with their indeterminate and ambiguous outcomes, as discussed here, has the potential to assist learners in unlearning "their drive to find the right answer", so that they will be free to fully realise their creative potentialities (Hickey-Moody *et al.* 2016:223).

4.2.4.2 Intra-active entanglements: A continuation of the exploration of embodiment and the senses

Although I have already investigated the importance of sensory experience in the analysis of the garden intervention event, I wish to return to it briefly, as it is of course integral to embodied experience. As I began the research on the role and place of the senses in gaining knowledge, I realised from my own experience with the self-adornment exercise that, despite my eagerness to bodily experience the environment (for instance, as I love my garden, I wished to make intimate contact with the soil from which it grows so abundantly), I paid scant attention to the actual sensory experiences I surely must have had. I cannot recall experiencing the tightening of my skin that the mud I smeared onto it must have caused, or the smell of the soil and the plants and undergrowth that must have penetrated my nose, or the uneven pressures on my back as I lay on the soil between the plants, or the sounds of singing birds or rustling leaves or breaking twigs – in fact, I can recall no sensory experiences as such, except for the unpleasant smell of the garbage into which I immersed my body at some point during the execution of the assignment (Figure 4.14).

This morning I went outside to enjoy my coffee on the balcony so that I, having therefore been sensitised through the writing of these recollections to the importance of the role of the senses in our awareness of our immersion in the world, could experience the crisp coldness of the winter morning, as well as anything else it might have to offer in terms of sensory awareness – or so I thought. As I stood there, I became distracted by movement that I could see through the leaves at the base of a tree across the street, and I focused intently on it for a moment or two, trying to determine which creature it was that was going about its early-morning business so vigorously (it turned out to be a hadeda foraging in the grass behind the tree). It was exactly at that point that my mind began to wander to the topic at hand, and I started thinking about what I had written and might still write later in the day. Suddenly it struck me that the world around me had virtually

'disappeared', even visually, for I was gazing out to somewhere in the distance without seeing anything. I focused on quelling the stream of thought and instead turned my attention to my sensory experiences in that moment. I almost simultaneously became aware of the incessant early-morning chattering of the birds in the trees all around me (loud as it had been, I hadn't been consciously hearing it up to that point); the hard coldness of the metal balcony railing under my right hand; the smooth, warm surface of the porcelain coffee mug around which my left hand was folded; the pressure of the tiles on the balcony floor against the soles of my feet; and the rising steam and heat of the coffee touching the skin of my face while its aroma entered my nostrils, the molecules connecting with my nose's olfactory receptors. As I stood there focusing on these sensory experiences, I also became aware of the very subtle movement of air against my skin, despite there being no visible sign of even a breeze.

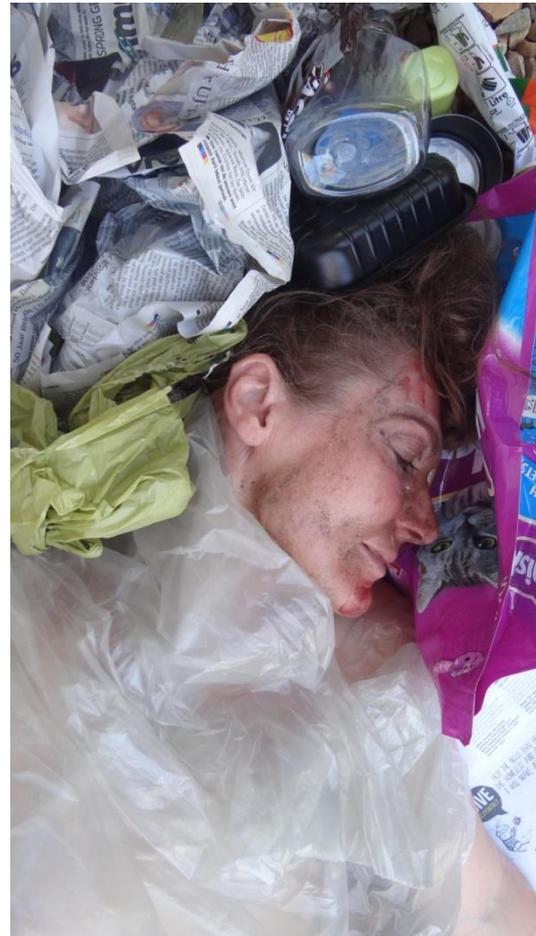


Figure 4.14: Researcher's self-adornment images: In the garden and in the garbage (2016) (photographs taken by the researcher's colleague)

My cats joined me on the balcony, and I followed one of them with my eyes as it climbed onto the corrugated roof of the adjacent garage and settled down to watch and listen to the world – eyes focusing, ears twitching, head swivelling. I was looking at the cat only, again not seeing anything else, until at last I also noticed its undulating shadow as it fell across the corrugation of the roof, and from there, suddenly, everything around and beyond the cat came into focus with it. The big tree behind the garage, its leaves, the sky filling the negative spaces between the leaves, the light and dark patterns these were forming, the cat’s shadow and the roof all now bore equal visual weight to the cat as I took everything in, somehow managing to simultaneously see both the detail and the whole.

The world became a ‘different’ place, and in those moments, as I allowed all my senses to open up my being to the world, I was being constituted differently, becoming differently in it. I felt immersed in the world, and integrally part of it – entangled with and part of all its matter and mattering, in Barad’s idiom, and was awe-struck by the vastness but also the intricacy and richness of its agential powers and potentialities for multitudes of materialisations and becomings. It struck that what I had experienced in an almost physical sense was exactly what a diffractive reading is all about. It means to focus on the detail, but also to simultaneously be intensely aware of everything else that is encompassed by the whole. It calls for being constantly alert to how one can experience the world and oneself in it anew within the countless possibilities engendered by the agential intra-active workings of the entanglements of matter/mind/body/sensory/affective – with no component carrying more weight than any other – that re/constitute the world and our multiple selves. As my experiences as recounted here show, this learning to focus on the totality of sensory experience, even if the importance of it had been cognitively grasped and understood, requires continuous practice. This is necessary in order to overcome a lifetime of conditioning, through cultural structures such as education and religion, to favour mind over body, accompanied by the ingrained perception that learning is about the “transfer of abstract historical and theoretical knowledge” (Hickey-Moody *et al.* 2016:214).

In terms of being a researcher, then, Teresa Swirski (2013:349) points out that our bias for reported sight as somehow being more objective than a reported sound, smell or taste is a matter of “cultural choice” and conditioning rather than “universal validity”. He argues that the “process of becoming more open to the diversity and multiplicity of encounters ... [could] foster new entanglements and encounters of inquiry amid qualitative research – ...[w]hat we sense and what we create is a process of meeting, touching, movement and tangling” (Swirski 2013:349). Therefore, as O’Loughlin (1998:275) proposes, we should as researchers, but also as educators, “begin the processes of coming to a better understanding of how ... the affective domain [and our understanding and

experience of our environments] are grounded in basic corporeality of our own and that of our [learners]”.

A number of theorists in the fields of philosophy and psychology developed ideas about the senses and the body in terms of experience and knowledge, and as confirmation of my own observations and experiences as described above, I briefly refer to some of them. Dewey (cited in Siegesmund 2012:101) stated that “[t]he senses are the organs through which the live creature participates directly in the on-going world about him, [and that] in this participation the varied wonder and splendour of this world are made actual for him in the qualities of experience”. Terry Eagleton (cited in O’Loughlin 1998:288), explains Nietzsche’s views of the body in the following way:

It is the body for Nietzsche which can produce whatever truth we can achieve. The world is the way it is because of the peculiar structure of our senses and a different biology would deliver us a different universe entirely. We think as we do because of the sort of bodies we have and the complex relationship with reality this entails. It is the body rather than the mind which interprets the world ... What ‘knows’ is our multiple sensory powers which are not only artefacts in themselves – the products of a tangled history – but the sources of artefacts, generating as they do those life-enhancing fictions by which we prosper.

Writer-researcher and professional dancer Donald Blumenfeld-Jones (2016:324) asserts that our embodied, sensory perceptions of the world are “active and intelligent”. It is not just “the mind merely recording; ... we are in immediate interaction with the world around us that is not translated into words [so that we] know something that is not words, yet is knowing”; therefore, what is known “exceeds the verbal and is not superseded by it” (Blumenfeld-Jones 2016:324). In resonance with these ideas, Grosz (1994:128) relates how Nietzsche insisted on a “new type of ... knowledge ... allied with the arts of movement, [namely] theatre, dance and music”, and that “philosophy itself was to be written dancing”. “This is”, she continues “because philosophy is a bodily force ... capable of dynamizing and enhancing life” (Grosz 1994:128).

One particular learner, Danae, whom I mentioned earlier in relation to the tree-lady she had constructed, seemed to right from the outset engage extremely well with all aspects of the project. Her complete bodymind involvement and immersion in, and enjoyment of, the self-adornment activity, in terms of both concept and matter, are clearly demonstrated in her self-adornment images (Figure 4.15). What set her apart was not only her enthusiasm and work ethic, which are important factors no doubt, but also, in terms of what interests me here, the fact that she, more than any other learner, seemed to feel completely comfortable in and with her embodied self, and extremely open to the potentialities and agencies of the various materials with which she worked and that ended up being incorporated into her final work (Figure 4.16). She also truly seemed less concerned with the end result than with the processes of exploration, never hesitating to get her

places, beings bleed through one another”. Therefore, she unwittingly displayed an uncanny, almost instinctive grasp of tenets of new materialism (including interactionist ontology and viscous porosity and trans-corporeality) that underpin the discussions and analysis of this dissertation.



