

Embodying an Ecological Condition: Dance Practices and the Development of Embodied Ecological Awareness

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**Embodying an Ecological Condition:
Dance Practices and the Development of Embodied Ecological Awareness**

Rhiannon Newton

A thesis in fulfilment of the requirements for the degree of
Master of Philosophy (M Phil) Creative Arts

School of the Arts and Media

Faculty of Arts, Design and Architecture

February 2022

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Abstract

Addressing the climate crisis requires practices for recognising the ecological condition of the body and its enmeshment with the more-than-human world. Significant humanities and social sciences scholarship argues that embodiment is key to dismantling dominant anthropocentric structures that understand humans as separate from or superior to the environment. From my position as a contemporary dance artist, I unpack how the methodical processes of contemporary dance exemplify a practice-based approach to embodied knowledge that engenders greater understanding of the ecological condition of the body's interconnection with the more-than-human world. Highlighting transdisciplinary correspondences between dance practice methods and theoretical insights from feminist, ecocultural, First Nations, and environmental philosophy scholars, I identify four key frameworks through which dance practices affect embodied awareness of an ecological condition. These are: *Knowing Multiplicity*, *Attending to an In-Motion Condition*, *Indivisibility at the Body-World Threshold*, and *Multisensory Ways of Knowing*. With these correspondences, I formulate the new theoretical framework of *embodied ecological awareness* to describe the particular knowledge dance practices cultivate and can contribute to broader ecological discourses. To demonstrate how dance practices develop this knowledge, I engage a body-centred autoethnographic methodology to analyse key experiences of dance practice exercises and the embodied understandings they promote. In finding that these exercises develop corporeal understandings of the interconnected, in-motion multiplicities constituting and interweaving the body's internal and external environments — understandings identified as explicitly ecological — I propose that dance practices develop a form of knowledge that is imminently relevant to recuperating human-environment relations in the face of climate crisis: that is, *embodied ecological awareness*.

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Chapter 1: Introduction

Human action in recent centuries has precipitated a new epoch, the Anthropocene (Corbett, 2006). This troubled term aims to describe the planetary scale at which human action has irreversibly altered the geophysical make-up of the earth (Abram et al., 2020; Haraway, 2016). The ways of acting commonplace for the dominant human populace and the value systems these actions are grounded in need to change to halt the current course of ecological devastation. Transforming how humans perceive an embodied ecological condition of enmeshment in the complex ecological relations of the more-than-human world requires practices that disrupt dominant anthropocentric modes of perceiving humans as separate from, or superior to, the environment. Disrupting such dominant perceptions requires knowledge practices that move beyond the realm of fact and cognition. It requires practices that effect understanding in the realm of the body, the realm of sensation, emotion, and action, and that make the ecological condition of the body and human dependency on the well-being of earthly ecosystems a visceral, *feel-able* reality.

“There is an ecology of the world within our bodies” (1965, p. 169) states radical feminist ecologist, Rachel Carson writing at the outset of the environmental movement of the 1960s. In an aligned statement, North American dance artist Anna Halprin notes “I have come to see... nature and all that is in it, is also in each of us.” (1995, p. 212). These parallel statements from an ecologist and a dance artist, whose respective work correlated with the emergence and development of the contemporary environmental movement, demark a meaningful ecofeminist correspondence, a correspondence that belongs not only to the environmental awakening taking

place, but reflects a shared understanding of the importance of embodiment in how humans sense a condition of entanglement with the more-than-human earth¹.

In her influential text *Silent Spring* (1965), Carson goes to great lengths to describe the vast and interconnected impacts of synthetic pesticides on ecosystems spanning bird, insect, aquatic and soil worlds. In a gesture that acknowledges the anthropocentric character of the populace to which she speaks, Carson includes a brief chapter titled *The Human Price*. Roping humanity into the picture, Carson details the effects of DDT and other insecticides on human organs, tissues, and cell production. The human body no longer represents just the perpetration of ecological damages but becomes an inseparable ecological site on which these damages invisibly, yet devastatingly, persist and take effect. In a decidedly ecofeminist manoeuvre, Carson also makes these embodied ramifications gendered and entangled with human survival, as mammalian testes and their reproductive capacity, including those of humans, are highlighted as a critical site of impact and atrophy (1965, p. 185). To get her message across, Carson makes her vast ecological narratives transgress the boundary of the skin, and matter at the scale of the human body — the scale at which the lives we live are implicated.

Through a somewhat inverse perspective, Halprin reaches from corporeal knowledge to describe her recognition of the human body's implicated entanglement with the more-than-human world.

¹Rachel Carson (1907-1964) was a North American marine biologist. Her influential book *Silent Spring* (1965) critically advanced the contemporary environmental movement. Anna Halprin (1920-2021) was a North American dancer and choreographer. Her movement away from the theatre redefined dance as an artform from the 1960s onwards (Banes, 2011; Ross, 2009). I recognise Carson's and Halprin's work as ecofeminist (Warren & Erkal, 1997), identifying the ecocentric ethics that underpin their practices and their works' engagement with, and contribution to, the contemporary environmental movement and second-wave feminism (Gaard, 2012, pp. 1-2; McPherson, 2019; Ross, 2009, pp. 73-74, 80). I also refer to Carson as an ecologist, highlighting her focus on ecological relations and note her role in the emergence of modern ecology as a discipline in the second half of the 20th century.

For Halprin, likenesses between the materials and processes of the body and those in the surrounding world — bones made of the same elements as stones, veins and arteries that move fluids in much the way streams and rivers do, and breath systems that mirror the operation of the earth's wind and air pressure — form a logic for understanding the human body and its relation to more earthly scaled narratives (1995, p. 214). Halprin describes practices for embodying, tuning into, and becoming aware of these body-environment flows and connections. For Halprin, coming into an awareness of such connections is key to healing relationships with the natural world, from which she believes humanity has become alienated (Halprin in Ross, 2009, p. ix).

With both Halprin and Carson, there is a shared recognition that the problems facing both humans and the planet lie in a dominant culture of perceiving the human self as separate from or outside of the environment. Both reach beyond the customary materials of their discipline to show that embodiment, that making ecological issues matters of and for the human body, is critical to how humans sense themselves as both part of the ecological world and as deeply involved in the problems and solutions of recuperating it from ecological devastation. For Carson, making the ecological embodied — the move from outside to inside — was critical for making her information matter at the site of its readership. For Halprin, the move from internal to external — embodying the ecological — was critical to developing the sense that oneself is deeply connected to the more-than-human world.

Taking Carson's acknowledgement of the ecological character of the body, and Halprin's embodied attunement to an ecological condition as key historical ecofeminist anchoring points, in this study, I investigate how embodied knowledge practices play a critical role in developing

understandings of the fundamentally ecological condition of being human. I specifically draw attention to how the practice-based methods of dance, such as those touched on by Halprin, engender *embodied* forms of *awareness* that are demonstrably *ecological*, and which make human complicity in the wellbeing of earthly ecosystems a reality that permeates the fibres of being.

The significance of embodiment in making environmental issues matters of and for the human body has been robustly theorised in contemporary environmental humanities and social sciences scholarship. Succeeding generations of dance practitioners rigorously developed the practice-based methods of embodiment established by Halprin since the 1960s. However theoretical understandings of embodiment's role in recuperating human-environment relations and practice-based approaches for embodying ecological awareness, such as those evolved in contemporary dance practices, rarely meet. I believe this overlap is an obvious though underdeveloped transdisciplinary area for research.

In considering the practices humanity needs to address the climate crisis, it is clear that embodiment — embodied modes of communicating, understanding and sensing human enmeshment with the more-than-human-Earth — has a critical role to play in disrupting dominant anthropocentric practices and cultivating more ecocentric ways of being. Theoretical understandings of embodiment alone will not be adequate for the task. Neither will constant returns to 'the human price' (Carson, 1965) serve as the enduring reconfiguration of human-environment relations required. Arriving at adequate understandings of the ecological condition of the human entanglement with the more-than-human world requires a practice-based approach

to knowledge. The only practices sufficient for the task will be those that engage with the site of the body in all its affective, sensory, emotive, and material being, which build functional, reusable, and relatable tools for knowing and working with the vulnerable and interdependent condition of corporeal entanglement in earthly well-being.

Aims and Research Question

The aim of this research is to investigate how a practice-based approach to embodied knowledge, such as that offered by dance practices, can contribute to understandings of the ecological condition of the body and its interdependence with the more-than-human world. By bringing the disciplinary knowledge of dance practices together with the disciplinary knowledges of environmental humanities and social science, my research explores how dance offers sophisticated practice-based approaches to embodiment that enliven theoretical understandings of the role embodiment plays in addressing the major planetary crises of this time. In highlighting these transdisciplinary correspondences, my research aims to analyse how forms of embodied awareness developed through dance practices can be recognised as distinctly ecological in character. In highlighting the ecological character of these forms of awareness, my research aims to introduce and develop a new theoretical framework of *embodied ecological awareness* to identify and illuminate the particular form of embodied knowledge that dance practices can engender.

With this framework of *embodied ecological awareness*, I aim to describe the particular knowledge produced by a practice-based approach to embodiment. In doing so, I identify the knowledge that dance practices can contribute to broader debates about the ecological character

of human involvement in the problems and solutions of earthly relating. Throughout this study, I contextualise *embodied ecological awareness* — the awareness that one’s own body is a living ecology connected to, dependent on, and responsible within vast planetary ecologies — in relation to the climate crisis and the documented need for a drastic reconfiguration of dominant anthropocentric human-environment ways of relating (Latour, 2017; Milstein & Castro-Sotomayor, 2020). My research aims to establish that embodied awareness is an important starting place for growing understandings of the ecological condition of the body that can inform understandings of the ecological condition of the earth’s operation. I consider how the embodiment of such understandings provides a tangible grounding place from which transformative knowledge, feelings, and action toward human-earth recuperation can be cultivated. Through this thesis, I therefore aim to address the research question:

How do the practice-based methods of contemporary dance develop *embodied ecological awareness*?

To unravel how dance practices produce *ecological* forms of *embodied awareness*, I draw artist-voiced accounts of dance practice methods and their experiential outcomes into transdisciplinary dialogue with key theories of embodiment. Drawing on First Nations scholarship (Moreton-Robinson, 2013; Neale & Kelly, 2020), feminist frameworks (Alaimo, 2008; Butler, 2011; Haraway, 1988), ecocultural theory (Milstein & Castro-Sotomayor, 2020) and ecological philosophy (Abram, 1996; Latour, 2017) I unpack how dance practices cultivate embodied forms of awareness that develop corporeal understandings of the multisensory, interconnected, in-motion multiplicities that constitute and interweave the body’s internal and external

environments. Through this transdisciplinary analysis I identify four key ways dance practices can be understood to develop different forms of *embodied ecological awareness*. I identify these emergent forms as: Knowing Multiplicity, Attending to an In-Motion Condition, Recognising Indivisibility at the Body-World Threshold, and Multisensory Ways of Knowing.

To expand upon this transdisciplinary analysis of how dance practices cultivate understandings of the ecological condition of the body's entanglement with the more than human world, I engage a body-centred autoethnographic methodology to examine my personal professional experiences of dance practice. In doing so, I detail how specific dance practice exercises lead to forms of awareness that foster a heightened sense of embodied integration in an ecological way of being, and thus develop *embodied ecological awareness*.

Orientation and Scope

This research project is situated in my disciplinary knowledge of contemporary dance practices. My knowledge of contemporary dance is informed by eighteen years of professional contemporary dance training, ongoing professional practice as a collaborating and solo dance performer, and an established choreographic and pedagogical practice informed by contemporary dance principles and techniques. This research reflects my engagement in primarily Western/ised spaces for contemporary dance and my training in Western contemporary dance methods, such as Cunningham Technique, Release Technique and Counter-technique, along with dance improvisation methods such as Australian choreographer Rosalind Crisp's *d a n s e* practice, North American artist Lisa Nelson's *Tuning Scores* and Australian dance improvisation practitioner Jo Pollitt's *response* project (Crisp & Ginot, 2014; Nelson, 2008; Pollitt, 2001).

These corporeally inherited techniques and methods link primarily to developments in the contemporary dance art form in North American and European institutions and communities, and to related developments in the Australian contemporary dance context. It is also important to note that institutionalised Western contemporary dance practices are historically influenced by non-Western dance and movement forms, with significant literature pointing to Western contemporary dance's historic and ongoing appropriation of non-Western cultural dance practices (Desmond, 1993, p. 39).

With an eye on the complex and colonial history of what are recognised as contemporary dance practices, I aim to identify specific lineages of contemporary dance practice that embody an ecofeminist ethics. These are practices that enable differently situated bodies to speak from the position of their particular embodied realities, which, through artistic and embodied means, can be understood to undermine dominant anthropocentric, patriarchal, and colonial narratives (Warren & Erkal, 1997). The particular practice-based methods highlighted reflect my journey as a dance artist, the lineages of dance practice my experiences have led me to embody, and the knowledge I have acquired as I have developed my practices for communicating, creating with, and teaching contemporary dance methods. In this research, I specifically address the practice-based methods of dance artists Anna Halprin, Steve Paxton, Lisa Nelson, and Chrysa Parkinson. These artists' practices are selected for my research because they have either touched me directly or indirectly through the aforementioned artists/techniques. I also focused on this specific cohort of artists because their practices have been robustly addressed in critical discourse and scholarship. While I engage with these artists (alongside reflections on my own dance practice experiences) to exemplify the ways dance practices can cultivate an embodied awareness that has

distinctly ecological characteristics, I do not seek to claim that only these artists' methods or approaches do so. Rather, my research aims to identify how practices that engage deeply with the materials and processes of the body cultivate a knowledge from the body that is ecological in character — that expands into and builds perceptions of how the world is an entangled web of ecological relations.