Detail



Detail



Detail

Figure 4.16: Danae, *Untitled* (2016), paint, glue, soil, sticks, leaves, styrofoam containers, palette on paper, 150 cm x 75 cm (photographs taken by the researcher)

Part of the explanation for her bodily and embodied astuteness might lie in the fact that she is also a drama student. In line with the emphasis on the importance of the arts of movement, including drama, for experiencing the bodily nature of learning and knowledge by the authors I quoted earlier, O’Loughlin (1998:292), too, lauds the power of the dramatic arts to “acknowledge and facilitate the expressive aspects of individual bodies”. Therefore, the kind of creative exploration of the embodied

self that I am after here, “is most likely to occur when [art] courses are transdisciplinary and pedagogically multi-modal” (Hickey-Moody *et al.* 2016:222).

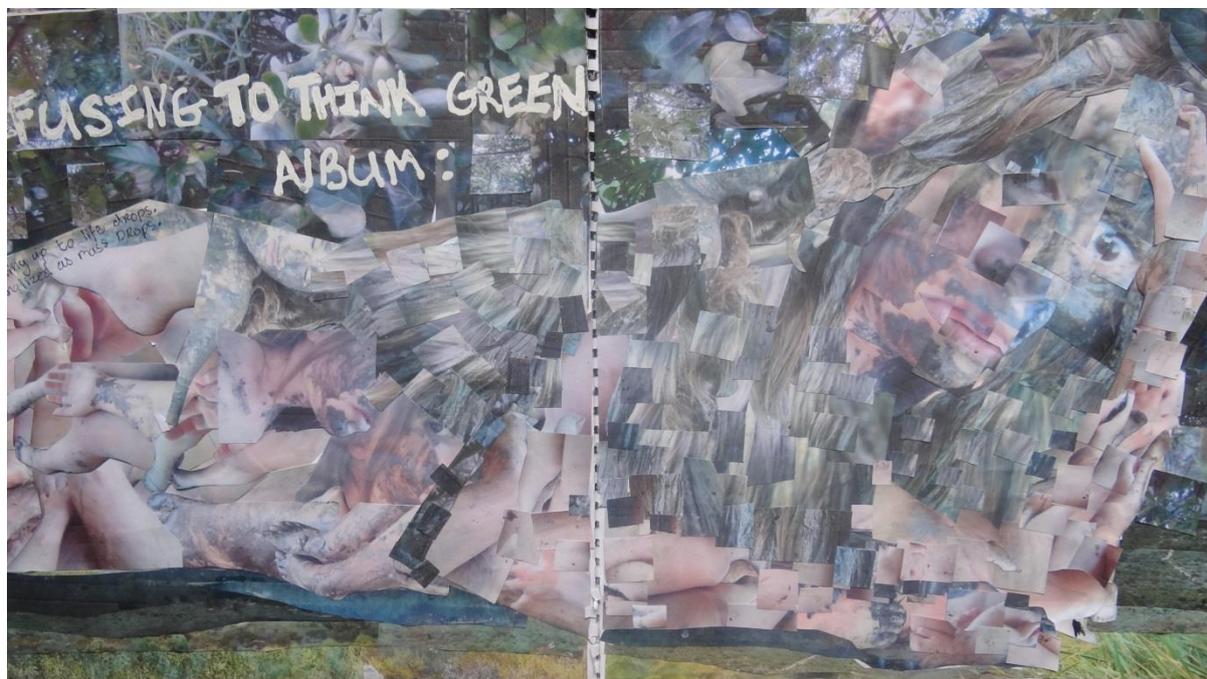


Figure 4.17: Danae, from her source book: *Refusing to think green album* (2016), collage
(photograph taken by the researcher)

4.2.4.3 Conclusion

Considering all that I have investigated and discussed here, when it comes to the learners’ problematic engagement with activities such as the self-adornment exercise (with the exception of Danae), I certainly cannot expect them to become consciously involved with and experience the physicality of their environments, if they cannot engage with and explore their own embodied physicality and are insensitive to their own sensory experiences (and this goes for me as both teacher and researcher as well). It is my contention that this kind of understanding and consciousness of learners about themselves is imperative for the creation of a context from which an understanding of their irreducible entanglements with the world’s matter and systems in all their manifold manifestations could begin to develop.

In terms of the original reasons that prompted the investigations of this dissertation and my research question that sprang from those reasons, it is even less likely that learners in these circumstances would or could meaningfully and fruitfully engage with wider ethical issues and

concerns about how we live in the world in relation to all the ‘others’ that co-constitute it with us, as part of us, as Barad will have it. I further consider the implications of these insights and how they may be addressed in future projects in the final chapter.

4.3 A brief summary of the chapter’s content and conclusions

The chapter consists of a diffractive analysis of selected sections (my agential cuts as researcher) of the data produced by an art project executed by Grade 10 learners. I selected (as agential cuts) the data that also seem to have ‘selected’ me, in line with MacLure’s (2013:662) notion about certain data that seem to “glow” as they “resonate in the body as well as the brain”, so that we become “caught in the forward momentum of becoming”. The project as phenomenon comprised a rich entanglement of intra-active agencies: the assignments, specific spatial arrangements, the learners, the teachers, the researcher, the emerging concepts, the environment, the art and other materials. These, through their own internal, intra-active agential cuts, made ‘visible’ particular material-discursive entities – various artworks, performances, events – to the exclusion of others. This means that the insights and knowledge that were gained from a diffractive analysis of these entities reflected the agential intra-actions and cuts that created these entities, and that therefore knowledge will always be incomplete – different ‘cuts’ produce different knowledges. Furthermore, my agential cuts (the selections I made for analyses) as researcher who is understood to be always already entangled in the phenomenon being analysed, imply that that which had been excluded from my selections is still there, waiting to come to ‘matter’ (in more than one sense of the word). Therefore, (diffractive) analysis is a continuous, iterative, entangled process, just like the establishment of material-discursive entities themselves: never complete, never final and always with open-ended possibilities for new ‘becomings’.

Diffraction as analytical tool attends to entanglements in reading 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). Such an analysis therefore often takes a rhizomatic rather than a linear form, as I attempted to demonstrate in the analyses I did here. This means that I aimed to allow, and even at times ‘coax’, the analysis to lead in different directions, resulting in multiplicity and ambiguity, keeping analysis and knowledge production “on the move”, as recommended by Mazzei (2014:743). The rhizomatic mapping I attempted led to ‘lines of flight’, which are per definition always “centrifugal, decentering, dispersing discourses and practices” (Martin & Kamberelis 2013:670) that enable escape from “the hegemonic actual and the manifested knowledge” (Johansson 2016:463). I deliberately avoided linearity and chronology in order to maintain the openness that the rhizomatic form of a diffractive

analysis creates for the possibility of new and unexpected insights to be brought to light. As my intra-actions with the data in the analysis took the form of writing, “one further element in the complex array of entangled movements” (Davies 2014:735), I viewed myself as an “experimenter” who writes “in order to change myself and in order not to think the same thing as before”, viewing the analysis more as a process of experiencing and experimenting than of interpretation, as maintained by Bridges-Rhoads (2015:704,706).

I read the courtyard garden intervention event through notions of materiality relating to Bennett’s vibrant matter, Tuana’s viscous porosity and Alaimo’s trans-corporeality. These were in turn through notions of the role of the senses of the human body, specifically that of touch, to facilitate affect and the possibility of ethically caring for the matter(s) of the world. Therefore, I attempted to eschew the privileging of the human in the analysis, and aimed rather to emphasise the value of all matter, however it is manifested. In the analysis of the conversation, I attempted to focus mostly on how the learners might have begun to think differently about (the world’s) matter(s), and why/how it matters. I further tried to pinpoint the manners in which the material and the discursive interacted in order to gain insight into how matter and discourse are understood to co-constitute each other in knowledge production (Mazzei 2013:777).

Although the project’s focus had been very much on the entangled, intra-active materialities, activities and processes of material artistic practices and production, rather than on end products as such, it is a curricular requirement that learners have to be given marks for a ‘final’ work. It is also true that a stand-alone artwork is a material object with its own qualities and potencies. I therefore reasoned that it was necessary to attempt a diffractive reading of a ‘final’ work, while keeping in mind the entanglements and agential cuts that constituted it, giving it its existence, in order to see whether and how future projects could pay more attention to ‘final’ works. For instance, I concluded that doing an analysis of their ‘final’ works with the learners similar to the one I did here could, apart from offering them the opportunity to hone their analytical skill, also introduce them to the tenets of posthumanism and new materialism in an accessible manner. Furthermore, an important line of flight, to my mind, that presented itself during the analysis of the artwork concerns the waste produced by art itself that should be considered and investigated. I therefore concluded that it would serve my aims and objectives for this dissertation well if future projects also focused on the ‘junk’ and its irreducible entanglements with us and the art we produce, and what this implies.

My explorations concerning the possible reasons for what I perceived to be the learners’ problematic engagement with activities such as the self-adornment exercise led me to conclude that they cannot be expected to become consciously involved with and experience the physicality of their

environments; if they cannot engage with and explore their own embodied physicality and are insensitive to their own sensory experiences. It is my opinion that this kind of understanding and consciousness of learners about themselves is crucial for the development of their understanding of their irreducible entanglements with the world's matter and systems. Concerning the reasons that prompted the investigations of this dissertation and my research question that sprang from those reasons, it is even less likely that learners in situations such as these would or could meaningfully engage with wider ethical issues and concerns about how we live in the world in relation to all the 'others' that co-constitute it with us.

However, I stay mindful of Barad's (2007:179) reminder that "agential [c]uts cut things together and apart", and "are not enacted from the outside, nor ... enacted once and for all". Therefore, different agential cuts (of both data and diffractions) might have yielded different readings, insights and becomings. Yet I remind myself that research, like theory, requires that one is always "open to the world's aliveness", and enticed by "curiosity, surprise and wonder", while vigorously pursuing "possibilities of fostering just relationships among the world's diverse ways of being/becoming" (Barad 2012c:207). Being constantly mindful of that which has been excluded and has yet to be thought, discovered and experienced when agential cuts are made differently forms an integral part of this openness and vigour.

In the following, final chapter I discuss insights gleaned from these analyses that might be useful for setting future art projects that could open up opportunities for learners to truly engage with the materiality of the world ethically, so that they might begin to move towards the grand project of be(com)ing citizens of the world through whom all of the world may experience justice. Together with the insights I believe I have gained here I discuss possible ideas for such future art projects. I also share some thoughts about the possible meaning and implications of the insights for art education and research, as well as education research in a wider context.

CHAPTER 5: CONCLUSIONS AND IMPLICATIONS

“What I cannot imagine stands guard over everything that I must/can do, think, live” (Spivak 1993:22).

5.1 Introduction

In this chapter I discuss the insights I have gained from my analysis of an art project entitled “Self, Local, Global” executed by Grade 10 learners at the Tygerberg Art Centre during the second term of 2016, as well as the implications of these insights. I begin by summarising the rationale for the project, and my analytical methodology and theoretical perspectives.

The insights resulted from a post-qualitative diffractive analysis with a rhizomatic orientation that focused specifically on reading the data through tenets of new materialism within the broader context of posthumanism. The idea of doing a diffractive analysis of the project presented itself to me when I was introduced to theories of new materialism, in particular Barad’s ideas of diffraction, agential realism and intra-active agential cuts. It is important to note here that on a meta-level, with regard to my uncertainties and qualms about doing a diffractive analysis – as expressed at the beginning of Chapter 4 – it could be said that the writing of the dissertation was almost as much a documentation of my grappling with the execution of such an analysis as it was an effort to find out what (or if any) insights and/or knowledge might possibly be gained by focusing on posthumanist and new materialist ideas in the analysis.

I decided to repeat the project with the Grade 10 learners to afford myself the opportunity of doing the project *with* them, so that I could become ‘folded’ into it with the learners in order to, in a very literal, bodily manner, experience that which is required by a diffractive post-qualitative analysis, namely the understanding that we as researchers are integrally entangled with, and therefore ‘becoming’ with, the data. I reasoned that experiencing a bodymind, entangled ‘becoming’ with the actual event in its unfolding (as, for instance, in the case of the garden intervention) will facilitate deeper and clearer comprehension of what the trans-corporeal implications of an analysis of the data entail. The latter is of course in itself an ‘event’ in which the mental and physical faculties of the researcher become intertwined with the data. In other words, I postulated that I could have a greater sense of what it means, in terms of theories of post-qualitative analysis, when the researcher’s own experiences, and the influences emanating from his/her intertwined mental and material manifestations, are viewed as (part of the) data. This has undoubtedly assisted in enhancing

my sensitisation to the importance and implications of my own role throughout the doing and analysing of the project.

In my analysis I endeavoured to be alert to those bodymind faculties that register sensory experiences in the interconnections emerging between “different matter, matter and discourse, in the event of engagement with data” (Lenz Taguchi 2012:267). I also endeavoured, by reading different ideas relating to new materialism through one another and the data, to render matter understandable in new ways and be open to realities and possibilities other than the ‘obvious’ that might be gleaned from, or revealed by, the data. This entailed, among others things, endeavouring to recognise the agency of material bodies and artefacts in the processes of intra-activity and to understand how the human 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. My research consisted of a series of agential cuts in order to make certain entities intelligible, while acknowledging the exclusion of others. 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.

In the light of the above, I was hoping to discover answers to the following research questions:

- i. What insights could be gained from an in-depth 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 all non-human others on earth?
- ii. How could these insights, if any, be applied to the development and execution of future art projects aimed at facilitating critical awareness of the relation of humans to all non-human others on earth?

Throughout the writing of the dissertation I was mindful of Barad’s argument that manifested outcomes result from particular agential cuts in phenomena and are therefore never complete and/or final. I consistently pointed out that, therefore, also the ‘agential cuts’ executed when collecting and analysing data for research result in insights and knowledge that always already imply that which has been excluded. In terms of the implications of this thought for education and education research, I am reminded of St Pierre’s assertion, discussed in Chapter 3, that research practices rooted in humanism, with its essentialist notions, focus on locating and describing ‘givens’ so that we can learn to accept and adapt to what we are taught to believe cannot be changed.

Therefore, a fundamental implication of a shift from humanism to posthumanism and new materialism, with particular reference to agential realism, is that the notion of set, unchangeable 'givens' should be relinquished. What is required is that we begin to understand that decisions, outcomes and answers are never final, but always open to change, and that we must learn to accept, live with and embrace ambiguity, uncertainty and difference. 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).

There are many possible ways, as yet unthought of, in which we may live differently from the way we live now in our entanglements with the world's matter(s). There is the potential for many positive, equally valid differences seated within a single entity or 'body', according to a Deleuzian worldview. In opposition to this, defining current modes of Western thinking, is the Cartesian difference of dualistic, essentialist pairs of opposites, of which one is almost always negative or 'worth less than'. This makes it difficult for us to think, or even imagine, anything new, or different, beyond these static, unchangeable 'givens'. Education systems in which outcomes are already predetermined, that prescribe, instead of aiming to stimulate the imagination, and in which therefore processes are forms of indoctrination rather than open-ended and honest searches in order to create spaces for new and different possibilities of be(com)ing, cannot possibly lead to solutions for the world's many inextricably intertwined social and ecological problems.

Having given this brief overview of what I regard as the most fundamental notions that informed my study, in the following section I examine insights gained from the diffractive analysis of the selected data, as well as the possible implications of these insights for the setting of future art projects and art education in a broader context. I conclude the section with thoughts about the possible implications of the insights for education strategies in general.

5.2 Insights and their implications for future projects and general education strategies

In this section, under the first heading, I explore the main insights that I gained relating to perspectives about the (human) body itself, and about the body's inextricable entanglements with all the matter and spaces in and around it, in the processes of learning. Insights about the body entail notions about embodiment, the senses, and affect, which, I argue, are all tightly interwoven with one another. Insights about matter (and space), which, like the body, are also generally neglected and ignored in the traditional, humanist-inspired practices that still prevail in most

education systems, relate to my attempts to investigate the meaning and significance of these when viewed from non-anthropocentric, posthumanist and new materialist perspectives.

Under the second heading I explore the possible implications of these insights for creating similar projects in future with suggestions for such projects, as well as for art education in a broader context. Under the third and final heading of this section, I explore possible implications of these insights for general education strategies.

5.2.1 Insights about the body and matter

Based on what I have learnt from this study, I conclude that before learners are going to be truly concerned about the destruction of the earth, and how they should begin to reconsider humanity's views on its place in the world, they first need to be sensitised to the materiality of their own bodies and their bodies' intra-active co-constitution with all other matter/manners of bodies. For this discussion, it is important to keep in mind that the importance of the physicality of learning, or embodied learning, which involves the learning that takes place through the body, is closely related to the importance of the role of the senses in learning and affect. This is so because the body is fundamental to everything that we are capable or incapable of doing and/or experiencing as materially manifested, but also entangled, beings in this world.

In the diffractive analysis of the garden intervention, the development of skills in sensory perception came to the fore as a possibly useful way to help learners forego the preconditioning effects of preconceived knowledge, ideas, viewpoints and expectations and engender 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 in an unfettered manner, beyond the fragmented thinking, and therefore also understanding, of the world that inevitably must follow from formal education curricula that separate and divide knowledge into discreet disciplines.

This focus on the senses emphasised in a powerful manner notions of trans-corporeality and viscous porosity by alerting us to the interaction between various 'bodies': bodies of smoke, heat, light and sound penetrated *our* bodies from all around us. In an inextricable entanglement of matter, bodies of fire, while assimilating bodies of oxygen like living entities, reconstituted bodies of matter before our eyes. 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. Rather, it is always already being remade and remoulded to re/form bodies differently and

that, as this includes ‘bodies’ that are not restricted to the human or even the living only, implies a constant erasure of the boundaries that supposedly indicate where nature ends and culture begins. This will call for some form of discussion to create conscious awareness of these notions in the learners, something which in this particular project I realise I could have pursued more vigorously.