In orienting this study, I also seek to ground this research project in the situated context and community in which I live, work and participate in dance practices. This situated context is the unceded Indigenous Land of the Eora Nation, specifically the Gadigal Land of Inner Western and Central Sydney. As a woman of settler-colonial descent who grew up on the Mid-North Coast of NSW on Dunghutti Land, I am privileged to work amongst a community of settler and Indigenous artists whose diverse approaches to dance practice reflect both Western and non-Western ontological positions for human-environment ways of relating, sharing knowledge and engaging in artistic practice. This is reflected in my engagement with intercultural dance company Marrugeku; my work as a dancer for Australian Indigenous choreographer Amrita Hepi; my collaborative work with First Nations dance artists Paea Leach and Victoria Hunt; and the broader community of diverse students, peers, mentors and industry who contribute to a culture of dance practice on and around Gadigal Land.

In situating this research in the context of contemporary Australian social, political and ecological discourses, I acknowledge that the ecocentric ways of knowing I hope to foreground are foundational to Indigenous ontologies and knowledge systems. Concepts of *human* and *environment* are inextricable in an Australian Indigenous ontology (Moreton-Robinson, 2013)

and the embodiment of kinship with the more-than-human underpins Indigenous knowledge systems and practices (Neale & Kelly, 2020; Rose, 2008; Yunkaporta, 2020). I therefore seek to actively acknowledge that the project of reconfiguring human-environment relations, and reconnecting humans to a sense of felt interdependency with the environment, addresses a problem embedded in the anthropocentrism of dominant Western and colonial ideologies, and acknowledge the historical and ongoing damage to Indigenous land and culture reaped by these ideologies.

In identifying the ecocentric character of Australian Indigenous knowledge systems (Moreton-Robinson, 2013; Yunkaporta, 2020), while considering the role dance practices can play in connecting humans into robust embodied interrelation with the more-than-human world, I also critically acknowledge that dance, along with music, art, and storytelling, forms an integrated and crucial part of Australian Indigenous systems of knowledge production, transmission and archiving (Neale & Kelly, 2020). Therefore, while this study reflects my particular situated position which is informed by Western contemporary dance practices, in discussing the role of dance in connecting humans into particularly embodied relations to the more-than-human-world, I aim to indicate that these possibilities are not limited to contemporary dance practices and indeed underpin diverse cultural dance practices and those cultures' connections to land and knowledge creation and transmission.

From my position as a researcher and dance artist, I aim to formulate a study that demonstrates how the kinds of embodied awareness arrived at through contemporary dance can foster knowledge of the self and a felt sense of connection to other worldly beings that is deeply

ecological. From such a position, I hope to identify critical gaps in dominant Western knowledge systems and their ramifications for human-environment relating, particularly the impoverishment of embodied ways of being in the world. I simultaneously hope to contribute constructively to broader research and discussion on the value of practice-based approaches to embodiment in recuperating human-environment relations, and the value of other cultural dance practices or other disciplinary approaches to embodiment.

The scope of my research is limited by the master's research framework and size and therefore focuses on a discussion of contemporary dance practice-based methods and their potential for cultivating *embodied ecological awareness*. My study speculates that the development of *embodied ecological awareness* can affect human perceptions of separateness from the environment and enable transformation toward more ecocentric ways of being and acting. The data I analyse in this study is limited to the documented experiences of the aforementioned dance artists and my own auto-ethnographic experiences of dance practice, and therefore aims to establish a clear foundation for further research that explores the implications of embodied practice-based methods for effecting ecological awareness for broader populations.

The scope of the dance artists addressed is limited to those working since the 1960s in alignment with the contemporary environmental movement. However, I acknowledge that a long lineage of dance artists, including Isadora Duncan and Doris Humphrey, have taken inspiration from a sense of connection to the more-than-human world. I also acknowledge that the evolution of an ecological consciousness in contemporary dance practices emerges through dynamic, collaborative, and interdisciplinary dialogue with diverse art forms, dialogue that characterises

akin movements toward ecological consciousness in other performance and visual art disciplines, such as the Land Art movement of the 1960s and 70s (Lailach, 2007). These developments also interacted with developments in architecture and design, especially in the case of Halprin and her collaborative working relationship with her architect husband Lawrence Halprin (Halprin, 1995).

In addressing dance practices that cultivate an embodied sense of ecological awareness, my study of dance practice is in no way limited to, or directly engaged with, dance practices that take place in the *natural* environment, or with disciplinary focuses such as site-specific art and performance (Kaye, 2000). The scope of my research is focused on how contemporary dance practices, as an example of broader embodied practices, encourage an ecological awareness of the self and its ongoing relations with the more-than-human world. This is inclusive of the earthly materials that make up dance studio floors, the contents of lunches that fill bellies as they move and the social and cultural narratives and materials that flow in and through interacting bodies and spaces. I also acknowledge, particularly in my case, that the embodied ecological awareness I have experienced via dance practice is also strongly informed by my study of adjacent somatic methods and their philosophies, such as The Feldenkrais Method®, Iyengar Yoga®, and Body Mind Centring®. However, due to the scale of this particular research project I have intentionally limited the data I address to sources grounded in contemporary dance practice.

Chapter Overview

In the coming chapters, I develop the concept of *embodied ecological awareness* and explore how the practice-based methods of dance can be understood to develop this specifically

ecological form of embodied awareness. In these chapters, I identify and analyse extant dance practice and theory of ecological embodiment literature, outline the body-centred auto-ethnographic methodology that guides my approach to the selected dance practice case studies, present four short case studies that reflect on personal formative experiences of embodying ecological awareness through dance practice, and discuss the significance of the study and its implications for further research. The structure and style of this thesis is informed by the disciplinary worlds I have engaged in throughout the program of study. Influenced by the transdisciplinary approach to research methods supported by the MPhil program, as well as my joint supervision by academics from Dance Studies and Environmental Humanities, the structure of this thesis reflects a more conventional humanities or social sciences approach, encompassing chapters dedicated to an introduction, literature review, methodology, case study and discussion. However, the approach I take within these structures is grounded in my situatedness in dance practice, and reflects a generative, self-reflexive, and embodied approach to research and the production of knowledge.

In *Chapter 2: Transdisciplinary Frameworks for Embodied Ecological Awareness*, I review relevant literature from dance studies and identify key corresponding literature from environmental humanities and social sciences scholarship. This chapter is organised into four sections that reflect the key axes of transdisciplinary correspondence between the dance studies and ecological theories of embodiment literature studied. Through generative transdisciplinary analysis, each of the four sections illuminates a specific way dance practices interact with and animate theories of how embodiment develops understandings of an ecological condition, in order to identify key forms of *embodied ecological awareness*.

The first section, *Knowing Multiplicity: We Are Many (Moving) Parts*, outlines dancers and scholars Parkinson's and Bigé's *Experiential Authorship* dance practice method which develops awareness for the infinite parts of the body as they interact with multitudes of environmental factors/stimuli. Considered alongside Abram's focus on the role of embodiment in perceiving ecosystem-scaled multiplicity, this embodied awareness of multiplicity is revealed to foster understandings of ecosystem scaled multiplicity. In the second section *Ecology as Process: Attending to an In-Motion Condition*, I highlight how dance practices, such as those instituted by Halprin and Paxton train awareness for movement. This awareness becomes pertinent to how recognising agency and action in the more-than-human world (Haraway, 1988; Latour, 2017) undoes assumptions of environment inertness. The third section, *Recognising Indivisibility at the Body-World Threshold*, outlines how dance practice methods correspond with theories of trans-corporeality (Alaimo, 2008) and ecocultural identity (Milstein & Castro-Sotomayor, 2020) to dissolve perceptions of rigid boundaries between the body and the world. In *Perceiving the Perceptible: Multisensory Ways of Knowing*, I describe how dance practices develop neglected sensory systems to activate a heightened sense of participation in the more-than-human-world (Abram, 1996; Puig de la Bellacasa, 2017).

In *Chapter 3: A Method for Centring Embodied Knowledge*, I describe how a body-centred (Parker-Starbuck & Mock, 2011) autoethnographic methodology supports my approach to reflecting on four significant dance practice experiences. I detail how an ecofeminist lens guides a transdisciplinary approach to reflecting on and analysing these experiences in relation to the established literature and research frameworks. I outline how the selected dance practice

exercises and embodied experiences are captured by data in my artistic journals and fleshed-out by memory and the self-reflexive practice of a body-centred autoethnographic approach. I detail the two key forms of journal data used, my studio and planning notes and my embodied writing practice, both of which comprise a key part of my creative practice.

In the fourth chapter *In Practice: Exercising Embodied Ecological Awareness*, I detail four dance practice case studies that animate my professional practice-based experiences of *embodying ecological awareness*. The first case study, *Perceiving the (Im)perceptible: A Tuning Scores Laboratory with Lisa Nelson*, details my experience of engaging first-hand with Nelson's *Tuning Practices* and describes the multisensory awareness it cultivated. In the second case study, *Starting from Multiplicity: Solo Practice Discoveries in Helsinki*, I document an exploration of a state of embodied multiplicity during a focused period of daily solo studio practice during a three-month residency in Helsinki. In the third case study, *Dancing Across the Body-World Threshold*, I outline a dance practice exercise undertaken with dancers, Ivey Wawn and David Huggins, in the context of a creative development, and detail how it led to a heightened awareness of interconnection between the body and the more-than-human world. In the fourth case study, *Exercise for Attending to an In-Motion Condition*, I detail my experience of leading an exercise during a group research laboratory and describe the perceptual shifts it enabled for perceiving ourselves as interactively related to an active and agential environmental condition. Through analysis of these experiences, I draw on the theoretical frameworks outlined in Chapter 2 to demonstrate how these embodied experiences exemplify approaches to embodiment that cultivate forms of awareness that foster particularly ecological ways of perceiving the body and recognising its ecological enmeshment in the more-than-human world.

In the final chapter, *Chapter 5: Discussion*, I briefly summarise the study and its findings for how dance practices develop *embodied ecological awareness*. I reflect on the significance of the study, noting how the dance knowledges explored carry significant implications for transdisciplinary research across the realms of dance practice, embodied knowledges, and environmental humanities and social science research dedicated to recuperating human-environment relations in the context of the climate crisis. I also outline the limitations of the study and establish foundations for further research.

Chapter 2: Transdisciplinary Frameworks for Embodied Ecological Awareness

Understanding the ecological condition that connects humans to the earth requires knowledge practices that make the ecological sense-able at an embodied scale. In this chapter, I draw literature from the field of dance practice into dialogue with literature from the fields of environmental humanities and social sciences to animate how dance practices develop an *embodied awareness* of this *ecological* condition. In identifying important correspondences between these worlds of knowledge, I point to how the forms of embodied awareness cultivated through dance practice strongly resonate with the ways diverse disciplinary scholars theorise the role of embodiment as critical to perceiving human embeddedness in the problems and solutions of more-than-human entanglement.

To contextualise how dance practices foster ecological awareness, I draw attention to literature that details the influential practice of Anna Halprin and her distinctly ecofeminist dance practice methods. I also discuss the practices of dance artists Lisa Nelson, Steve Paxton and Chrysa Parkinson whose methods, involving dance improvisation, pedagogy and performance, develop forms of embodied awareness that are recognisably ecological. I focus on their artist-voiced accounts of dance practice to get as proximal as possible to the experiential outcomes arising from their embodied methods. I contextualise their accounts of practice in relation to other relevant dance and performance studies literature from Sally Banes, André Lepecki, Romain Bigé, Janice Ross and Bojana Kunst.

I analyse these dance practice insights in relation to perspectives from ecology, feminist, ecocultural, and environmental philosophy scholars. The theories highlighted include Haraway's

“situated knowledges” (1988); Carson’s transformative analysis of ‘the human price’ of ecological relating (1965); the ecocultural theory of Abram (1996; 2020), Milstein, and Castro-Sotomayor (2020); Alaimo’s theory of trans-corporeality (2008); Butler’s concept of “materialising” (2011); Latour’s analysis of non-human agency (2017); and Puig de la Bellacasa’s notion of “relating-as-touching”. My selection and analysis of this humanities and social sciences literature is guided by an ecofeminist lens which aims to illuminate the problems of human-centredness, noting that the denial of humanities inclusion in and dependency on nature is at the heart of the ecological challenges humans face (Warren & Erkal, 1997). Together this literature highlights the critical role of embodied knowledge practices in dismantling dominant anthropocentric structures and coming into a more embodied sense connection to more-than-human others.

In this chapter, I also highlight important situating insights from First Nations scholarship. Literature from Australian Indigenous scholars Aileen Moreton-Robinson and Margo Neale details the importance of embodied practices, including dance, in Indigenous knowledge systems. With this literature, I provide an important frame of reference for discussing the ways my research seeks to advocate for embodied ways of knowing in recuperating human-environment relations configured by dominant Western/ised anthropocentric perceptions of human separateness from the more-than-human world.

Potent correlations emerge at the intersections of these dance practice and multidisciplinary knowledge worlds. These zones of correspondence are organised into four key frameworks: *Knowing Multiplicity*, *Attending to an In-Motion Condition*, *Recognising Indivisibility at the*

Body-World Threshold, and *Multisensory Ways of Knowing*. Through these transdisciplinary frameworks, I explore how dance practices develop forms of embodied awareness that cultivate understandings of an embodied ecological condition of entanglement within more-than-human ecosystems. These transdisciplinary frameworks enable my research to create critical links between realms of practice, theory, embodiment, knowledge, the human and the more-than-human ecologies. Through these transdisciplinary interconnections, I establish a clear rationale for the relevance of the embodied practice-based methods of dance practice to the problem of reconfiguring dominant human-environment relations and effecting changes in human behaviour in the face of ecological crises.