In fact, I have come to the conclusion that in general the actual material-discursive manifestations of the intra-active entanglements of art, art-making and the body could have been explored much more consciously and intensively than in the project I have analysed. I am of the opinion that this could be brought about more effectively if various ‘other’ forms of art could be intra-actively integrated with the entangled processes, experiences and objects of visual arts in such projects. Drama and forms of movement and music in particular, could be employed to enhance corporeal awareness of learners directly in relation to their own bodies and embodiment. This implies some form of ‘intra-art’ transdisciplinary. Here I recall drama student Danae’s capacity for bodily engagement, as discussed in the analysis. In an informal conversation I had with her recently, she confirmed my observations and conclusions about her being at ease with her embodied self as having to do at least partly with her experiences in drama. I also suggest that taking the learners even more frequently than in the analysed project into spaces other than the classroom, into unfamiliar and maybe even challenging spaces, will help facilitate conscious experiences of embodiment, and the interwoven links between body and environment. I conclude that weaving conversations and discussions about the learners’ experiences of their embodied selves into the events, as part of the events, will be necessary to create and maintain awareness of the ideas at play in such experiences. I have therefore identified the lack of (enough of) such ‘deliberate’, conscious and cognitive awareness-making as a weakness in the analysed project.

From the above, it becomes clear that focusing on the senses and sensory experiences and embodiment could serve as a step towards cultivating an inter- or transdisciplinary, or even antidisciplinary, sensibility in learners, which could help them to question and counteract the compartmentalisation and fragmentation inherent to learning systems and curricula divided into separate and distinct disciplines, which prevent holistic thinking and imaginative venturing beyond boundaries. Such fragmented thinking, which leads to fallacious perceptions of the world’s workings, and is further imbedded in humanistic, human-centred worldviews, could be regarded as ultimately disastrous not only for the world’s ‘others’, but also for humanity itself, as demonstrated by the devastation caused in New Orleans by Hurricane Katrina, which I briefly described in Chapter 2 under ‘Interactionist ontology and viscous porosity’ in Section 2.3.4. It is clear that what is called for is a move toward transdisciplinarity in education and education research, fostered by holistic thinking, notions which I touched upon in Chapter 2 under ‘Posthumanism’ in Section 2.2..

Further insights from the analysis that could stimulate us to think about the world and our place in it 'differently' relate to the possibility of sensual experiences leading to affect, and affect leading to ethics. I explored Anna and Danae's affective responses in relation to the objects they had constructed and suggested that it might have related to the sense of touch in particular; however, the other senses of course also elicit similar responses, albeit perhaps of varying intensities. One might therefore, when working with the senses in practical assignments and projects, consciously incorporate notions of affect, by creating 'spaces' in the projects where learners are afforded the opportunity to investigate and contemplate such notions. For instance, when executing something such as the garden intervention event, the educator could sensitise the learners to being *more* consciously aware of their corporeal and sensory experiences than I endeavoured to do. Moments of silence, during which learners and educator deliberately focus on their sensory experiences, followed by opportunities for sharing and discussing their responses to and feelings about them, could stimulate the development of new awarenesses. I acknowledge, as I pointed out in the discussion of my own attempts at such an exercise, that it takes practice to develop these skills. Therefore, learners could on a more formal basis, as part of their practical assignment, be asked to spend a few minutes a day doing similar exercises, upon which they could then reflect in their source books, using writing and images – photographs, drawings, patterns – that express their feelings and thoughts about their experiences. Such writing and images could become part of their artworks.

An insight that was of particular interest to me as I grappled with whether I should have more 'formal' interviews with the learners and have them complete questionnaires about their experiences of doing the project was the spontaneity and honesty of the meandering conversation that was constituted as an inextricably entangled 'entity' with all the other elements of the garden intervention event. The attempts that I made at gauging the learners' thinking and feelings about their experiences by means of questionnaires received very little response anyway, and the 'answers' of those who did respond somehow often came across as forced and/or artificial. These factors, together with critical assessments in post-qualitative research writings of the isolation of 'voice' or 'speech' in analyses, led to my decision to use neither interviews nor questionnaires, but to rather treat 'voice', or 'speech', as an integral part of the whole. I concluded that isolating it and putting special focus on it might have led to less honesty and greater distortion of actual experiences if learners felt that they had to fulfil particular expectations in their answers by saying, or writing, what they thought I might have wanted to hear or see. Furthermore, by the time one writes about something in retrospect, the immediacy and directness, the freshness of it, is already lost, which of course is also true of data analysis, a factor of which I am constantly mindful.

Nonetheless, I contend that I developed a much clearer idea of what learners were really experiencing, learning and feeling, and a better ‘preservation’ also of these, by attempting to read and interpret voice through its entanglements with space, matter, senses, affect and body. With respect to this assertion I recall MacLure’s (2013a:664) reference to the fact that language is 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. This implies that the (art) educator must 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 all the 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. Exactly what the form and content of such projects and practices would be will have to be determined and reconsidered on a continuous basis through ongoing processes of assessment, ‘reflection’ and discourse between learners and educator. However, I attempt to provide some suggestions pertaining to these ideas in the following sections.

An important point to attend to is the fact that learners’ willingness to engage in exploring the agency and potentialities of the body might be influenced by how learners from different groupings experience their embodied selves, in terms of emotion and affect, particularly in a class situation where various groupings are present. This could be especially applicable to racially and culturally diverse communities such as are to be found everywhere in South Africa, including at the Tygerberg Art Centre, where we receive learners from all races and cultures. Although here, in a sense, I revert back to a more anthropocentric viewpoint, these circumstances ask for great sensitivity on the part of the educator in terms of the kind of strategies that are employed to enhance learners’ awareness of the importance of understanding the body as inseparable from the mind and therefore also vital as a site of learning. Although I had not with this project attempted to do so, I have concluded that this will require of the educator to verse him-/herself well in the specific views of the body held by different cultures and religions, and the rituals and practices associated with these views. Investigating and discussing with the learners the origins of such views, and the purposes they serve

in a particular context, might help learners understand such 'givens' more clearly and objectively and, if possible, regard them with a more critical eye.

However, learners should be afforded the courtesy of exploring the body as a site of learning in ways with which they will feel comfortable, and this needs to be negotiated with them. The advantage of a class with learners of different cultural backgrounds, namely the opportunity to learn from one another, could also be positively exploited by the educator. He/she could, for instance, incorporate into projects assignments that require of learners to do research about the 'other's' religions and cultures, which could lead to discussions in the class. With the educator's guidance, these discussions could culminate in the learners working out their own ideas about how to incorporate exploration of the body as learning tool into their projects – different learners with different backgrounds will come up different ideas, and "different bodies [will] produce knowledge differently" (Daza & Huckaby 2014:802). The differences and diversity, as well as intersections between these, could be explored in art processes and art works. Here the quality of always being open to flux and change and new or different ways of understanding, doing and be(com)ing will stand an educator in good stead. The ability to constantly adapt, to be comfortable with never having final or clear-cut answers or solutions and therefore willing to continuously work and rework ideas and projects with, and not only for, learners, will serve the educator well, and will hopefully rub off on the learners too.

In terms of examining the impact of matter itself as experienced by learners as they immerse themselves in art-making, the analysis focused on the assertion by new materialism that materiality encompasses more than just mere matter. I was surprised and intrigued by the insights that were revealed when I read the data (of for instance Sarah's remarks during the intervention event) diffractively through ideas pertaining to matters' 'liveliness' and 'potency'. In what they experienced as an artistic act, in which relevance to anything beyond the act itself was suspended, the matter as such, in itself, became the focus, and the learners showed eagerness to see what the fire would do to the matter of the objects. The enchantment exuded by the burning objects as we watched and spoke of what we saw, and the way the objects in their different becomings led to Sarah's thoughts about the ways in which 'nature' perhaps does survive our onslaught, demonstrated the diffractive intra-action between the "curious ability of inanimate things to animate, to act, to produce effects dramatic and subtle" (Bennett 2010:6), and the "sens[ing] of art as a material process in which meanings are immersed" (Kontturi 2014:45).

The diffractive reading of Anna's painting through new materialist ideas revealed it to be the material-discursive materialisation of numerous intra-active agential cuts in the entanglements of

Anna and all the ideas, processes and materials with which she worked. I experienced how the creature in the painting invoked the potencies and ‘thingpower’ of all the various matters that constituted it in its material becoming, by how it affected me with its beauty and liveliness. I also argued that Anna’s incorporation of herself into the painting as part of the sea creature – the ‘other’ – could diffractively be read as an entanglement between the denial of anthropocentrism and Barad’s (2012b:47) assertion that the other is always “irreducibly and materially bound to, threaded through, the ‘self’”.

However, although it would seem that Anna was beginning to develop a kind of intuitive sensitivity towards the materiality of the world around her, I realise that I could have done more in terms of bringing it to the fore. I could have coaxed her towards a more conscious awareness and recognition of such a shift in her understanding and perceptions of the world’s matter, in order to open up spaces for some form of affect in future. As stated above, informal conversations that seemed to ‘happen’ almost spontaneously in the ‘moment’, during the course of the learners’ working with the processes, seemed to elicit insights that came from the learners themselves as they grappled with ideas/actions/materials. I suggest that for future projects, the educator could unobtrusively open up opportunities for such conversations as often as possible by asking one or two provocative questions, for instance.

The educator could then, at various points during the project, create more formal sessions of discussion, where the thoughts and ideas that ‘bubbled up’ during informal and spontaneous conversations might be contemplated and explored more fully and deeply. From these might even spring ideas – lines of flight – for taking the project further in (a) different direction(s).. Learners could then also be pointed to the more formal theoretical ideas relating to posthumanism and new materialism, almost as a ‘natural’ progression to a deeper understanding of what they had initially discovered for themselves. This, once again, will require constant openness and flexibility for difference and change and the ability to adapt when and where necessary, for both educator and learner. The latter in itself might need to be consciously practised – the educator could, in a safe environment, devise short exercises that will force him/her and/or the learners to abandon certainty and conviction in order to learn to begin to think the ‘unthought’ of, to think ‘differently’.