Knowing Multiplicity: We Are Many (Moving) Parts

Perceiving *multiplicity* has a key role to play in the development of embodied ecological awareness. An awareness of a state of multiplicity involves the capacity to sense, process, analyse, and make choices in the context of multitudes of stimuli, facts, and opinions. It entails a computing power we might associate with the labour of machines, rather than humans. What becomes critical in the face of ecological affairs, however, is the need to make these multitudes matter at an embodied and meaningful scale for the humans involved in ecological destruction and recuperation. Such recuperation requires knowledge practices that create conditions for humans to get close to, to feel and be confronted with, the diversity of impacts, trajectories, outcomes, species, and lives affected in the interconnected multiplicities involved in ecology. In this section, I detail how the practice-based methods of Parkinson cultivate an awareness of an embodied condition of multiplicity (Parkinson & Bigé, 2018). I relate this dance practice awareness of multiplicity to ecocultural understandings of the self and more-than-human

relations as constituted by multiplicity (Milstein & Castro-Sotomayor, 2020). In linking these insights, I explore how an awareness of multiplicity at the body-scale can affect understandings at larger, environmental scales.

With *Experiential Authorship*, Parkinson describes a dance practice method situated in the work of the dancer-performer. Differentiated from the work of the choreographer, Parkinson, writing in collaboration with Bigé, identifies this practice as “the work of attention practised by the dancer—the attending to movement and affect, time and space, touch and tone” (2018, p. 19). Parkinson and Bigé introduce the concept of ‘collective action’ to describe the *multitudes* at play in the event of performance and the *multiplicity* of factors the dancer can be understood to author with. “Even in the simplest of my gestures, I am a cohort of movements that are coalesc-ing: involuntary, voluntary, conscious, and unconscious movements, within us and without us” (Parkinson & Bigé, 2018, p. 20). This framing of the dancer’s action as collective action, or as a cohort of movements, provides a useful framework for understanding the multiplicity the dancer engages with. Some of the voluntary/involuntary, conscious/unconscious components that could be identified as constituting this multiplicity include: the ongoing functions of the body such as the breath and heartbeat; a conscious image or intention that motivates the gesture; a less conscious activation of the dancer’s movement history and their habituated neuro-muscular patterns; and other factors in the body’s internal or external environment, such as a sore joint or a light momentarily blinding their vision. All these factors coalesce, impact, and compose the gesture in the moment of its execution. This field of active multiplicity is sensed simultaneously within the internal environment of the body and the external environment. The dancer’s attention can be understood to dart synchronously and decisively within this web of body-world

collectivity, coalescing immanently in what might be externally perceived as a singular gesture by a singular body.

Of particular interest to this study is the development of an embodied awareness of this condition of *multiplicity*. Parkinson and Bigé identify the involuntary or unconscious factors involved in this collective action as “anonymous movements” and describe how the practice of *Experiential Authorship* “affords the possibility to perceive and refine those anonymous movements” (2018, p. 20). By becoming more aware of the “anonymous movements that support them in their being” (2018, p. 20) the dancer cultivates a more refined perception of the multiplicity constituting their body-world at any given moment. An embodied awareness of this condition of multiplicity gives the dancer agency to negotiate which aspects of this condition of multiplicity are brought forward, cultivated and attended to through action:

Finding plasticity in the border between what I’m included in and what I’m made up of allows a productive gap that produces a particular, specific agency, giving and taking form. This is an ongoing, volatile practice, rife with glitches. (Parkinson & Bigé, 2018, p. 19)

An awareness of oneself as constituted by multiplicity, as a collective of coalescing parts, is a very different schema from which to begin thinking about how humans are enmeshed with the more-than-human world. The embodied awareness of *multiplicity* cultivated through the dance practice method of *Experiential Authorship* corresponds with the conceptualisation of the self developed by ecocultural scholars David Abram, Tema Milstein and José Castro-Sotomayor (2020).

An ecocultural identity is conceived of as forming interdependently with ecological, place-based

relations (Milstein & Castro-Sotomayor, 2020). Selfhood isn't fixed by a set of defined boundaries but affirms and recognises selves "as outrageously fluid composites, composed of so many different voices, [in which] all these different trajectories that flow together here to create 'me' at any moment" (Abram, Milstein & Castro-Sotomayor, 2020, p. 6). This conceptualisation of the self as a fluid collective of intersecting movements resonates with Parkinson and Bigé's practice-based embodied notion of 'collective action'. However, an ecocultural approach emphasises how the *multiplicities* that are constituting the self are shaped by ecological factors as much as cultural factors.

In our ways of construing what it is to be human, we've been leaving out so much of who we are, forgetting our interdependence with so many other shapes and styles of sensitivity and sentience. (Abram et al., 2020, p. 6)

Referring to the prominence of cultural rather than ecological factors in what is dominantly understood to shape selfhood, Abram hints at the importance of cultivating awareness of what might be identified as the undetected 'anonymous movements' that Parkinson and Bigé describe as supporting us in our being (2018, p. 20). Should humans become more aware of, or bodily attuned, to these undetected ecological relations that ongoingly constitute the body/self, recognising these anonymous trajectories of ecological connection might transform how humans perceive themselves: as connected to and made-up by their relations with the more-than-human world.

Further highlighting the importance of the ecological in human-environment relations, Abram (2020) points to how knowledge of *multiplicity* in the environment informs the knowledge

practices of place-based cultures. “Place-based cultures [are] profoundly informed by the unique characteristics of the terrains they inhabit. Even deeply nomadic cultures [are] of place, often exquisitely attuned to the broad bioregions within which they circulate” (2020, pp. 15–16). Abram describes how in non-Western/ised cultures, cultural practices and understandings of selfhood are deeply informed by connection to and knowledge of the situated ecological multiplicities that constitute different regions of the earth.

This awareness of the self as composed of multiplicity and integrated with place-based relations is critical to ecocultural understandings of identity (Milstein & Castro-Sotomayor, 2020). Abram describes how an embodied understanding of multiplicity provides an important locus for perceiving it in more earthly-scaled ecological relations.

... if the cells in my left kneecap were trying to act the same as the cells in my right lung, my body would break down. I wouldn't last very long. Well, just so, if here in the upper Rio Grande watershed we try to live the same way of life that folks are carrying on in the Hudson River estuary, I would imagine that our larger Body would begin to break down.
(Abram et al., 2020)

Abram calls on knowledge of *multiplicity* at the body scale to perceive magnitude, complexity and situatedness in the ecosystems of the planet. He explains, “I’ve begun to think of the Earth as my larger body – of this two-armed and two-legged form as my smaller body, and the Earth as my larger Flesh. It’s also your larger Flesh. It’s the larger Body of each of us, but it’s also the larger Body of the spider, and the larger Body of that aspen tree” (Abram et al., 2020). In summoning the bodies' condition of fleshy mortality, Abram makes the multiplicity and

connectedness of planetary ecosystems relative and mappable to the locus of the body. Creating a direct embodied correlation upon which to place and differentiate the multitudinous character of ecosystems has implications for how this information is fathomable and *feel-able* in the human realm.

If this planet-like-body schema that Abram describes is enriched by an already in-practice awareness of the human body as a ‘collective of actions’ (to invoke Parkinson and Bigé again), then such understandings get closer to fathoming the multiplicities that truly constitute ecologies. If humans are alert and attentive to the possibility of the ‘anonymous movements’ that contribute to these multiplicities (but hide out of plain sight), then the embodied awareness of *multiplicity* developed via Parkinson and Bigé’s dance practice methods has implications for how humans are able to perceive and relate to multiplicity at ecological scales.

The embodied awareness cultivated in the *Experiential Authorship* practice equips the dancer/individual with skills for perceiving and working within a field of multiplicity. These skills underpin that individual's capacity to sense and understand multiplicity in their internal and external environment. Abram, Milstein, and Castro-Sotomayor show that an embodied awareness of multiplicity supports understanding of how environments are constituted by difference and multiplicity, and enables humans to feel themselves as interlinked with the multitudes that compose the more-than-human world.

Ecology as Process: Attending to an In-Motion Condition

Perceiving the body as a dynamic process amongst a dynamic *in-process* world has significant

ramifications for how humans understand themselves as involved in and affecting broader ecological systems. Ecology, philosophy, feminist, and ecocultural perspectives from Carson, Latour, Haraway, Butler and Abram outline conceptualisations of the body and the world as dynamic and agential. Cultivating skills for perceiving this condition of dynamism or instability ruptures dominant anthropocentric patterns of assuming inertness in one's environment and fosters an understanding of humans as not separate from or superior to the non-human world, but thoroughly interdependent with it. Discussing the dance practice methods of Halprin and Paxton, while also looking to Indigenous knowledge systems for how movement affects the embodiment of knowledge (Neale & Kelly, 2020), I demonstrate how practice-based approaches to embodiment train the *kinaesthetic sense* and provide practical tools for attending and relating sustainably to the *in-motion* ecological condition of the more-than-human world.

We spray our elms and the following springs are silent of robin song, not because we sprayed the robins directly but because the poison travelled step by step, through the now familiar elm-leaf-earthworm-robin cycle. These are matters... [that] reflect the web of life — or death — scientists know as ecology. (Carson, 1965, p. 169)

Carson's *Silent Spring* anchors this exploration of the role of movement in ecology (1965). From the poison that travels step by step, Carson describes how the in-motion character of ecology means that effects reverberate through different, seemingly separate or far away parts of ecosystems. Carson emphasises that humans are not separated from, but deeply embedded in, these ecological movements of the web of life. Noting how ecological movements transgress the body's border and continue inside the body, Carson describes:

In this unseen [interior] world minute causes produce mighty effects; the effect moreover, is often seemingly unrelated to the cause, appearing in a part of the body remote from the area where the original injury was sustained... A change at one point may reverberate throughout the entire system to initiate changes in seemingly unrelated organs and tissues. (Carson 1965, p.169)

The dynamic, interconnected character of ecological relations, within and beyond the body, means that a change in one part of a system is never static or isolated, but reverberates through interconnecting parts of the ecosystem, giving rise to often multiplying paths of impact. Carson points out the invisibility of many of these processes which often only come to the fore when a seemingly unrelated problem emerges. The question then becomes, how do we attend to such a continuous state of relational movement occurring in the ecological systems that flow between the body and the world? How do we pay attention to these motions and unbounded continuations between human and non-human bodies when the body-world's constant processes of living often recede from our attention to become a seemingly invisible or inert backdrop to human life?

Latour claims that this backgrounding of the world's movement is an anthropocentric tendency that allows non-human entities to be assumed inert while human entities are endowed with agency (Latour, 2017). He describes how when we “come close to nonhuman beings, we do not find in them the inertia that would allow us, by contrast, to take ourselves to be agents but, on the contrary, we find agencies that are *no longer without connection* to what we are and what we do” (Latour, 2017, p. 62).

When we claim that there is, on one side, a natural world and, on the other, a human

world, we are simply proposing to say, after the fact, that an arbitrary portion of the actors will be *stripped of all action*... to gain in realism, we have to leave aside the pseudo realism that purports to be drawing the portrait of humans parading against a background of things. (Latour, 2017, p. 58)

Latour puts forward an understanding of the non-human-world as *acting* and *agential*, full of lively forms of action and intent. He encourages an understanding of human activity as enmeshed with and not separate from, or superior to, the forces, agencies and vectors of the non-human world. Correspondingly, with the concept of ‘situated knowledges’ Haraway, describes how enquiries into the world should picture objects of knowledge as acting and agential, as well as uniquely situated and relational, rather than as unconnected passive or inert things. Haraway describes how such presumptions of inertia lead to perceptions of the world as fixed and determinate, making it more readily reducible to the status of a resource that can be instrumentalised for the projects of destructive Western societies (Haraway, 1988, p. 592). Haraway’s and Latour’s theories insist on an understanding of the world as active and agential, knowable only by getting as close as possible to and thoroughly mixed up with the web of processual relations affecting a particular entity as they act and are acted upon. Their accounts of this worldly agency recognise that any approach to understanding non-human entities is bound up with the methods humans have for perceiving and valuing the moving, agential character of the world.

Butler brings aligned understandings of the body as an in-process to this discussion. Butler insists the material character of the body is not inert or a priori to the body's inscription with sociocultural and gendered signification (Butler, 2011, p. 6). She instead emphasises the always-

in-process, *materialising* character of the body, which is perpetually constituted and disciplined by the practices of the world it exists in (Butler, 2011, p. 7). Necessitating an awareness of the conditions which ongoingly shape and inform an individual's being, Butler's conception of the materialising character of the body highlights the dynamic, in-process character of the body's relationship to the world.

Describing a corresponding understanding of the body as dynamic and relational, Abram offers an ecocultural lens that focuses attention on the ramifications of this in-motion condition for how bodies experience and absorb information about the world.

The sensuous, breathing body is... a dynamic, ever-unfolding form, more a process than a fixed or unchanging object. As such, it cannot readily appropriate inert "facts" or "data" (static nuggets of information abstracted from the lived situations in which they arise). Yet the living body can easily assimilate other dynamic or eventful processes, like the unfolding of a story, appropriating each episode or event as a variation of its own unfolding. (Abram, 1996, p. 120)

Abram's conceptualisation of embodiment as unfolding and in-process highlights the importance of 'dynamism and eventfulness' in the kinds of information and communication processes through which humans absorb information about the world. Knowledge practices that are enlivened and engaged with the in-motion condition of the world are more readily assimilated in a dynamic, unfolding body.

Drawing together these ecological, philosophical, feminist, and ecocultural perspectives animates

a dynamic, processual and in-motion understanding of the world and its lively relation with an equally dynamic embodied condition. The question then becomes what forms of knowledge and knowledge practices might best communicate within and about such an in-motion condition? Dance knowledges have a fundamental relationship to motion. The dance practice of methods of Halprin and Paxton, as well as non-Western embodied knowledge practices such as Australian Indigenous Songlines, demonstrate how embodied movement practices develop forms of awareness grounded in an understanding of the body as a dynamic process attuned to, and working in concert with, the *in-motion condition* of the world.

Halprin placed particular emphasis on cultivating an embodied awareness of how the body and the surrounding environment perpetually affect one another through movement. In early recounts of her *Movement Ritual I* practice, Halprin details her methods for tuning the *kinesthetic sense* (1979, p. 31). She describes processes of inhibiting the other senses through the use of a blindfold, exploring one's movement, and then translating these sensations of movement into drawings or writing (Halprin, 1979, p. 32). She also details simple exercises that involve exploring pushing and pulling, lifting and dropping, to become more attuned to the forces of gravity, inertia and momentum acting through the body's relations to its surroundings (Halprin, 1979, p. 33). Halprin describes:

The kinesthetic sense has end-organs and nerve endings in our muscles, tendons, ligaments, bones and joints that make it possible [to] know our body placement in space and our body directions. All of these are part of our proprioceptive nervous system... If you can imagine what it would be like to live without a kinesthetic sense, imagine how exciting and ALIVE you would be if your kinesthetic sense were to be heightened and

cultivated way beyond its present consciousness. (Halprin, 1979, pp. 31–32)

Halprin's account of the kinesthetic sense, and its cultivation of an awareness of gravity, inertia and momentum, understands the body as a moving continuation of the moving world around it. The quality of 'ALIVE-ness' Halprin allocates to the kinesthetic sense correlates not with the dancer's strength or power to move their own self-contained body, but rather their capacity to become integrated in the movement condition of their more-than-human environment, sensing and deepening their participation in the motion of the world.

Halprin's approach does not posit an animate, self-propelled dancer moving in front of an inert backdrop or environment. Rather, it describes attunement to motion occurring in and around a body which participates in and coordinates its movement with these external forces. This potentially critical reorientation prioritises action and agency in the more-than-human world, resonating with the perspectives of Latour and Haraway. Halprin's practice identifies movement as the environmental condition in which the human/dancer participates. Troubling the anthropocentric schema that Latour critiques, of an animate human acting in front of an inert world, this dance practice way of knowing kinesthetically embodies an awareness of a world of animate forces.

Halprin's methods for working with this *in-motion condition* through exploratory, improvisational processes influenced the proceeding generation of artists associated with the Judson Dance Theater, and what is often referred to as the Postmodern turn in Western modern dance culture (Banes, 2011; Forti, 1974). Paxton, a key practitioner in this turn, developed dance practice methods (most notably Contact Improvisation) for developing awareness of the body's

dynamic relation to the world. For example, Paxton's *Small Dance* practice², which was developed in the 1970s, invites the individual to stand still and to notice the minute movements of the body's proprioceptive system as it moderates its relation to gravity and its own uprightness (Paxton, 2009; Turner, 2010). Paxton describes, "what is happening in standing is that you are looking at your reflexes hold you up... you just hang out there and you start to feel the event that is holding you upright, that is keeping you from falling" (2015). Revealing the impossibility of stillness and the constancy of the body's processual responsiveness to its surroundings, the practice makes a zero point, an entering into movement from a condition of non-movement, no longer possible.

In what might be recognised as a moment of approaching the limit of this impossibility of non-movement, in the early 2000s many contemporary dance commentators noted that dance had ceased to move. Dance scholars André Lepecki (2006) and Bojana Kunst (2015) address the advent of minimal or suspended movement in the choreographic works of this period and describe some commentators' frustration with the loss of dance's expression of life force and individual freedom through self-propelled movement. They attribute the removal of movement to the choreographers' desire to reveal Capitalism's state of hyper-movement and immerse audiences in situations characterised by a lack of production (Kunst, 2015; Lepecki, 2006). Lepecki and Kunst respectively describe how the interruption of motion forced the spectator to become aware of their own movement condition and reflect on the sped-up hypermobility of

² I first engaged with Paxton's *Small Dance* practice during a dance class taught by Perth-based Contact Improvisation practitioner and choreographer Jacob Lehrer as a graduating student at the West Australian Academy of Performing Arts in November 2007. I later encountered the practice during a Contact Improvisation jam warm-up led by Paxton in July 2008 at the Ponderosa Dance summer workshop series in Stolzenhagen, Germany. These embodied knowledge experiences are contextualised here by further accounts of the practice from Paxton (2009), Turner (2010), and Paxton and Giebink (2015).

their world. Even in this extreme example of limiting movement in dance performances, we find dance practice operating in a manner that generates a deeper awareness of the body-world's movement condition.

Beyond the canon of Western dance practice, there are critical insights from Indigenous knowledge practices which describe how embodied engagement with this *in-motion condition* of the body-world affects the formation and transmission of knowledge. Returning to the proposition that movement has an important role to play in how humans process knowledge about their world, Abram states that dynamism and eventfulness play a critical role in the knowledge processes of oral cultures (1996). In discussing the role of dance and performance in Australian Indigenous Songlines, Indigenous scholar and curator Margo Neale and non-Indigenous science writer Lynne Kelly describe how dance enhances memory and knowledge transmission. They describe Songlines as an embodied knowledge system in which “knowledge is carried by the human body and transmitted to others, primarily through performance” (Neale & Kelly, 2020, p. 84).

Enacting knowledge hugely increases recall, especially when the movement is in the form of dance accompanying song. It is a whole-body transmission where the message is conveyed through sound, rhythm, tone, body action, beat and words... Dance also involves exercise. Neurogenesis is the creation of new neurons, which enhances the brain's plasticity. Exercise enhances neurogenesis, so performing knowledge is the optimum way to engage the brain in storing new information for the long term. (Neale & Kelly, 2020, p. 92)

Neale and Kelly's collaborative study identifies how the role of movement and embodiment enables exhaustive knowledge of Country. Further reflecting Abram's statement, they detail how eventfulness and dynamism in the form of story and ceremony means that vast archives of knowledge, encompassing science, law, and religion, are effectively communicated and kept alive through a practice of embodying knowledge.

Indigenous people's use of the landscape is enhanced by the fact that a sequenced story emerges as you move through the spaces, and the story is further enhanced by the use of song and movements, including dance. This vivid knowledge space is then reproduced in art and repeated through ceremony. As every performance is slightly different, the brain is constantly exposed to novelty. There is emotional investment in the performance, but also times when singing the names evokes imagination to revisit the story. (Neale & Kelly, 2020, p. 89)

Neale and Kelly's analysis of the role of movement in making the knowledge about the world within Songlines embodied, memorable and transmissible over thousands of centuries, carries important ramifications for the role of movement in how humans are able to incorporate and value information and communicate it to others. Where inert facts and data seem to fail to resonate and mesh with the body's ecology in a meaningful way (Abram, 1996), Australian Indigenous Songlines demonstrate a sophisticated methodology where storytelling through performance and dance inscribe knowledge in a highly embodied and thus memorable manner.

In recognising the fundamentally *in-motion condition* of the body and the world and the role dynamism plays in human knowledge processes, these accounts highlight the potentially

transformative implications of awareness of movement in the body-world. Dance practice methods demonstrably cultivate an awareness of this in-motion condition, be this through the tuning of the kinesthetic sense via the methods offered by Halprin or Paxton, or through an alertness to a state of movement such as that cultivated during performances discussed by Kunst and Lepecki. Furthermore, Abram, Neale and Kelly offer key insights into the ways movement is also bound up with memory, meaning and the embodiment of knowledge. In discussing Australian Indigenous and other oral cultures, they detail embodied practices of knowledge sharing where information isn't held in devices external to the body, but ingrained in the nervous system in ways that are relational and accessible. Consequently, embodied practices that not only develop an awareness of the in-motion condition of the world but harness the capacity of movement to make knowledge impactful and memorable at the embodied site, must be central to a discussion of how humans reconnect to a felt sense of interdependence with the ecological and, therefore, changing character of our earthly home.

Recognising Indivisibility at the Body-World Threshold

Dance practices develop forms of awareness that perpetually attend to the internal and external environments of the body and incorporate them in a field of interconnected embodied attention. In this section, I highlight how this form of awareness develops particular skills for paying attention to the zone of contact, exchange and influence between the body and the world. Insights from the trans-corporeal and ecocultural theory of Alaimo, Milstein and Castro-Sotomayor point to the ecological implications of developing an awareness of this *threshold* zone between the body and the world. Meanwhile, Moreton-Robinson (2013) provides an important Indigenous standpoint insight from which to consider how this *threshold* is a

Western/ised anthropocentric culturally constructed borderline. The dance practice methods of Parkinson, Halprin, and Nelson demonstrate forms of embodied awareness that actively crisscross this border zone and integrate information about the body's exterior and interior worlds. As such, dance practice methods offer important embodied knowledge practices for attuning to this *body-world threshold* and cultivate hyper-awareness for the continuances rather than exclusions it fosters.

Parkinson outlines a three-step process through which she perceives dancers come into an awareness of their embodied interconnection with their more-than-human surroundings (Parkinson & Hilton, 2020). She describes how firstly the dancer becomes self-conscious and develops a deeper understanding of the particular nature of their body, their individual tendencies and ways of working. This enables the second step of self-awareness, an understanding of how one relates to or is different from others and their surroundings. This leads to a third step, a heightened awareness of the world around them and an ability to form embodied connections with their environment as they work (Parkinson & Hilton, 2020).

In a corresponding manner, Alaimo offers a theoretical framework for valuing the ethical possibilities arising from an embodied awareness that extends into and incorporates one's environmental context. Through the concept of trans-corporeality Alaimo discusses the interconnectivity of the sites of the corporeal and the environmental and the ethical ramifications of foregrounding this connectivity:

Corporeal theories and environmental theories meet and mingle in productive ways... the movement across human corporeality and nonhuman nature necessitates rich, complex

modes of analysis that travel through the entangled territories of material and discursive, natural and cultural, biological and textual. (Alaimo, 2008, p. 238)

Alaimo's framework of trans-corporeality spreads perceptions of the corporeal into the surrounding world and thus expands bodily ethics into this more-than-human space (Alaimo, 2008, p. 238). In making the corporeal transient, the body becomes an activated, expanded place, one that is necessarily enmeshed with other species, materials, and forces. By emphasising interchanges and interconnections between the corporeal and the environmental, trans-corporeality "makes it difficult to pose nature as a mere background for the exploits of the human since 'nature' is always as close as one's own skin" (Alaimo, 2008, p. 238). As such, trans-corporeality provides a framework for perceiving a thickened zone of contact and exchange between bodies and environments. In further unpacking how the procedural methods of dance practices cultivate a sense of connectedness with ecological surroundings, trans-corporeality provides a useful theoretical framework for valuing and rethinking how humans are interconnected with the more-than-human world.

Where Alaimo's theory extends corporeal ethics into the world beyond the body, Milstein and Castor-Sotomayor's theory of ecocultural identity requires that we understand how the corporeal is formed by place-based factors and how humans in turn shape and impact the more-than-human world (Milstein & Castro-Sotomayor, 2020). Foregrounding the role of environmental relations in the formation of human selfhood, an ecocultural framework explains humans as both "cultural and ecological beings" (Milstein & Castro-Sotomayor, 2020, p. xvii). Identifying all creatures, human and non-human, as being both ecological and cultural beings, Milstein and Castro-Sotomayor state that "for an increasing majority of humans, it seems as if our ecological selves

have become steadily less accessible” (Milstein & Castro-Sotomayor, 2020, p. xvii). Milstein describes how this separateness between the cultural and the ecological is socially conditioned:

With each decision to do or not do... one crosses an invisible but visceral ecocultural borderline... [I]n a wide range of Western/ized spaces, individuals sense consequences attached to transgressing the boundaries of anthropocentric identity. (Milstein, 2020, p. 44)

Moments of experiencing connectedness to more-than-human others are understood as disciplined by dominant anthropocentric limits. Milstein identifies events of ecocultural connection as experiential *border crossings* beyond the human self; as fleeting transgressions outside of the anthropocentric world (Milstein, 2020). She describes how these transgressions “undiscipline” the culturally disciplined norm of anthropocentric separateness from nature which gives rise to a densely interconnected and dynamic framework for perceiving body-world relations (Milstein, 2020).

We are made-of, part of, emerging from and constantly contributing to both ecology and culture — producing, performing, and constantly perceiving and enacting through both (Milstein and Castro-Sotomayor 2020, p. xix).

Milstein and Castro-Sotomayor’s description of ecocultural identity is rich with movement, exchanges, becomings, dissolutions, and awareness that spreads through tangential webs of connection between worlds of the cultural and ecological, the corporeal and the environmental. An ecocultural understanding of identity and trans-corporeality offers theoretical frameworks for

perceiving a field of interaction and effect between the body and world which transform dominant Western/ised understandings of the cultural and corporeal human as operating in isolation from the environment.

These understandings resonate with the way several First Nations scholars explain interconnections between humans and the earth in Indigenous knowledge systems. Moreton-Robinson's outline of an Australian Indigenous ontology demonstrates a worldview in which humans and the earth are indivisible.

Because the ancestral spirits gave birth to humans, we share a common life force, which emphasises the interconnectedness of humans with the earth rather than our separation. The ontological relationship occurs through the inter-substantiation of ancestral creator beings, humans and country; it is a form of embodiment based on blood line to country. (Moreton-Robinson, 2013, pp. 340–341)

Moreton-Robinson highlights how the ways of knowing that emerge from such an ontology foreground respect for and understandings of, the fact that other beings have inherently different ways of knowing.

One is connected by descent, country, place and shared experiences where one experiences the self as part of others and that others are part of the self; this is learnt through reciprocity, obligation, shared experiences, co-existence, co-operation and social memory... This is the anti-thesis of being a knower within the patriarchal confines of the academy, which privileges disconnection and the individualist pursuit of knowledge.