A further important insight that resulted from this diffractive analysis related to paying attention to (the fate of) the materials that were excluded and discarded as waste in the creation of art works. This becomes important when our art production is read through Barad’s notions of the exclusions brought about by agential cuts, and how it matters ethically, as well as through Bennett’s thingpower (2004:351), where even trash is regarded as consisting of material entities “not entirely

reducible to the contexts in which (human) subjects set them". Future art projects should therefore include the exploration of ways to consciously 'deal with' the waste produced in the creation of art works, by, for instance, using it as material for the creation of complementary and/or alternative artworks.

Having in these last paragraphs already introduced some thoughts about building upon my insights in practice, I next explore further ideas about possible future art projects that incorporate these insights, as well as their implications for art education.

5.2.2 Implications for future art projects and art education

My analysis of the project led me to the conclusion that it has too many components for sufficiently deep and meaningful engagement (even for those who work diligently) when one considers the time that the learners have at their disposal, specifically as we have only a single two-hour practical session once a week at the art centre. Each of the self-adornment, garden intervention and plant-human hybrid/collage activities could potentially form the basis of a project in which the senses and sensory experiences, embodiment and/or materiality could be deeply, and in particular *consciously*, explored by the learners.

However, for an introductory project, I postulate that activities that focus on the learners' own lived experiences might be more meaningful than something such as the self-adornment activity. The learners are entangled with other phenomena, beyond the art class, that 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 societies. The fragmented manner in which they must try to engage with the project, plus the restrictions on contact time at the art centre, might make it difficult for learners to become engaged and involved in projects in any truly meaningful and worthwhile manner. Hence my 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'.

Such a project could become a physical and cognitive exploration of all the entangled thinking, feeling and experiencing in the bodymind of each learner. In this way, while recognising and engaging with "the multiplicities of self within and between ... [the different] ... roles which [they] inhabit" (Atkinson 2001:307), the materiality of the world in which these roles and selves play out could also be implicated. Writing, drawing, photographic and sound recordings and collage-type techniques could be implemented to create artworks that map the rhizomatic entanglements of

each learner's everyday life. A rhizomatic approach will also open up possibilities for events or experiences that are out of the ordinary and that may lead to lines of flight, so to speak. The latter reminds me of my remark in Chapter 4 about the value of intrigue and surprise to lure the learners into enthusiastic participation; these qualities could be exploited more fully if the project provides ample opportunities for such unexpected diversions into different territories to take place. A brief such as this should therefore provide sufficient direction while still being open-ended, in that it could allow the students to choose and create their own content in any way they like.

Mindful of what I suggested in the previous section about the inclusion of other art forms and alternative spaces, learners' everyday experiences of bodily movement (for example walking, running, skipping, cycling) and the senses (for example odours, tastes, textures, sounds) could later be recreated as short, simple performance pieces by the learners in spaces chosen by themselves, with the actual materials that produced the sensory experiences brought into play where possible. Approaching movement and sensory experiences from such a perspective might also hopefully ease the discomforts about the body that relate to different religion and cultural beliefs, as discussed in the previous section. These could lead to discussions of materiality, embodiment and the senses, and also form the basis for artworks. Although my focus for this study has been non-anthropocentric, this approach happens to resonate with a child-centred approach in art education, which promotes "active participation, sensory experience (using all five senses), self-identification with the experience expressed in the artwork and the materials used to create it, and self-expression through visually expressing the feelings, emotions, and thoughts of the child" (Gaudelius & Speirs 2002:9). Such more anthropocentric approaches might initially be necessary in order to create for learners safe mental and physical spaces in which they might become receptive to new ideas. One will probably have to accept that, as we deal with human beings, the teachings of the theoretical perspectives I advocate will of necessity always to a degree require a mindfulness towards 'relevant' aspects of human(ist)-based thinking.

After having done projects such as the one proposed here, when the learners have developed a sense of their own entanglement with the matter(s) of the world, projects based on visits to places such as Kirstenbosch Botanical Gardens and the Kraaifontein Integrated waste management Facility (the lower-case letters are correct) might be considered. The juxtaposition of one with the other, with information relating to new materialist views on matter, the 'other' and ethics, could form the framework within which learners could search for meaning on their own terms, and draw their own conclusions in and through the processes of art-making. I state the latter because Jan van Boeckel (2010:72) has sensitised me to the fact that most probably, as an adult, one can never fully

understand how a child perceives and experiences the world. One must therefore be wary of attempting to “expropriate the child’s way of being and moulding it into an adult’s scheme of reference” (Van Boeckel 2010:72). It might therefore be expedient to consider this factor when setting future projects, in order to find ways of allowing learners to discover what is relevant to them and their being in the world in their own way, without feeling pressurised to think, feel and produce that which they think one expects of them, without them really ‘owning’ any of it in a meaningful way. This also asks of one to be constantly attuned to one’s own feelings, understanding and emotions and aware of one’s own preconceptions, values and assumptions (Yip 2007:290), and how these play into one’s role and identity not only as always already entangled researcher, as discussed previously, but also as always already entangled educator.

I am of the opinion that it could, and *should*, require endless experimentation with different ideas for projects by both teacher and learners to explore the insights and notions that presented themselves in the analysed project. As I have indicated already elsewhere in the paper, I hold that it is possible to do this as art educator due to art’s unique position and potentialities for the explorations discussed here, even within current education systems and structures. I am of the opinion that these approaches could be introduced into art education by means of the practical projects that are developed for learners, exactly as I have done here. Also, I mentioned on more than occasion in the analyses the involvement of my colleague in the execution of the project. We had many fruitful discussions about the project, its execution, the learners’ progress and our own experiences and insights as the work progressed. I can vouch, with great appreciation, for the importance and value of this informal and unofficial kind of sharing, collaboration and support. For instance, one of our discussions about the notion of embodied learning ended in an animated brainstorming session about various ways in which movement and alternative spaces could be incorporated into future art projects.

Therefore, when it comes to the integration of posthumanist and new materialist ideas into current education practices to stimulate thinking and discourse pertaining to transdisciplinary education practices, with a view to how such practices could begin to be implemented within the current systems, I hold that art education and art research have a head start. Within the context of the current art syllabus, it is possible to integrate different knowledges in an almost ‘antidisciplinary’ manner in order to “break with the conventions of linear education narratives” (Holmes & Jones 2013:359). The art learner, as I have experienced, begins 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. The art learner could be given spaces in which to explore his/her own embodiment in the material world, and thereby begin to grasp his/her physical 'situatedness' and the joy and wonder of his/her inextricable entanglement with the world and all its matter(s). Yes, such processes will be difficult to execute due to our being so steeped in humanist thinking, but again I argue that, even within the confines of our 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'.

I can testify to the fact that educators in situations such as my own, teaching for instance in art schools, generally experience immense freedom in terms of the setting of practical projects, and therefore have the leeway to create projects that explicitly explore the senses and the body as valuable sites of learning that could be integrated with and complementary to cognitive learning. Art educators in more restricted situations could still focus on the sensory and bodily experiences of learners by simply bringing them into play, irrespective of the content of a project. As stated in the previous section, the art educator could create various informal opportunities to introduce, for contemplation and discussion by learners, certain ideas of posthumanism and new materialism. This might serve to 'off-set' humanist ideas and begin to stimulate a critical, questioning stance in learners about 'naturalised' humanist perceptions of humanity's 'place in the world', as they work through further art-making processes from the perspective of posthumanism and new materialism. For instance, my analysis of Anna's painting could have been translated into such a discussion. It is therefore my honest opinion that it would be relatively easy to 'slip' these ideas into the current art curriculum. Even in terms of the theoretical content of 'Visual Cultural Studies', I hold that it offers spaces into which certain tenets of posthumanist and new materialist thinking could 'fit' quite easily, particularly when it comes to studying contemporary art and artists.

On a more 'formal' level, art educators could be exposed to these alternative theories and approaches through art talks, workshops and seminars, all of which are already taking place in the current system. Therefore, ready platforms are in actual fact available to educators who have already begun to develop the passion and knowledge, as well as the commitment, to partake in such events as advocates of posthumanist and new materialist theories and thinking. Otherwise, knowledgeable people from outside the formal school education sector, who are versed in theories of posthumanism and new materialism (for instance university researchers and lecturers), could be invited to do the initial work of introducing these theories to (art) educators.

As with the project I analysed and the analysis itself, it is important to remember that all explorations will always only ever be a part of the journey of constantly becoming, which one could perhaps also describe as having a rhizomatic configuration – iteratively re-turning, re-working, re-thinking, always being mindful of the excluded which, with different agential cuts, might become the included. In the last instance, I agree with Springgay (cited in Siegesmund 2012:101) that “[i]t is not a matter of consideration of which method is better suited to extricate ‘experience’ but rather the realisation of the impossibility of ever understanding the other’s experience”. This statement, which resonates with Van Boeckels’ notion about our inability to fully understand a child’s perception of the world, demonstrates the impossibility of designing non-didactic projects that will bring learners to particular, measurable insights about any preconceived ideas.

I would therefore rather let my art projects provoke and challenge the learners, so that the ensuing results may surprise both the learners and me, as proposed by Van Boeckel (2010:67). Therefore, I conclude that it is not my task to prescribe how and what learners should think and become. I should rather, through my own involvement as not only teacher, but also co-learner, expressed through my own thinking, art and writing as ‘living inquiry’, initiate art projects that might “negotiate the disruption of an authentic aesthetic [sensory] encounter” for me and my learners, that we may “learn how to live”, following Siegesmund (2012:102). This will entail multitudes of intra-actions and agential cuts within the entanglements of the phenomena of countless projects. Hopefully, these will gradually lead to an ever deeper understanding of how ‘we’ are always already ethically responsible to and for all the ‘others’ with which we are irretrievably entangled in mutual co-constitution of this world.

In the final analysis, I am inclined to argue that one of the most meaningful materialisations of this dissertation is how the entangled, intra-active acts of reading, learning, thinking, listening, watching, partaking, *feeling* and writing have changed *me*, bringing the realisation (in more than one sense of the word) of myself as mindbody entity with the open potential of always becoming anew, always entangled with the matters and matter of the world as it practises its own agencies of becoming. I stated in my introduction that I regarded the writing of this dissertation as part of a journey, without beginning or end – an agential cut concretising certain configurations of (a small part of) the world, which after resolving, will leave the world open for new cuts with different becomings. It has been that – but a non-linear, multi-levelled, rhizomatic journey, and this was what had made (to me) open, unforeseen outcomes possible.

5.2.3 Possible implications for general education strategies

I am of course well aware of the difficulty of working from a mostly non-anthropocentric perspective, but believe in the importance of trying anyway, if for no other reason that we may be 'saved' from ultimately being the cause of our own destruction. Education curricula in general at present seem mostly still entrenched in and permeated by traditions of humanistic, dualistic, linear thinking patterns, often coupled with predetermined answers and outcomes, which foreclose creative and 'lateral' thinking and coming up with previously 'unthought of' possibilities. The oppositional dualism in education structures that favours mind over body, for instance, makes it difficult, as we have seen, for learners to truly experience themselves as embodied, material beings, and thereby greatly impede their ability to truly comprehend their total and inextricable bodily connectedness to basically all other matter on earth.

From the rather poor results of my search for posthumanist- and new materialist-based studies in a South African context, I concluded that up to now not many studies or research projects have been conducted from the perspectives of these theories. Those attempts at analysing data in terms of new materialist perspectives that I did come across, being grounded in the humanities and social studies, mostly seemed to still favour the human and view its interests as somehow being 'separate', 'above' and 'more than' the rest of the world's matter(s). Therefore, in the long term, we need education research programmes that are based on non-anthropocentric posthumanist and new materialist theories, in order to begin to assess how our curricula might be adapted to incorporate perspectives other than those of humanism – something which I can only hope will happen, as it is of course not within my power to change the vast structures and systems of education. The approach would be to bring these changes about little by little, so that they would spread rhizomatically through current education systems. For instance, the theories of trans-corporeality and viscous porosity could provide the basis upon which embodiment and the senses could be brought into learning experiences, as integral to such experiences. This could also, in my opinion, provide structures within which curricula could become transdisciplinary – in order to foster an understanding of the interlinked nature of all of the world's systems and matter – when one considers that the theories I talk about here imply, even require, integrated learning across the biological and physical sciences, as well as the humanities and social sciences.

It is my hope that, as I suggested for art educators in the previous section, educators across a broad spectrum of disciplines will be offered opportunities to be introduced to and begin to familiarise themselves with the ideas of posthumanism and new materialism in order to be(come) open to the kind of practices I suggest here. I propose that such initiatives could be driven by educators (such as,

I daresay, myself) from the ground up so to speak; that is, those who have the passion and knowledge to trouble and challenge the current education structures and systems from the 'inside'. Therefore, new and different ways of thinking, with dialogue and discussion to find innovative ways of precipitating such thinking in education practice, could, albeit on a small scale, begin to happen right now. There are more than enough international publications, as I found in my research, about posthumanist and new materialist theories and their practical implications to help show the way. This shift must happen first in educators before we can hope to inspire learners to engage critically with humanity's attitudes towards the non-human and all of the earth's systems and matter(s).

Therefore, in conclusion, it is my hope that my humble attempt at a posthumanist and new materialist study may serve as a small, if faltering, (additional) step towards investigating what a *non*-anthropocentric approach could entail. While fully acknowledging that it is far from perfect, I feel that the study might contribute, with other similar efforts, towards serving as a catalyst for the initiation of dialogue, discourse and/or discussion about the ideas in which I grounded my study, with the aim of finding ways of introducing and implementing them in education practices, even within the framework of current education paradigms and models. However, such implementation will have to be undertaken with an attitude of critical mindfulness towards the theories themselves, open to constant examination and (re)appraisal, lest it falls into the same traps of 'absolutes' and 'givens' as humanist approaches seem to have done.

5.3 Critique and further research

It is possible that this study might be critiqued for not being 'objective' or 'scientific' (enough), but my defense would be that post-qualitative research and a diffractive analysis, as explained in Chapter 3, do not necessarily aim to be so. I concede, and have done so elsewhere in this study, that I could have made different choices, different cuts, so to speak, in terms of data, or read the diffractions of data and theory differently, and that it might have brought different insights. However, I have on various occasions stated that this is exactly, in Baradian terms, what one takes cognisance of when doing a diffractive analysis with intra-active agential cuts – there is always that which is excluded, that could be made visible in different materialisations from different cuts.

The study, as stated before, was in a sense also a documentation, or rhizomatic mapping, of my own grappling with diffraction and other new materialist notions, and their implementation as research strategy, as well as my sometimes awkward searching and groping for the meanings that might be entangled in the selected sections of the data that 'glowed' for me. Included in this are the implications of my own entanglements in that which I attempted to research – becoming with the

project, the learners, the matter, the data – and with which I strove to engage as honestly as possible. This has, once again, made me acutely alert to the importance of understanding, through constructing theory in the way called for by a post-qualitative analysis, the always already ‘incompleteness’ and lack of finality of the manifestations of all matter and knowledge. This includes the fluidity, flux and change that allow for multitudes of differences and becomings, as advocated by the theoretical perspectives of my study. For these reasons there exists the possibility that the reader might experience this awkwardness being reflected in the way the dissertation has been constructed and written.

The original project had a second part that went on to investigate the implications of globalisation, with reference to various issues pertaining to the phenomenon, and entailed a considerable amount of collaborative work between the learners (see Appendix 2). Unfortunately, I could not fit an analysis of the globalisation part within the parameters of this study, and therefore investigating what insights a diffractive analysis with posthumanist and new materialist theories might reveal pertaining specifically to the processes of collaborative artmaking and learning might be worthy of further research. I would suggest a particular focus on the body and embodiment in this context, as these are as yet mostly unexplored fields of research in education in general.

Another possible avenue for further research is a field that I had to bring into my discussions several times in the study, and which is regarded by some as one of the strengths of posthumanist and new materialist theories. This is the field of inter- or transdisciplinarity, which due to lack of space I could not explore more deeply. Several authors, some of whom I’ve quoted, espouse the potentialities for opening up new ways of thinking, being and becoming through inter- or transdisciplinary practices, which, in my opinion, renders education research that has these as their focus of vital importance.

5.4 Concluding thoughts

My research was prompted by my own concerns about ecological damage and, in particular, loss of biodiversity due to human-induced and human-related factors. However, as indicated in chapters 1 and 2, these factors also implicate humanity’s own health and well-being, as Tuana and Alaimo demonstrate so clearly through their theories of trans-corporeality and viscous porosity. I began Chapter 1 by describing the death and destruction of atoll-dwelling baby albatrosses caused by the masses of plastics floating in the Mid-Pacific gyre close to Midway Atoll, and went on to relate how plastics pose a dire health threat much closer to humans as well as it moves into oceanic food chains. I also discussed the integration of plastic into human cells in Chapter 2 under Tuana’s interactionist ontology and viscous porosity. As a reminder to the reader of what this entails, I refer

again briefly to Tuana's (2008:201) explanation of how human flesh becomes 'plastic flesh' as the plastic molecules interact with body cells and are allowed into the cells where it interacts with the DNA or RNA of the cell – an interaction that can lead to cancer. This disturbing demonstration of the trans-corporeal viscous porosity of the matter of our bodies leaves one in no doubt of how completely entangled our bodies are with the matter of our environments.

Subsequent to writing these chapters, it came to my attention that the findings of recently published research that was undertaken in five of Durban's estuaries show that microplastics were found in 77% of the horse mackerel fish (which sits at the bottom of the food chain) that was sampled, and that a handful of sand from a Durban beach contained a considerable amount of tiny plastic particles that were indistinguishable from the grains of sand, except when held under ultra-violet light, which causes plastic to glow (Pillay 2015). This news brings the possibility, and therefore the danger of plastic ingestion, literally to our own doorstep. The situation in Durban, as in many places with similar 'stories' (think of New Orleans), results from a mangle of damaging material-discursive intra-actions such as inept governing practices, unethical practices by industry, pollution of the earth's systems, the body's particular chemical structures and functioning, and I may add, education systems that fail to engage critically with the reasons for these.

Therefore, my hope is that projects that sensitise learners to their own embodied materiality, their entanglements with all forms of matter, and how intra-active agential cuts cause matter to matter in ways that have important ethical implications, will spur them on to consider and engage deeply with how they live in this world in relation to all its matter, whatever form it may take, and its systems. For Tuana (Forthcoming 2016:11) argues convincingly that:

We must ... as Latour admonished 'learn to be affected'. We must learn to be affected by the full complexity of exchanges between human habits and geophysical interactions. We must learn to be affected by uncertainty and develop ways of knowing and living attuned to it. We must learn to be moved by, animated by, attuned to the threads of inextricable interconnections between consumption practices and ice sheets, between agricultural practices and species flourishing, between ocean currents and energy choices, between the way we live with the earth and the earth's becoming.