(Moreton-Robinson, 2013, p. 341)

Moreton-Robinson's insight illuminates how the ontological interdependence of the body/earth is such an a priori, such a given reality in Indigenous Knowledge systems, that she is at pains to stress the difference between Western projects of advocating for body/earth connection (such as this one) and the Indigenous lived experience of such an embodied reality. However, thinking alongside the Indigenous ontology of indivisibility in the body/earth that Moreton-Robinson details, as well as the embodied ways of knowing and acting necessitated by it, which Moreton-Robinson also describes as placing particular emphasis on artmaking and cultural practice within the everyday (Moreton-Robinson, 2013, p. 343), has important ramifications for valuing the embodied knowledges that cultivate such understandings of indivisibility between the body and world.

Highlighting the political and ethical implications of body-world interconnectedness, Moreton-Robinson's explanation of Indigenous human/earth invisibility and Milstein's and Alaimo's theories of trans-corporeality and ecocultural border crossings, together foreground how an embodied knowledge of the condition of human interdependence with the more-than-human is antithetical to Western knowledge practices founded in perceptions of human separateness/superiority. The embodied knowledge developed in contemporary dance practices cultivates a form of awareness that hovers in this *body-world threshold* zone, and in doing so reveals the culturally constructed nature of perceptions of this separateness. The methods of North American dance-maker and improviser Lisa Nelson, along with the practices of Halprin, offer procedural methods in which this *threshold* zone is actively transformed into a web-like perceptual field that dynamically incorporates the dancer's internal and external worlds.

Nelson's *Tuning Scores* practice-based methods involve rigorous processes for synchronously tuning one's attention to the body and its surroundings. Nelson uses a fitting term "attentionography" to describe the embodied awareness of the dancer which moves dexterously between stimuli in the internal and external environment:

...tasting the sensation of the movement of our attention—the *attentionography* of the body. Practices include tuning the senses to follow features in both the inner and outer environment, measuring stillness and movement through each of the senses, and shifting from sense to sense and sensing to action. (Nelson, 2014, p. 4)

Nelson describes processes of rigorously attending to one sense and then another, tuning these senses to notice discreet details such as the difference between stillness and movement. Methodically inhibiting and tuning the body's different sensing systems, the practice cultivates sensory attunement to one's internal body environment and external more-than-human environment. With 'attentionography', Nelson describes a practice-based method for sensing how the body's own lively sensory ecology extends to, connects with and incorporates the lively ecology of the environment. In what we might identify as an 'attentionography' of ecocultural border crossings or web of trans-corporeal attunement, the dancer's attention shoots along unbounded continuances, linking the internal and external ecologies of the body-environment. In this way, the *Tuning Scores* offer dance practice methods that can be understood to disrupt or "undiscipline" (Milstein, 2020) dominant anthropocentric perceptions of a rigid boundary between the human and the more-than-human world.

Halprin's environmentally engaged dance practice methods also cultivate forms of embodied

awareness grounded in perceptions of the body as an unbounded continuation of the environment.

As a dance artist, I am propelled towards the natural world by three beliefs. One is the notion that the human body is a microcosm of the earth... Our bodies are composed of the same elements as the earth...The elements that make up our bones also make up stones. Our heart works the way rivers, streams, brooks or tributaries return water to the ocean.... (Halprin, 1995, pp. 215–216)

For Halprin, this recognition of interconnection between the materials of the body and those of the environment was critical to her life's work of developing what might be identified as an *ecocultural* or *trans-corporeal* practice of embodied ecological awareness. In an emerging awareness that mirrors the three phases outlined by Parkinson, Halprin recounts how deepening embodied awareness led her and the artists she was working with to the perception of their ecological connection with the environment. She notes that “strict attention to self-awareness, kinesthetic response, and each other” led to “extend[ing] our focus to adaptive responses in the environment” (1995, p. 81). Halprin further describes how her work in nature did not seek to represent or use nature as a backdrop, but rather she was interested in “identifying with nature’s basic processes”(1995, pp. 216–218), and finding resonances with the natural world through an embodied form of connection. In recounting her *Earth Dance* practices such as a blindfolded walk in nature, Halprin describes how the senses became tuned to different sensations, particularly sounds, such that environmental stimuli became the sole focus of the attention (Halprin, 1995, p. 218).

Halprin's work generated eco-centric, rather than anthropocentric, approaches to the body and human-environment relations. Dance studies scholar Janice Ross describes how Halprin instigated developments that critically reorientated the role of the artist, noting Halprin established "a different dynamic between environment, artist and art, in which the individual was no longer at the centre of the world" (Ross, 2009, p. 72). This radical decentring of the artist-self toward art experiences that made the more-than-human world more apparent, that gave rise to audience/participant experiences of greater connection with their environment, indicates a critical reorientation that resonates firmly with the ethical and political agendas of Alaimo's theories of trans-corporeality and Milstein and Castro-Sotomayor's ecocultural Identity. In foregrounding experiential practices that connected humans to their more-than-human surroundings, Halprin's practice can be understood as a harbinger of an important turning point in artistic practice, centring the embodiment experience of the participant/audience rather than the presentation of the artist or the artist's ideas.

Nelson's and Halprin's dance practice methods saturate oneself in an awareness tuned to the web of material and sensorial exchanges and interconnections animating the threshold between internal and external worlds. Their practices give rise to a form of awareness that expands to include and even prioritise movements, materials, and rhythms in the environment. Dominant anthropocentric norms of human and environment separateness are 'undisciplined' by this thickened dynamic web of body-world entanglement and embodied approaches to knowledge give rise to insights that perceive an ecological condition of human/earth indivisibility that resonates with Indigenous ontologies.

This transdisciplinary analysis of the intersections between the experiential outcomes of dance practice methods, the aims of ecocultural and trans-corporeal theory, and the positionality of Indigenous knowledge systems highlights the transformative potentiality of embodied approaches to knowledge. The dance practice methods discussed cultivate awareness of exchange and interconnection across the *body-world threshold* and can be understood to cultivate a form of embodied awareness that enables humans to sense themselves as thickly enmeshed with the more-than-human world. Therefore, the embodied awareness cultivated through dance practice has the capacity to disrupt, or even ‘undiscipline’, dominant human-centred norms and develop understandings of the condition of ecological embeddedness in which humans are vulnerable to, and interdependent within, the more-than-human ecological world.

Perceiving the Perceptible: Multisensory Ways of Knowing

The senses shape what humans perceive and culture shapes what sensory information humans perceive and privilege (Banes & Lepecki, 2007). In this section, I discuss how *multisensory* ways of knowing are developed through dance practice methods. I address how performance studies, along with feminist and ecocultural theory, call on multisensory ways of knowing in order to disrupt dominant, anthropocentric, Western/ised knowledge practices. Critiques of the dominance of the visual sense and the attunement of the neglected senses are described as generating new ways of perceiving and valuing connection with the more-than-human world. The capacity of dance practices to cultivate *multisensory* awareness and engender experiences of heightened connection with one’s environment is drawn into sharp focus by further analysis of Nelson’s *Tuning Scores* dance practice methods.

Banes and Lepecki highlight the role of the senses in delineating “what emerges within the field of attention and what remain[s] unremarked” (2007, pp. 2–3). The capacity for worldly phenomena to become apparent, to emerge within the field of human perception, changes as humans use of their senses shifts in relation to dominant cultural practices (Banes & Lepecki, 2007, pp. 2–3). Discussing Walter Benjamin’s analysis of the role of technologies such as film and photography in historically fabricating the dynamics of the senses, Banes and Lepecki describe how “the manner in which human sense perception is organized... is determined not only by nature but by historical circumstances as well” (Benjamin, 1988 cited in Banes & Lepecki, 2007, p. 4). They argue that “the cultivation of neglected senses, such as vestibular, haptic, proprioceptive and kinaesthetic” senses, can “rupture dominant cultural ways of knowing and (lead) to a new bio-politics for how humans relate to their environment” (Banes & Lepecki, 2007, p. 1). This recognition of the potentially transformative nature of the haptic, kinesthetic and proprioceptive sensory systems, which are specifically cultivated in dance practices, suggests that embodied *multisensory* knowledge might play a key role in reconfiguring how human beings sense and thus value the world around them.

Banes and Lepecki’s suggestion that cultivating the *neglected sensory systems* can reconfigure human-environment relations is echoed by Haraway’s ecofeminist critique of the way scientific practices privilege the visual sense:

We seek not the knowledges ruled by....disembodied vision. We seek those ruled by partial sight and limited voice, not partiality for its own sake but, rather, for the sake of the connections and unexpected openings situated knowledges make possible. (Haraway, 1988, p. 590)

With her theory of situated knowledges, Haraway critiques how the *distance* allowed by the visual sense enables (especially science) authors of knowledge to presume a position of objective neutrality in relation to their discoveries and become disembodied from the specifics of their situated relation to the earthly objects they study. Situatedness requires acknowledgement of a limited view from somewhere, rather than nowhere (Haraway, 1988, p. 584). In highlighting the inadequate assumption that the visual sense represents objectivity in knowledge practices, Haraway advocates for the importance of more situated, embodied, and *multisensory ways of knowing* and describes these as the “semiotic-material technology [that links] meaning and bodies” (Haraway, 1988, p. 585). Attunement to the non-visual senses, particularly the *neglected* haptic and proprioceptive sensory systems identified by Banes and Lepecki and cultivated in dance practices, might just be the semiotic-material conduits for linking these meanings and bodies.

Abram describes how, rather than emphasising *distance* or separation between an individual and an object in the world, the visual sense can, through a phenomenological lens, be understood to bring humans *into contact* with things at a *distance*. He states, “In contrast to touch and proprioception... and the chemical sense of taste and smell, seeing and hearing regularly place us in contact with things and events unfolding at a substantial distance from our own visible, audible body” (Abram, 1996, p. 128). Through the phenomenon of synesthesia, Abram also explains how these distal and directly-contacting senses overlap and intertwine at the site of the perceived object: “the divergent parts of myself are drawn together by the object, and thus I meet up with myself *over there*, at that tree or that spider on which I focus” (Abram, 1996, p. 126). A collaboration of the different senses occurs, sonic inputs reverberate as a texture felt against the

skin and a substance viewed from a distance tingles on a certain zone of the tongue; the sensing body comes into immanent contact with the world it perceives.

Drawing on the phenomenological theory of Merleau-Ponty, Abram describes how the senses animate a crisscrossing matrix, or “chiasm”, of connection between the perceiver and the world such that the perceiver can be understood to momentarily participate in the sensual nature of another’s existence (1996, p. 128).

...this interplay of the different senses is what enables a chiasm between the body and the earth, the *reciprocal participation* — between one's own flesh and the encompassing flesh of the world — that we commonly call perception. (Merleau-Ponty cited in Abram, 1996, p. 128)

Abram identifies the different capabilities of the senses and the phenomenon of synesthesia as key to experiences of this ‘reciprocal participation’. One’s sensory systems crisscross and transform sensory data in such a manner that the gap in experience between the perceiver and the perceived is filled-in in such a way that one sensuously experiences *being* as the other does. Such embodied experiences of contact or proximity with the more-than-human world explicitly trouble anthropocentric ideas of human separateness from the environment. Echoing Banes and Lepecki, Abram states, “if we no longer experience the earth as expressive and alive, this can only mean that the animating interplay of the senses has been transferred to another medium, another locus of participation” (Abram, 1996, p. 131).

In describing the significant cultural shift away from embodied oral knowledge to written-down

knowledge in Western/ised cultures, Abram notes a departure from *multisensory* attunement to the more-than-human world toward a more narrowed sensory participation in the world of the written word. With their collaborative scholarship, Neale and Kelly (2020) provide a resonant insight into the function of embodied multisensory knowledge practices in Indigenous epistemologies. They describe how the transformation of a bodily state, through kinesthetic and synesthetic forms of multisensory embodied intensity that occurs during ceremonies, creates new neural pathways for remembering knowledge (Neale & Kelly, 2020, p. 87).

The brain is particularly good at associating memories with music, dance and art, and it is spectacularly good at associating memory with places. And it needs novelty: your brain simply doesn't remember things that are abstract or dull. Exploring the cognitive elements that are active when Indigenous people engage with their Songlines is very revealing. Each element of the performance of the Songlines can be linked to specific valuable neurological processes. In combination, these elements form a powerful knowledge system applicable to any human brain. (Neale & Kelly, 2020, p. 87)

Neale and Kelly (2020) detail how multisensory stimulation that saturates and physically incorporates the body brings necessary definition and 'novelty' to understandings of the world. They describe how this 'novelty' literally configures new connections within the body to incorporate this information as materially embodied new knowledge.

While Banes and Lepecki point to the culturally conditioned nature of the senses in allocating what is perceived and valued in certain periods of human history, they also identify that this privileging of some senses over others exposes the possibility of other potentially transformative

ways of sensing the world (2007). Their proposal leaves open the door for exploring what forms of more-than-human participation might emerge from an attunement of the neglected senses, especially those that run deeply throughout the body's fleshy mass. The *Tuning Scores* of Nelson (2014) demonstrate a practice-based method that rigorously attune these neglected senses to generate a thickly multi-sensorial form of embodied awareness and connection to the more-than-human-world.

In a clear example of multisensory attunement to the body-world environments, Nelson recounts the event of a group improvised performance. Reverberating with sharpened haptic, proprioceptive and kinesthetic systems and the synesthetic crisscrossing interplay of the senses Abram describes, Nelson scribes the virtuosic movements performed by her senses as they connect to, and activate relations with, the other performers and the environment.

The weight of attention rolls into the space in front of us... My senses stream out in all directions at once. An expectant tone tints the silence... An abrupt *shh shh* passes behind me. The soft sound of fabric brushing on fabric. Then a quick dry *slap slap* of bare soles meeting the floor... my eyes are stalking her heels. I notice I have leaned forward. Or I notice I have begun (Nelson, 2014, p. 1)

With this tracing of her 'attentionography', Nelson recounts how internal and external environmental stimuli fill her attention, ricocheting off and activating one sensory system, then another. Such is Nelson's saturation within multisensory stimuli that it is only with a sense of hindsight that she notices she has leaned forward, that she has begun (Nelson, 2014, p.1). Her voluntary action reads as an affective consequence, caused or set-in-motion by her multisensory

attunement to her surroundings.