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APPENDICES

Appendix 1: Grade 10 practical project: Self, Local

(See chapter 3)

THEME: SELF, LOCAL

Practical Assessment Task: Grade 10 (Visual Arts), 2rd and 3th terms 2016

A slideshow will be presented in class on images portraying material things.

Use the page with printed images to do the following exercises:

Express your reaction to the image by writing down **the first 3 words that come to mind**.

Use as many of the above words as possible and create **3 freeform sentences** (as in automatic writing)

Divide into groups of 4

Create lyrics/ poems by merging (combining/mixing) all the sentences. Choose one sentence and repeat it after every four lines of the poem (to give rhythm to the lyrics). All group members write down the **final poem**.

Chris Jordan video: 20 min

Discussion of first assignment

Reflection

TERM 2

Introduction

From the earliest times of humanity's existence, people have decorated their faces, bodies and hair. An **adornment** is generally an accessory or ornament worn to enhance the beauty or status of the wearer. Adornments are often worn to embellish, enhance, or distinguish the wearer, and to define cultural, social, or religious status within a specific community. When worn to show economic status, the items are often either rare or prohibitively expensive to others. Adornments are usually colourful, and worn to attract attention. They have a long history, around the world, from feathers or bone, to modern accessories, such as jewellery.

Body painting is a traditional form of body adornment that celebrates the human form. The very essence of this body art is "life-affirming, transforming, spontaneous, and a signature of being alive"(Beckwith). It can be used for decoration, but it can also display to others an imprinted message emerging from various patterns and designs on one's body. This message can convey one's availability, status, and position within society or one's tribe. Oil, clay, chalk, and plant products are the typical forms of media used to create the various colours and textures needed. The Surma and the Karo make the use of the white chalk and red ochre mixed with animal fat or water to create their paint. The colors are seen to symbolize the ancestral ideology of energy and fertility. Both civilizations firmly believe that body painting is a vital part in their child's education in embracing the cultural practices. Body painting teaches a girl to attract men in the hope of finding a suitable husband. Children begin to implement these skills as young as four years of age. As they mature their simple designs turn into more intricate forms of body adornment. The body painting honours the human form in seeing it as a blank canvas to prepare it for various stages in life, like during courtship rituals. The body art is also used to introduce one's self into the world as an adult and the transition of empowerment. It shows the progression of becoming an able member of the tribe who the community depends on to survive.

Found online at: <http://beautyundefined.weebly.com/african.html>

Since the natural environment provides the raw materials for adornment, particularly in traditional cultures, but also often in contemporary industrial societies (think about leather, cotton and wool for garments; mineral ingredients for cosmetics; pearls, diamonds and gold for jewellery etcetera), it deserves serious consideration. The environment is not simply a static backdrop against which human activities play themselves out – everything we do impacts upon and changes our environment, and what happens in the environment impacts upon and changes us.

Activity 1 (1 week): Homework for 5-12 April

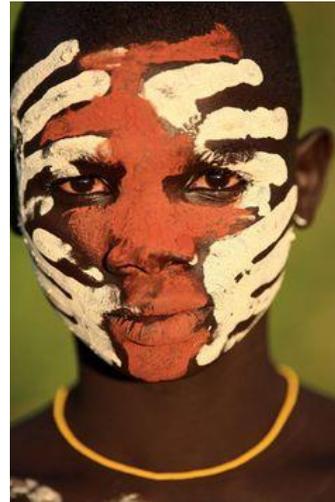
In order to *connect* more consciously with your environment, and become more aware of yourself as being physically situated in an actual place (consisting of soil, plants, air, non-human living forms, manmade structures etcetera) adorn your face, hair and body with substances and objects that come *directly from your own surroundings (e.g. home, garden)* in a similar way to the traditional African adornment sported by the people in the images on the next page. *Try to use mostly "natural" materials*; however, manufactured materials may be used as well (none of us, after all, live in a totally unspoilt natural environment – in fact, there are almost no such places left anywhere on earth today).

Take close-up as well as FULL FIGURE photographs from various angles of yourself to document the process and end product of the project. Place yourself in different environments and try to find unusual angles and viewpoints.

Select a phrase, sentence or a word that resonates you (means something to you) from the freeform poem and integrate it into the self-adornment process. Use the word during the adornment process itself or add / layer / superimpose it onto the photographic images.

This body of work should be regarded as an ARTWORK and is to be displayed in your source book.

Make this a fun project with the aid of a friend or two!



Examples of artists/artworks dealing with self and earth/environment



Ana Mendieta, *Tree of life*



No data available



Nicole Daxtras, *The mobile garden dress*



Ana Mendieta, *Untitled (From the "Silueta" Series)*

Class Activity: 12 April

For this you need to have done homework

- **Reflection** on homework
- **Slideshow** on art: Environment interventions and **class discussion** on possible ideas for activity 2
- **Courtyard** – work in pairs – choose spot in garden – sit in spot, hear, feel, see, smell, touch. Describe experience in source book – **write short paragraph**.

- Choose **descriptive/emotive words** from paragraph and underline.
- **Discuss possible ideas** on figure in environment intervention. Use the following as reference:
 - **ADORNMENT IMAGES**
 - **slideshow**
 - **underlined words**
 - **chosen space in the garden**
- **Plan process in sourcebook** with annotated drawings: describe what you are going to build/create, how you are going to do it and what materials you are going to use:
 - **who will bring what?**
 - **what can be sourced from the garden?**
- **print images** of activity 1 homework

Activity 2 (1 week): 12 -19 April

HOMEWORK: (Plan your image and the substances you are going to use (sand, water, fire, grass) in your source book with annotated drawings as discussed in class.

Class activity 19 April: Use the photographs from activity 1 as reference to create a reclining figure of a size of your choice from materials found in your environment. (Bring all possible substances and materials to class to work with: maize, sand, clay, salt, grass, leaves, branches, or anything else that you can think of with which to build your figure). Create a land art piece in the courtyard during class. Let the artwork interact (create an intervention) with a variety of environmental substances and/or factors: for instance, set it alight, pour water / sand / soil over it, kick it, roll over it, deform and reshape it with any intervention.

DO A PHOTOGRAPHIC DOCUMENTATION OF THE PROCESS OF THESE INTERVENTIONS.

The series of photographs comprise an artwork that is to be displayed in your source book.



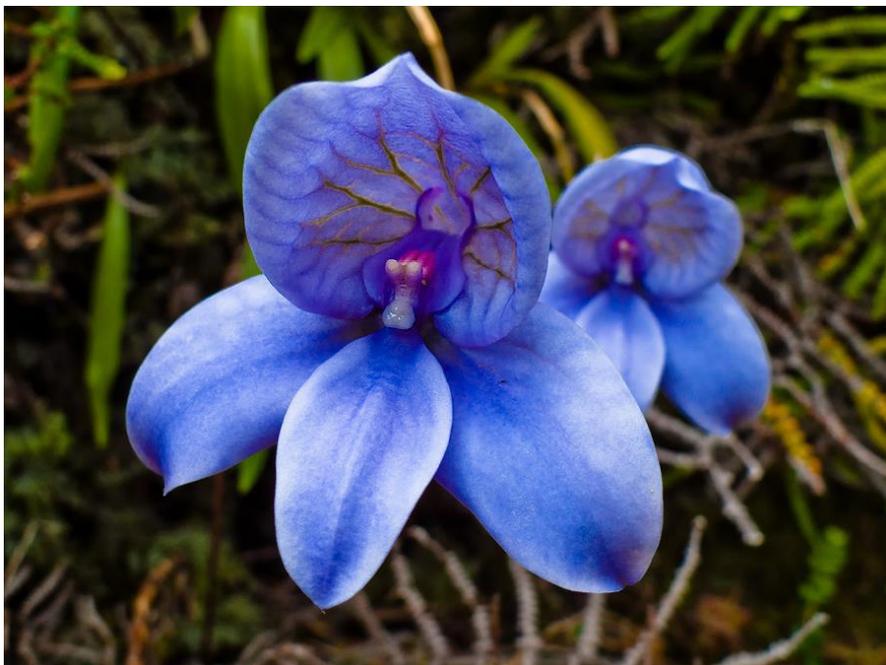
Christina Oiticica, Eunate, 2008



Christina Oiticica, Heart of the Katukina (Conception) Amazonia, 2004

Activity 3: Homework 19 – 26 April

The Cape Floral Kingdom is regarded as unique in the world. Of the world's six floral kingdoms, this is the smallest and richest per unit of area. The diversity of fynbos plants is extremely high, with over 9000 species of plants occurring in the area, around 6200 of which are endemic, i.e. growing nowhere else in the world. This level of diversity is comparable to tropical rainforests or large islands and is unique in a relatively dry continental area. Table Mountain alone supports 2200 species, more than the entire United Kingdom. Unfortunately, many of these unique plants are on the red list of threatened species.



- Do **research** about the plants on the red list and *select a species that you can "identify" with* (in other words, something about the plant or its circumstances reminds you of yourself and/or your circumstances).

Record the following in your source book:

- 1 the scientific name (and its meaning if possible),
- 2 the common local name(s),
- 3 the "history" of the plant,
- 4 where the plant is found geographically, its habitat (type of soil),
- 5 other plant and animal species found in the same habitat,
- 6 its red list status and the reasons for its demise.

COLLECT AS MANY IMAGES AS YOU CAN FIND ON THE ABOVE INFORMATION OF THE PLANT AND GLUE THEM INTO YOUR SOURCE BOOK

Activity 4: Classwork & homework 26 Apr-3 May

- *Bring the above images TO CLASS to be able to do class drawing and painting exercises. Make a variety of small drawings and paintings as well as a monotype of the various parts of the plant, using different drawing and painting techniques.*

Do these in class and finish at home in your source book. Use the 'drawing programme' as a guideline (at least 8 pages of exercises in your source book).

- Write a short, imaginative essay/poem/story in your source book in which you envisage yourself as the plant, telling your life story – this will have an *emotional* component. Display this writing as part of a drawing/painting.

Activity 5: Classwork & Homework 3 May – 10 May

- *Create a **montage** of your adorned self and the plant you have selected. Create a **plant/human hybrid**, connect the plant to yourself :*
 - 1 *fragment* images by *cutting, tearing, creasing and crumpling*
 - 2 *rearrange* and *layer* images by *weaving, merging and superimposing*
 - 3 *include* one or more *emotionally charged words* from your essay to the montage

, ... BE AS INVENTIVE & CREATICE AS POSSIBLE!

Display this in your source book.



Leora Farber, *Aloerosa transplant*

Activity 6 (3 weeks): FINAL WORK (Hand in 31 May)

Study your collage/montage carefully and

select a section or sections from it

that is/are visually satisfying

but also visually interesting/

stimulating/challenging, as well as emotionally evocative

(here you will have to go back to basics

and consider the formal elements of art).

MAKE A LARGE-SCALE PAINTING OF THE SELECTED SECTION/S

(You may find that the painting ends up looking abstract – that is absolutely fine!)



Use a viewfinder to search for visually pleasing/interesting areas.



Molecular action captured in painting by David Earl



Activity 7: REFLECTION

Write a brief essay in your source book in which you reflect upon your thoughts, feelings and experiences while doing this project. Consider the subject matter, creative methods, processes and end results of the artworks you have created and try to use them as metaphors for real life issues and experiences relating to self, other life forms and the environment.

Discussion: A reflective group discussion of the project will be held at a suitable time.

Appendix 2: Grade 10 practical project: Global (continued from Self, Local)**GLOBAL (END TERM 2 AND TERM 3)****Introduction**

This term's project entails a combination of individual and collaborative work, and relates to and builds upon the work you did last term.

Activity 1: 31 & 7 May and school holidays):

- Spread a sheet of paper large enough to accommodate your body or parts of your body on the floor, lie down upon it in any way you choose and ask a classmate to draw the outline of your body with a 6B pencil or charcoal.

HOMEWORK

-
- Select from all your previous work the most evocative and interesting parts which you like best. These include
 1. "adornment" photographs
 2. plant photographs and drawings
 3. plant-human hybrid - collages/montages
 4. garden intervention works
 5. written pieces
 6. Images of your completed final painted and/or assemblage work.

LAST 2 CLASSES IN TERM 2 AND HOLIDAY WORK

- *You are going to "fill" your body with these images, using them to express something of your "self". You may copy, change their size (bigger, smaller) and/or distort them on the photocopy machine, thus working with repetition, variations in scale of the same image and /or different images, and changing the appearance of images.*

When you've collected enough images:

1. *draw a few preliminary studies in your source book in which you test various compositions for the "content" of your figure.*
2. *Using these as a guide, "build up" your body with the images, working into and over them with a variety of mediums, until you've created a visually satisfying whole which also portrays something about your emotions, character and mood (for instance: calm, organised, controlled, rigid, chaotic, flowing, angry, energetic, lively, playful and so on).*

3. *Consider that some areas may be left open while others may be densely worked, some parts may be full of movement while others are calm, light areas may contrast with dark areas etcetera.*
4. *Keep in mind how the way the **FORMAL ELEMENTS** of art are used influences and contributes to the afore-mentioned.*

Carefully cut out your figure once you've completed it.

All the above work must be completed by the first week of term 3



Activity 2

This is a collaborative activity which will take place over three of the four sessions in term 3.

- *1 (in class): A big section from a roll of paper will be put up against a wall in the class room.*

You have to work together to create a visually satisfying composition of your cut outs from activity 1 - the figures must overlap and interact in interesting ways; you may also tear, cut or fragment the images if you so wish.



Shany van den Berg, *Al(l)een*

- 2 (at home): For this part of the collaboration, please read the article on globalisation that you have been given. Choose a specific aspect of globalisation that you find interesting or thought-provoking, explain why you have chosen this aspect and find a variety of images that relate to it. Use these images to create new images, using the processes explored in previous activities of this project.

Do this in your source book at home.

2 (in class): Negotiate with your fellow-students and decide which spaces (formed in-between the figures) each person will work in. Use your images from your source book as reference to fill your allocated spaces with visually satisfying compositions. Work in a variety of mediums, as explored in previous activities.

- *3 (in class): The last collaborative session requires of you to intervene/take over and continue in and with **someone else's space and work**, using your own and their images in inventive ways. You will have to negotiate this amongst yourselves. Before the end of the session, the group must divide and cut the big work into sections, one for each student. The sections will be turned upside down and handed out randomly. You may either accept your section or negotiate with someone else to swap sections, if you so wish.*

Activity 3: FINAL WORK

*For the 4th and last session and before handing in, you have to complete the section of the work you received in activity 2. Once again, **consider the formal elements of art to enhance the mood/emotion/meaning** already present in the work. Method and medium will be guided by the content of the work that's already been created. You may also destroy the work that's been done if you wish to do so.*

THE WORK WILL BE REASSEMBLED FOR EXHIBITION PURPOSES

Reflection: Write a brief essay in your source book in which you reflect upon your thoughts, feelings and experiences while doing this project. Consider the subject matter, creative methods, processes and end results of the artworks you have created and try to use them as metaphors for real life issues and experiences relating to self, other life forms and the environment, but this time in the context of globalisation.

Discussion: A reflective group discussion of the project will be held at a suitable time.



Appendix 3: Images of collaborative artwork in progress

All images were taken by the researcher.







Appendix 4: Consent form for participation in research



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jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

[Insert title of the study.] [If the study involves using different consent forms for different populations, identify the population group as the subtitle of the study.]

You are asked to participate in a research study conducted by *[insert names and degrees of all investigators]*, from the *[insert department affiliation]* at Stellenbosch University. *[If student, indicate that results will be contributed to research paper, thesis or dissertation.]* You were selected as a possible participant in this study because *[explain succinctly and simply why the prospective subject is eligible to participate]*.

1. PURPOSE OF THE STUDY

[State what the study is designed to assess or establish.]

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

[Describe the procedures chronologically using simple language, short sentences and short paragraphs. The use of subheadings helps to organize this section and increases readability. Medical and scientific terms should be defined and explained. Identify any procedures that are experimental.]

[Specify the subject's assignment to study groups, length of time for participation in each procedure, the total length of time for participation, frequency of procedures, location of the procedures to be done, etc.]

3. POTENTIAL RISKS AND DISCOMFORTS

[Describe any reasonable foreseeable risks, discomforts, inconveniences, and how these will be managed.]

[If there are significant physical or psychological risks to participation that might cause the researcher to terminate the study, please describe them.]

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

[Describe benefits to subjects expected from the research. If the subject will not benefit from participation, clearly state this fact.]

[State the potential benefits, if any, to science or society expected from the research.]

5. PAYMENT FOR PARTICIPATION

[State whether the subject will receive payment. If not, state so. If subject will receive payment, describe remuneration amount, when payment is scheduled, and proration schedule should the subject decide to withdraw or is withdrawn by the investigator.]

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of [*describe coding procedures and plans to safeguard data, including where data will be kept, who will have access to it, etc.*].

[*If information will be released to any other party for any reason, state the person/agency to whom the information will be furnished, the nature of the information, and the purpose of the disclosure.*]

[*If activities are to be audio- or videotaped, describe the subject's right to review/edit the tapes, who will have access, if they will be used for educational purpose, and when they will be erased.*]

[If researcher is planning to publish results of study, describe how confidentiality will be maintained in publication]

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. [*If appropriate, describe the anticipated circumstances under which the subject's participation may be terminated by the investigator without regard to the subject's consent.*]

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact [*identify research personnel: Principal Investigator, Supervisor, Co-Investigator(s). Include day phone*]

numbers and addresses for all listed individuals. For greater than minimal risk studies, include night/emergency phone numbers.]

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE
--

The information above was described to [*me/the subject/the participant*] by [*name of relevant person*] in [*Afrikaans/English/Xhosa/other*] and [*I am/the subject is/the participant is*] in command of this language or it was satisfactorily translated to [*me/him/her*]. [*I/the participant/the subject*] was given the opportunity to ask questions and these questions were answered to [*my/his/her*] satisfaction.

[I hereby consent voluntarily to participate in this study/I hereby consent that the subject/participant may participate in this study.] I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the subject/participant*] and/or [his/her] representative _____ [*name of the representative*]. [*He/she*] was encouraged and given ample time to ask me any questions. This conversation was conducted in [*Afrikaans/*English/*Xhosa/*Other*] and [*no translator was used/this conversation was translated into* _____ by _____].

Signature of Investigator

Date