In her explanation of the practice-based components of her *Tuning Scores* methods, Nelson describes how bringing neglected sensory systems into sharper alignment with the dominant visual sense undoes habitual ways of relating to one's surroundings. New, and more resonant, tangents of connection between the body-world vibrate into prominence.

By altering the way we use our senses while moving and watching movement, we can begin to tease apart the innate and acquired movement patterns our senses use to construct our experience. We look at the ways these patterns influence how and why we move, shape our interaction with our inner and outer environments, and inform our desire for action and what we see when we are attending to anything. (Nelson, 2014, p. 4)

Nelson's *Tuning Practices* are a form of solo warm-up which cultivate this multi-sensory form of awareness and prepare one for the more group-based and performative aspects of her practice known as the Tuning Scores. The Tuning Practice warm-ups involve methodically inhibiting and tuning the different senses.

The warmups are a pre-technique that any body can do: provoking sensation in the body by organizing one's movement to touch skin, bones, muscles, eyes, ears with the contents of the environment; sampling the feedback afforded by local conditions of the space and our own movement; tasting sensations entering and exiting the body's theater of awareness; tuning to the speed of listening; and locating one's appetite for movement, stillness, and dancing. (Nelson, 2014, p. 4)

Nelson describes a methodical process of tuning up these neglected sensory systems to cultivate a heightened state of multisensory awareness which interconnects her bodily conditions with her local environmental conditions. Nelson's outline of her *multisensory* practices of attunement and experiential accounts of performance provide compelling insights into the hyper-sensitised multisensory awareness of the dance practitioner. Fleeting actions, tiny textural details, and the synchronous interplay of the senses are experienced as distinct, taste-able, magnified and significant. Far from assuming inertness in, or separateness from, their environmental surroundings, the dancer's multisensory attention seems to vibrate with its embodied connection to the materials and forces of the more-than-human world in which it senses itself deeply embedded.

The coming-into-contact with the more-than-human world documented in Nelson's dance practices resonates strongly with another multisensory theoretical framework, provoking further contemplation of the political and ethical implications of foregrounding the neglected sensory systems. Science and technology scholar Puig de la Bellacasa, invites the consideration that all relating is touching (2017, p. 113). Bringing the *haptic sense* of direct embodied contact to the fore, Puig de la Bellacasa explores the reversibility of touch, identifying that to touch is always to be touched (2017, p. 113). Puig de la Bellacasa troubles how agency is allocated in human and non-human relations, noting that a universe that always touches back carries different ethical implications: "what we do in, and to, a world [that] can come back and re-affect someone somehow" changes what we might do in, and to, that world (2017, p. 115).

Building on the possibilities of synesthesia discussed by Abram —the potential of the body to

react with multiple organs and channels of sensation (Abram, 1996, p. 126) — and Haraway’s semiotic-material technologies for linking bodies and meanings, Puig de la Bellacasa stretches this conceptualisation of relations-as-touch to encompass thought-as-touch and vision-as-touch: “...thought is a material embodied relation that holds worlds together, touch intensifies awareness about the transformative character of contact” (2017, p. 115). This seeing/thinking-as-touching means that knowledge, ideas, decisions, understandings, images, and viewpoints get involved in physically contacting bodies and directly affecting how they feel and act. Where Abram’s multisensory synesthesia leads the body into a closer, more participatory engagement with other objects of the world, Puig de la Bellacasa’s revisioning of worldly relating as touching describes how touch carries significant ethical implications and a sense of responsibility to the other that is touched. One gets distinctly more involved in the consequences of relating.

Multisensory awareness makes the ecological immanently more perceptible and embodied. Puig de la Bellacasa’s theory of touching-as-relating, read alongside Abram’s, Haraway’s, and Banes and Lepecki’s theories, presents a comprehensive analysis of *multisensory ways of knowing* and how they affect human-environment relations. *Multisensory ways of knowing* compel understandings and experiences of being human, as not separate from, but deeply situated in webs of *contacting*, interdependent relations with the more-than-human. The world becomes resonant, meaningful and significant within the body of the perceiver. The attunement of the neglected senses — for example, the demonstrably heightened multi-sensory awareness cultivated in the dance practice methods of Nelson — reveals a thickened sense of interconnection between the perceiving dancer and the perceived body-world. As such, dance practices facilitate embodied *multisensory ways of knowing*, transforming what sense systems are

foregrounded and therefore what aspects of the world are perceived. This has potential to lead to new sensory ways of knowing and hence to alter what is known and valued in the world. What becomes particularly apparent through this transdisciplinary analysis of multisensory awareness is the felt sense of immanent proximity, connection, and responsibility to one's more-than-human surroundings. This form of embodied awareness produces an understanding of the condition of human interconnection with the more-than-human world that is critically ecological in character, as well as undeniable in the fibres of one's being.

Summary

In this review and analysis of the transdisciplinary literature that informs this study, I identify critical points of correspondence between the forms of embodied awareness developed in dance practice and the ways embodied understandings help humans to perceive their ecological enmeshment with the more-than-human world.

Firstly, dance practices such as Parkinson and Bigé's *Experiential Authorship* develop the capacity to perceive *multiplicity* within the internal and external environments of the body. An embodied awareness of multiplicity gives rise to a greater capacity to sense and conceive of the magnitude of multiplicities that constitute more-than-human ecologies (Abram, 2020). Such an understanding of multiplicity has significant ramifications for how humans are able to calculate and feel how their actions interact with a world that is not singular or inert, but constituted by multitudes of more-than-human others with whom they ongoingly interact. Such multiplicities and relational webs of impact are key characteristics of an ecological condition. The awareness of this condition of multiplicity developed through dance practice methods can therefore be

understood as a distinctively *ecological* form of *embodied awareness*.

Secondly, perceiving the dynamic *in-motion condition* of the body and the world fosters an understanding of the agency of more-than-human beings and phenomena (Butler, 2011; Carson, 1965; Haraway, 1988; Latour, 2017). This dismantles human-centric ways of being which perceive humans as acting in front of an environment that serves as an inert backdrop. Embodied engagement with the dynamic and eventful processes of the world, such as the role of ceremony in Indigenous Songlines, also helps to make understandings of the world meaningful and memorable to the embodied condition (Abram, 1996; Neale & Kelly, 2020). Dance practices from Halprin and Paxton demonstrate methods of coming into awareness of the world's in-motion condition. Through this awareness, the dancer tunes into, acts in collaboration with, and participates in the ecological condition of constant dynamism, change and more-than-human agency. Consequently, dance practices, in developing an embodied awareness of the *in-motion condition* of the body-world, can be understood to cultivate a form of embodied knowledge that can be fittingly described as *embodied ecological awareness*.

Thirdly, perceptions of human separateness from the more-than-human world are conditioned by anthropocentric views of rigid borders between the human and the more-than-human (Alaimo, 2008; Milstein, 2020). Australian Indigenous ontologies offer understandings of the human and the earth as entwined in reciprocal indivisible relation. Dance practices offer methodologies that develop awareness of interconnections across the *body-world threshold*. Perceiving the body as an ecology that does not end at the skin but continues in wild exchanges of ecological relation that extend far beyond it, becomes a key perceptual shift enabled by dance practice — one that is

instantly recognisable as a form of *embodied ecological awareness*.

Fourthly, dance practices are specifically equipped to cultivate neglected sensory systems. In producing intensely *multisensory* and synesthetic forms of awareness, dance practices cultivate thick experiences of connection with the more-than-human world. As such, dance practices make perceptible previously imperceptible connections between the body and the world and thus have the capacity to alter how humans sense and relate to the ecological world. Consequently, the development of *multisensory ways of knowing* emerges as an important form of *embodied* attunement that develops *awareness* of the *ecological* condition of the more-than-human world.

These four forms of embodied awareness, *multiplicity*, an *in-motion condition*, *indivisibility* at the *body-world threshold*, and *multisensory ways of knowing*, describe distinctly ecological ways of perceiving and relating to the more-than-human world. These frameworks therefore form the foundation of what I identify as *embodied ecological awareness*. To demonstrate how dance practices explicitly develop these forms of embodied knowledge, I engage these frameworks to examine and reflect on my personal experience as a professional dance practitioner. The frames enable further analysis of how specific practice-based methods of dance cultivate *embodied ecological awareness* and knit one into a felt sense of interdependence and embodied connection with the more-than-human world.

Chapter 3: A Method for Centring Embodied Knowledge

In this study, I reflect on formative dance practice experiences in my professional career that illustrate transformative ecological insights emerging from engagement in dance practices. I employ a body-centred autoethnographic methodology (Bartleet, 2021; Parker-Starbuck & Mock, 2011) to discuss and analyse four separate experiences of dance *exercises* that gave rise to forms of awareness that become recognisable as *embodied ecological awareness*. These experiences form the basis of the four case studies presented in Chapter 4.

In this chapter, I detail my methods for gathering this dance practice data and discuss the role memory and ongoing practice in the body-centred autoethnographic approach to analysing and narrativizing this data. I intentionally use the term *exercise* to encapsulate the particular dance practice data focused on. With this term I identify the step-by-step processes undertaken in dance workshop or creative practice environments and focus attention on the changes in embodied awareness engendered by such methodical processes. With this term, I also aim to direct attention to specific actionable aspects of dance practice, rather than the broader artistic philosophies, methodologies or creative projects the exercises might comprise a part of. This chapter also outlines the principles of an autoethnographic methodology and its relevance to analysing and interpreting the embodied experiences documented. I explain why a “body-centred” (Parker-Starbuck & Mock, 2011) autoethnographic approach is specifically fitted to the point-of-view required to analyse first-hand dance practice experiences and their outcomes for corporeal awareness. I also identify how an ecofeminist lens guides my approach to analysing the practice-based accounts of embodiment in relation to theories embodiment and their ecological ramifications. These methodological strategies guide the analysis and interpretation of

my practice-based data in relation to the four frameworks of *embodied ecological awareness* established in Chapter 2, enabling a personal yet demonstrative investigation of the ways dance practices attune the sensing body to its earthly condition of ecological interconnectivity.

Data Collection

Dance practices are by nature experiential — they take place in the body and its network of worldly relations. While they give rise to profound and transformational effects, their imprint on the body-world is ephemeral and therefore necessitate what Haraway describes as “skills with language and bodies” (Haraway, 1988, p. 584) in order for these impacts to be traced and analysed. As such, this study engages an autoethnographic methodology, drawing on my journal notes, embodied writing practice, and memory to describe and provide context for the selected dance practice experiences. The experiences addressed take place within the two- and half-year period from January 2019 to June 2021. This period of my dance practice is journaled in detail and reflects a particular cycle of work relevant to this study, as well as a period of personal emerging awareness of the ecological condition of the body-world, set-in-motion (along-side various other coalescing factors) by reading Carson’s *Silent Spring*.

The dance practice experiences studied encompass my engagement in different professional dance practice contexts. They include being a workshop participant learning from an established practitioner; my work as a professional independent dance artist exploring methods of solo dance practice; being a choreographer undertaking a creative development process in collaboration with two dancers; and being an artist-researcher leading peers in a creative practice research laboratory. These experiences involve being guided, as well as guiding myself and others

through dance practice exercises. As noted, I nominate the term *exercise* to describe the procedural, time-based character of dance practice experiences addressed. As the object of knowledge studied is *embodied ecological awareness* the language of *exercise* intentionally foregrounds characteristics of procedure, physicality and corporeal effect.

In addition to this focus on the procedural embodied materiality of dance practice exercises, I refer to my artist journals from this two- and half-year period in which I notated my dance practice experiences. These journals include two main forms of data which the study makes use of. The first form of data is my studio notes and plans. These notes resemble what I would identify as field notes; they are short-hand and often dot-pointed notes outlining key steps in the exercise I experienced, or they notate my step-by-step plan for an exercise I intend to lead in a rehearsal or workshop context.

The second form of journal data I refer to as *embodied writing*. This journal data has a more embodied and poetic approach to notation and reflects an established practice that is closely interwoven with my professional dance practice. This form of writing is often done during dedicated timed periods of writing usually undertaken immediately after an embodied dance practice experience, sitting or lying on the studio floor. It resembles what might be referred to as stream of conscious writing, however, honed over twelve years of professional practice, I would explain my embodied writing practice as a ‘thick description’ (Geertz, 1973) of what is taking place in my attention in that particular moment. This writing aims to document the images, sensations, and relationships (with immediate and imagined others) that have been activated by the process of dancing and tuning my awareness. My practice in *embodied writing* is influenced

by my collaborative work with, and mentorship by, artist and scholar Jo Pollitt in the early phase of my career³ and has been further cultivated through my ongoing engagement in the Sydney-based Writing-Dancing group since 2014⁴. I have refined my practice of *embodied writing* as a way of guiding, supporting and analysing my evolving dance practice methods. For the purposes of this study these writings provide useful data that documents my embodied processes and experiential world in the moments immediately after undertaking the specified dance practice exercises.

By combining these two forms of journal data, studio-notes and embodied writing, I am able to reflect in detail on the processes and effects of the selected dance practice experiences. This data is further contextualised by my memory of each individual situation and the contributing factors which surrounded these notes. Memory and ongoing practice also played a key role in selecting the specific dance practice experiences addressed. The selected exercises mark events that were especially formative, which I regularly refer to in various aspects of my creative practice, including creative processes, teaching and research. These experiences can be understood to have provoked further enquiry, and this ongoing enquiry is reflected in the way the case studies move from my experiences as a workshop participant, to an enquiring solo artist, to leading collaborative experiences. The studied events also demark key moments which led to and motivated this academic mode of reflecting on the ecological character of the embodied awareness I was encountering. As such my reflections of these dance practice experiences are

³ Jo Pollitt is a Perth-based choreographer, dancer and scholar. My engagement with Pollitt's *response* methods (Pollitt, 2001) from 2009-2012 influenced my approach to using writing to document my embodied experiences.

⁴ Writing Dancing is a group of artists, academics, students and writers who have met once a month since 2010 to share and engage in different writing processes that are informed by an engagement with dance.
<https://www.dancingsydney.org/#/writing-dancing/>

firmly grounded in the hard data of studio notes and embodied writing but are informed by my ongoing practice and fleshed out, narrativized, and examined through the self-reflexive mode of analysis offered by the body-centred autoethnographic methodology.

A Body-Centred Autoethnographic Approach

Autoethnography is a self-reflexive mode of enquiry that centres the artist-researcher's voice and brings the reader into increased proximity to the qualitative details and embodied character of creative practice (Mani, 2017 cited in Bartleet, 2021). In the context of my research, autoethnography provides a framework for analysing my first-hand experience of dance practice methods and grounds the research in my situated position as a dance-practitioner and researcher. Autoethnography enables research to reflect on, contextualise, and communicate the inherently personal and embodied character of creative practice (Bartleet, 2021) and provides a system for valuing the body as the site of knowledge production (Cancienne & Snowber, 2003 cited in Bartleet, 2021).

Situating this research in the insights emerging from the living-material site of the body Parker-Starbuck and Mock describe how a body-centred approach enables an epistemology grounded in corporeal insights: "body-based researchers to use lived experiences, memories and knowledges to inform research" (Parker-Starbuck & Mock, 2011, p. 222). Their definition of embodiment as "the sense of being in a body or having a body, a conscious engagement with the materiality of sensing bodies, or the experience of practices that are physically manifested" (2011, p. 212) provides a useful methodological anchoring point for my research. Parker-Starbuck and Mock draw attention to the embodied reality of being always within a sensing, feeling body, while

acknowledging the transmutability of the body's ongoing construction in relation to its context. Foregrounding their body-centred perspective in my autoethnographic methodological approach enables my research to clearly and actively stand in the situated complexity of embodied experience.

A body-centred autoethnographic methodology is particularly apt for zooming-in upon and analysing the contextual, material, sensory and knowledge building interactions that are centred within the site of the body. Parker-Starbuck and Mock also state that body-centred research “works in productive gaps, tests the limits of comprehension (and) provides moments of interpretation which respect the specific bodies of their research” (2011, p. 218). As such, a body-centred autoethnographic methodology is particularly suited to research that seeks to make connections across cleavages in dominant disciplinary and cultural ways of understanding the body and practice-based approaches to knowledge. A body-centred autoethnography fosters ways of moving productively between common delineations between the body/mind, human/environment, theory/practice (Parker-Starbuck & Mock, 2011, p. 218). It is therefore specifically suited to the transdisciplinary aims of my research, which seeks to make critical linkages between dance practice methods of embodiment and interdisciplinary theories of embodiment, to foreground the role of the body in connecting the humans into a felt sense of interdependency with the more-than-human world. In centring knowledge produced at the site of the body, the body-centred autoethnographic methodology supports important shifts in scale and disciplinary knowledges, enabling the personal and the sensuous to work productively with interdisciplinary knowledge to approach important questions about the tools and practices humans have for changing ways of being in the context of ecological crises.

Through An Ecofeminist Lens

To address the question of how dance practices cultivate particularly ecological modes of embodiment, an ecofeminist lens supports a transdisciplinary approach that enables my research to analyse correspondences with theories committed to dismantling dominant anthropocentric modes of human-environment relating. Warren and Erkal state, “ecofeminism insists that feminism must address not only the forms of oppression which afflict humans but also those that afflict nature” (1997, p. 327). By recognizing that a common centric structure underlies different forms of oppression (Hartsock, 1989), the ecofeminist lens identifies and illuminates the problems of human-centredness, by extending feminist insights to ecological discourses (Warren & Erkal, 1997). Feminist epistemologies pointedly acknowledge the differing experiences of differently situated bodies, and use situated insights to critique the bias of dominant discourses, which assume a gender or culturally neutral standpoint (Warren & Erkal, 1997). By extension, an ecofeminist lens seeks to problematize the assumed neutrality of human centrism in Western/ised cultures, recognising that the denial of humanities inclusion in and dependency on nature is at the heart of the ecological challenges we face (Warren & Erkal, 1997).

In my research, I advocate for the role dance practices play in creating an expanded awareness of the self that recognises the ecological condition of the human body and its entanglement with earthly ecologies. I investigate how dance practices untrain or “undiscipline” (Milstein, 2020) an anthropocentric sense of the self through the development of a heightened awareness of, and connection to, one’s more-than-human context. The transdisciplinary character of the ecofeminist lens, therefore, enables my research to link the body-centred autoethnographic

analysis of my dance practice experiences of embodied awareness with other disciplinary concepts that theorise the role of embodiment recognising an ecological condition.

The ecofeminist lens also supports my research to make critical links between practice-based methods and theory to address how dance practices cultivate *embodied ecological awareness*. To draw out these links, my research methods involved transcribing and analysing my journal data. These transcripts were analysed using the unit of analysis “does this exercise engender an increased awareness of: a condition of multiplicity or motion in; or connection between; or multisensory attunement to, my internal and external environments?” This data was then further reviewed and sorted into categories grouped around the different kinds of embodied awareness it primarily described. This process enabled me to identify and analyse emerging correspondences between the forms of awareness I experienced, and the embodied ecological awareness frameworks developed in Chapter 2.

Together the tools and positions of a body-centred autoethnographic methodology and an ecofeminist lens enable my research to highlight the blind spots of dominant knowledge systems and demonstrate the potential of embodied practice-based ways of knowing. In the context of the Western/ised spaces in which this research is conducted, disembodied thought, objective knowledge and text-based modes of communication remain dominant approaches to knowledge production. My research focuses on practice-based approaches to knowledge and ecocentric ethics to promote understandings that dissolve a bounded sense of the self while fostering a visceral sense of connection to the more-than-human world. Through these methods of centring embodied and transdisciplinary approaches to knowledge the following case studies are able to clearly

investigate how the practice-based methods of contemporary dance develop *embodied ecological awareness*.

Chapter 4: In Practice: Exercising Embodied Ecological Awareness

In this chapter, I trace experiences in my professional dance practice that gave rise to an *embodied awareness* of the *ecological* condition of my body and my surroundings. The four case studies focus on my experiences during dance workshop and creative process contexts, detailing the specific dance practice exercises I engaged in and how they changed my embodied awareness. In the first case study, I recount my experience of engaging with Nelson's *Tuning Scores* method and describe the *multisensory awareness* these practices gave rise to. In the second case study, I document a process of becoming aware of the condition of *multiplicity* during a three-month solo residency at HIAP, Helsinki. The third study outlines an exercise undertaken with collaborators during the creative development of my work *Explicit Contents* and details how it shifted our awareness of the *body-world threshold*. The fourth study reflects on my experience of leading an exercise during a laboratory at Critical Path, exploring how it led to an increased awareness of the body-world's *in-motion condition*. In reflecting on these four dance practice experiences, I analyse how these dance practices experiences correspond with the frameworks established in Chapter 2 and demonstrably *exercise* what can be understood as distinctly *ecological* forms of *embodied awareness*.

Perceiving the (Im)Perceptible: A Tuning Scores Laboratory with Lisa Nelson

I attended Nelson's seven-day *Tuning Scores* laboratory at Movement Research's Winter MELT Intensive in New York City in January 2019⁵. Nelson describes the *Tuning Scores* as "inner and outer communication tools and practices that make apparent the ways each of us sense and make

⁵ Workshop with Lisa Nelson, 12-17 January 2019, *TUNING SCORES Laboratory - Composition, communication, and the sense of imagination* at Movement Research MELT Winter Intensive, New York City.

sense of movement” (Nelson, 2018). With this case study I focus on one of Nelson’s specific *Tuning Practice* exercises which, through inhibiting and heightening different sensory systems, cultivated an experience of thick embodied connection with my surroundings. I link this experience of Nelson’s dance practice methods to my earlier discussion of *multisensory ways of knowing*. Elaborating on Abram’s (1996) analysis of synesthesia, I also discuss connections to Puig de la Bellacasa’s (2017) focus on the ethical ramifications of perceiving relations as touch and explain my embodied experiences with Nelson in relation to Banes and Lepecki’s (2007) analysis of the senses’ capacity to reconfigure what enters zones of cultural significance.

On day one of the laboratory, a cohort of multinational dance-inclined people sat on the floor in a ground-level studio on 1st Avenue, New York City. Nelson stood before us and entertainingly, though with a slight tone of futility (I guess she knew it was only through practice that her words would begin to make *sense*), introduced the *Tuning Scores* practice we were about to enter into. I scrawled in my notebook the “senses are designed to sense change”. This statement, while obvious, seemed to pinpoint an important foundation of the practice. The object of study here was the body’s sensory systems, they were the *matter* being attended to and tuned up, not the body’s coordination, alignment, virtuosity, or capacity for expression or representation. An *exercising* of these sensory systems, Nelson seemed to suggest, would enable us to better perceive what is changing in our environment, an environment which I came to understand as including the body, the studio, the New York streets and the earthly environment encompassing them.

The laboratory consisted of a series of guided and task-based exercises led by Nelson and we

undertook these individually, in pairs and larger groups. The first part of the day focused on the *Tuning Practices* — exercises which warmed up this state of multi-sensory attention — the latter part of the day focused on what Nelson refers to as the *Tuning Scores* — scores which take this state of awareness into more performative or compositional situations. In this section, I will focus on an example of a *Tuning Practice* exercise.

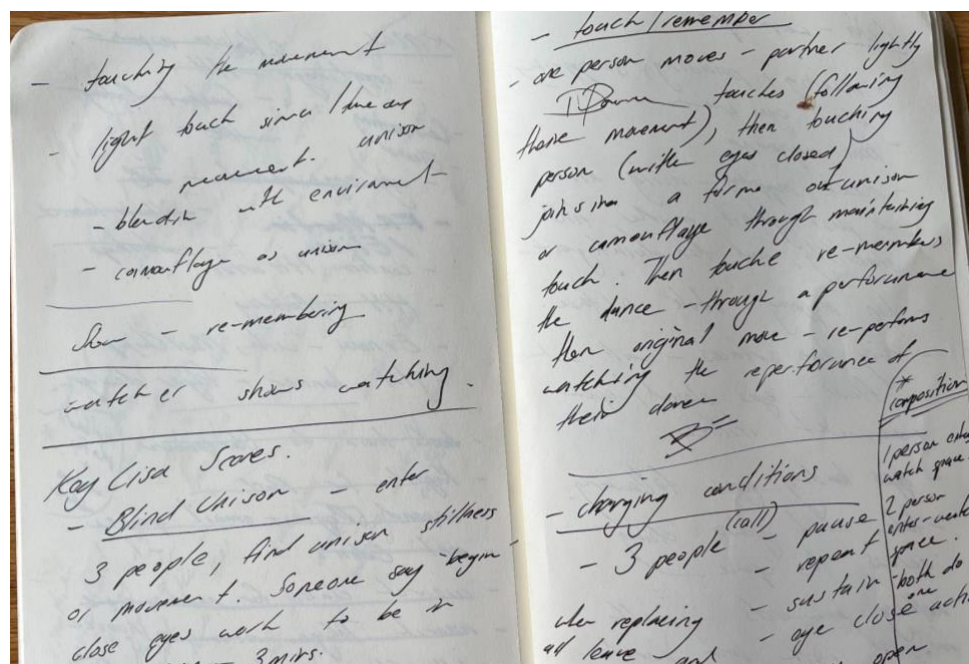


Figure 1. Photograph of excerpt of studio notes, Lisa Nelson *Tuning Scores* laboratory, 12-17 January, 2019. Image by Rhiannon Newton

Nelson instructed us to close our eyes and focus on the movement of our in-breath and out-breath. The exercise built progressively with different sensory systems methodically foregrounded and inhibited. First, we were invited to move on the in-breath and become still for the duration of the out-breath. Nelson encouraged easeful movement that felt connected to the direction or quality of the in-breath. Moving created moments that were thick with haptic sensory stimuli such as the sensation of my skin brushing across the texture of the floor and my

limbs pressing across my other body parts. It also stimulated sensory feedback about the muscular effort involved in moving and different zones of my body moved in and out of the foreground of my attention. Coming to stillness for the out-breath provided calmer moments in which my non-visual senses seemed to widen their field of perception as they processed each new body-world composition I landed in. I noticed how the texture of the timber floor felt harder against the bone of my shin than it had against my buttocks; how the temperature changed as I moved closer to the wall heater; how the stillness seemed to frame the passing sound and direction of a conversation on the street outside. Continuing with closed eyes, we were invited to reverse these conditions, moving for the duration of the out-breath and coming to stillness for the duration of the in-breath. In group discussions after the exercises, different participants noted one combination feeling more organic than the other.

In a second phase of the exercise, Nelson invited us to coordinate the duration of stillness with opening our eyes followed by closing them again when we returned to moving for the alternative breath phase. I recall this sequencing being difficult to establish. It required a high degree of concentration to switch between the visual/non-visual and moving/stillness modes in coordination with the rhythm of the breath. After some time, my nervous system seemed to settle into the rhythm and strange continuities and unions began to emerge between the sliced up sensory stimuli arriving from my internal and external environments.

Journal Entry, January 13, 2019: Heat/pressure from pushing down through the palm of my right hand landed into the sudden vision of the bright red cotton fabric of a participant's T-Shirt filling my view. This redness trailed into the in-breath as I closed my eyes and the flesh of my flank became stretched thin by ribs expanding.

The dividing up and foregrounding of the different sensory systems in this exercise generated a zoomed-in, highly textural state of awareness. Details of my internal and external environment seemed to impress upon each other and establish previously unapparent relations. The stimuli arriving from my external environment became overlaid upon and texturised parts of my internal environment and vice versa.

The described interweaving of environmental stimuli in different sensory systems is recognised by Abram as ‘synesthesia’ and is understood to generate experiences of increased connection, or ‘reciprocal’ participation’ between the perceiver and the perceived (1996, p. 128). Abram’s earlier explanation of this crisscrossing of the senses describes how synesthesia forms a matrix or ‘chiasm’ of connection between the body and the earth (1996, p. 128). In this exercise my perceiving body, as Abram describes, “momentarily seemed to participate in the sensual nature of another’s existence” (1996, p. 128).

During Nelson’s exercise, the ‘neglected senses’ which Banes and Lepecki identify as the vestibular, haptic, proprioceptive, and kinaesthetic senses, are cultivated into a state of heightened awareness, while the culturally dominant sense — the visual sense — has been methodically inhibited and reined in (2007, p. 1). The non-visual focus on the breath and the threshold between moving and stillness heightened my awareness of my internal environment, honing my kinesthetic perception of its different weights, textures, materials, places, and directions. Therefore, during moments of stillness, when my senses reached further into their external environment they interacted not with a body sensing itself as a singular unit or surface but with a body sensing itself as an already complex environment of sensations and

differentiation. Such a sensually attuned environment was vibrating with the possibility of connection, interplay, and the possibility of the ‘reciprocal participation’ Abram describes (1996). ‘Distanced’ stimuli sensed through the eyes and ears landed into and commingled with the haptically and kinesthetically attuned areas of my body, resounding not just in the cranial zone of the dominant senses but through vast and distributed corporeal areas of skin, flesh, organs, and nerve endings.

This cultivation of embodied *multisensory* awareness led to an increased sense of connection between the environment of my body and the environment of my surroundings. As Abram describes, it intensified the ‘chiasm’ — the web of interplay and reciprocal participation — “between my own flesh and the flesh of the world” (1996, p. 128). In a manner that resembles Puig de la Bellacasa’s (2017) interest in the increased sense of proximity and ethical responsibility brought about by foregrounding the haptic sense, the tuning up of haptic and kinesthetic modes of perception meant that distanced stimuli resounded in a bodily way, distributing perceptions of the external environment throughout my flesh. Puig de la Bellacasa describes how perceiving an always-touching-relation to the world-at-a-distance transforms one’s sense of responsibility to that world, and thus the way one acts in and perceives the consequences of their actions in that world (2017, p. 115).

Banes and Lepecki also describe how intensifying different senses changes what is able to be perceived, noting that this has significant ramifications for what then enters social realms of significance and value (2007, p. 3). If changing what is perceptible changes what can be valued then tuning up the neglected sensory systems has the possibility, as Banes and Lepecki describe,

to transform “dominant cultural ways of knowing and (lead) to a new bio-politics for how humans relate to their environment” (Banes & Lepecki, 2007, p. 1).

Nelson’s exercise brought my haptic, kinesthetic, and proprioceptive senses into a heightened state of awareness. This multisensory form of awareness led to perceiving previously imperceptible relations between my body and its surroundings. It revealed new connections and a sense of increased proximity or participation between the relational networks of my internal and external environment. As such, this *multisensory way of knowing* led to heightened sense of connection to my more-than-human environment, exemplifying a form of *embodied ecological awareness* that makes perceptible previously imperceptible webs of interconnection in the body-world.

Starting from Multiplicity: Solo Practice Discoveries in Helsinki

In this section, I reflect on a particular dance practice exercise undertaken during a three-month solo residency at the Helsinki International Artist Program (HIAP) in Finland from September to December 2019⁶. I detail how this experience of a daily studio practice supported the development of processes for perceiving a condition of *multiplicity* within the body and my surroundings. In outlining the daily sequence of exercises I engaged in, I reflect on how the awareness of multiplicity developed resonates with Parkinson's analysis of dance practice as ‘collective action’ (2018, p. 20). I also interpret my dance practice experience of multiplicity in relation to the ecocultural theory’s (Abram et al., 2020) recognition of multiplicity within the self as key to arriving at adequate understandings of ecological multiplicity.

⁶ Solo Artist Residency at Helsinki International Artist Programme (HIAP), Suomenlinna Island, Finland, 10 September - 3 December, 2019.



Figure 2. Photograph of Newton in residence at HIAP, Helsinki, 15 November, 2019. Image by: Sheung Yui

The residency represented an important period of deepening my solo dance practice, but it also coincided with an injury that happened shortly before the residency began. Therefore, the creative work and the practices I engaged in are coloured by a particular sense of embodied care and an almost hibernation-like withdrawal into a rhythm of daily practice — in which the dynamism of the Nordic Autumn seemed to make the small transformations taking place at the body-scale all the more resonant. The daily solo practice I engaged in consisted of three primary exercises: a structured warm-up, an improvised movement practice, and a timed period of responsive *embodied writing*. For this study, I will focus on the second and third components of

this daily practice because they capture the specific embodied processes engaged with and the forms of awareness they cultivated.

The daily movement practice regularly began with a 20–30-minute period of exploratory improvised movement, during which I would support myself with questions such as “what am I doing,” “what does this part of the body or world feel like,” or “where is my attention being drawn”? This practice was followed by a shorter timed exploration of approximately 10 minutes in duration that aimed to concentrate or intensify a specific embodied interest emerging during the first session. The following embodied writing exercise was then an opportunity to continue this state of embodied attention. As with dancing, the act of articulation — of doing or naming something in particular — influenced and shaped the direction of my attention and thus the thrust and content of what I wrote/danced. This embodied writing documents both the content composing my awareness, as well as my ongoing enquiry into how I am guiding and supporting my awareness.

In one of my first days of practice during the residency the question “what do I do?” provided a useful support. The singularity of the question seemed to highlight the multiplicities presented by this new body-world context.

Journal Entry, September 21, 2019: What do I do? I notice the moment of contact, of first touch and the complexity of all feelings and possibilities that in that moment rise up. I trust that something will continue, that allegiances will form between the multiplicity I have within me and the multiplicity of the situation. Such is the nature of a meeting - these things need time, duration, to mix, understand one another.

This excerpt embodied writing reflects on the multitude of factors that present themselves in the moment of entering practice, of bringing my attention into my body and its web of relations. Parkinson and Bigé offer the term ‘collective action’ to describe the *multiplicity* that the dancer is confronted with (2018). They also describe some elements within this collective action as ‘anonymous movements’— external, involuntary or unconscious factors composing the situation the dancer is a part of. In describing a *meeting* between my embodied collectivity and the situation’s collectivity, I recount how not rushing into movement allows time to notice the emergence of relations between these intersecting collectivities, which include factors authored by these anonymous others. I give myself time to become aware of these possible relations and then move in a way that aims to participate consciously in this *multiplicity* that implicitly involves the agencies of many others.

Through the course of this daily sequence of exercises, a particular approach to tuning my attention to multiplicity in my body and my surroundings emerged. Firstly, I guided myself to sense my body as one undifferentiated lump. This involved feeling myself as a solidly connected whole —moving any part of me implicitly involved moving all of myself. I then moved on to explore my body as constituted by two parts: the left and right, top-half, bottom-half, etc. This exploration had more options for movement but rather than being distracted by movement possibilities I aimed to keep my awareness gently distributed between the two parts, sensing their co-present relational action. I proceeded with this process, methodically dividing up my awareness of my body into double the amount of parts each time.

Four parts heightened awareness of my limbs; eight and sixteen parts made me quite aware of

my bones and joints — a scale of complexity that felt particularly familiar to my dance training; and beyond that it started to get interesting. Sustaining awareness of thirty-two or sixty-four parts throughout my body was near impossible. To hold this level of complexity in my attention, I found myself zooming-in on a segment of my body such as my forearm and sensing its material components — its skin layer, the tautness of the muscle, its pair of bony structures. Quickly, I'd then move my attention along to another body part and re-perform this sensing of material components, while the residue of the former parts still buzzed in my awareness. This produced a particularly textural and differentiated form of awareness that hummed throughout my body, particularly in my kinesthetic and haptic sensory systems.

I then proceeded to further divide my sense of my body up into even smaller and smaller components. A sensation of my body as granular, atomised, or particulate emerged. Textural details shimmered and darted through this granular sense of myself and I became attuned to a sense of perpetual instability and movement between these tiny components. The tiniest of movements in one part of me seemed to involve so many others, and ricocheting, follow-on effects echoed near and far. This form of awareness hovered on the edge of the possible — it was only with the gentlest of awareness that could I glean or surrender to this sense of myself as composed of so many.

This mode of awareness then prompted a similar process coming to perceive the many parts constituting my surroundings. I allowed my eyes to lead the process. Moving filled my vision with aspects of these surroundings — the yellowing tree in the courtyard, the hard surface of the concrete wall. Allowing a view to linger, I would invite these other bodies before me to similarly

disassemble in my sensory imagination, to separate into component material parts. Details such as the once wet sand compacted in the dense cement of the wall and the differently temperate air particles meeting at the warm-cool threshold of the doorway became apparent.

As with the former process, I then pushed this awareness of material composition of my surroundings toward an even more granular scale. This also revealed an especially atomised and in motion perception of my surroundings. I sensed the tiny granules of the wall squashing down on one another, doing their best to resist gravity's persistence; I felt the thickened air partially moving across the distance between my out-breath and mist fogging the window. Quickly this granular mode of awareness mixed up and made connections between the particles I sensed as constituting my body and those composing my surroundings. In this sci-fi-like trick of perception, I had dissolved myself and my surroundings into a granular state of *multiplicity* and interconnection.

In reflecting on this exercise my embodied writing practice takes an interest in how this tuning of my awareness to smaller and smaller composite parts of myself and my surroundings produced an almost dangerous sense of bodily decomposition, yet an invigorating sense of flow and connection to my surroundings.

Journal Entry, 9 October, 2019: The broken apart body. The unbounded body. It feels so different, the body that is many, that is more connected to that that is around it, connected to already moving materials, swimming, literally, amongst all the fragments of the environment.

Parkinson and Bigé describe an analogous quality of ‘plasticity’ in how they sense what they are included in and what they are made up of during dance practice (Parkinson & Bigé, 2018, p. 19).

While acknowledging that working with this state of collectivity in the body-world is a negotiation rife with glitches and inconsistencies, Parkinson and Bigé insist that cultivating awareness for collectivity gives the dancer increased agency (Parkinson & Bigé, 2018, p. 19).

Conscious of their inability to control or author all of the components of this state of collectivity, this increased awareness nonetheless enables the dancer to account for and make decisions informed by an understanding of the world as constituted by multiplicity.

Abram, Milstein and Castro-Sotomayor also describe how a composite perception of the self is critical to an ecocultural understanding of how humans relate to their environments. As Abram describes, “...many trajectories flow together to create a different ‘me’ at any moment” (2020, p. 6). The solo practice exercise described here developed my awareness of multiplicity in my body and facilitated an awareness of multiplicity in my surroundings. Abram also describes how an awareness of multiplicity at the body-scale facilitates a greater capacity to conceptualise ecosystem complexity at more earthly scales. Abram describes how human interaction with different ecosystems must begin from an awareness of multiplicity and difference, of not assuming blanket likeness or interchangeability between differently situated parts of ecosystems (2020, pp. 15–16). The mode of embodied awareness cultivated during these solo practice exercises has potentially significant implications for the kinds of practices that might foster more adequate understandings of ecological multiplicity.

Dancing Across the Body-World Threshold

With the above cases, I have detailed how dance practice exercises cultivate awareness of the body's internal and external environments. In Nelson's breathing exercise tuning up, different sensory systems developed my awareness of my internal-external conditions, while during solo practice the perception of multiplicity revealed the materially composite and granular character of both my body and its surroundings. In this section, I describe a dance practice exercise that formed part of my creative process undertaken at Campbelltown Arts Centre in September 2020 on Dharawal land in south-western Sydney for the creation of my work, *Explicit Contents*⁷. In outlining a specific process undertaken with dancers Ivey Wawn and David Huggins, I detail how the concentration on these internal and external environments also fostered a unique awareness of the *threshold* between the body and the world. I detail how the exercise increased our awareness of this threshold zone, expanding and thickening our perception of it as a place of dynamic action and interconnection. I discuss how this form of embodied awareness resonates with earlier discussions involving Alaimo's concept of trans-corporeality (2008) and Milstein's ecocultural "border crossings" (2020). I also point to resonances with Halprin's (1995) methods for sensing material continuities in the body-world and further demonstrate how dance practices, in cultivating awareness of this threshold zone, develop understandings of the ecological condition of the body and its dynamic entanglement with more-than-human ecologies.

During the second week of the creative development period at Campbelltown Arts Centre, the dancers and I took a field trip to the nearby site of the Georges River⁸. Starting from Simmo's

⁷ Creative development on 14 September - 2 October, 2020 for *Explicit Contents* at Campbelltown Arts Centre on Dharawal Land, Campbelltown, with dancers: Ivey Wawn and David Huggins.

⁸ Field trip on 22 September, 2020 to the Georges River on Dharawal Land in Macquarie Fields commencing at Simmo's Beach with dancers: Ivey Wawn and David Huggins.

Beach we slowly walked upstream for approximately 1km before returning along the same route. Before leaving the studio the dancers and I read a short section of Puig De La Bellacasa's *Touching Visions* (2017) which discusses the reversibility of the haptic sense, to touch is always to be touched. As we moved through the environment along the bank of the Georges River, I invited the dancers to, as Bellacasa describes, notice a "universe that always touches back" (2017, p. 115). This invitation included noticing what we were touching and what that touch felt like, while sensorily imagining how this touch might be experienced by the touched non-human other. I also suggested we consider the quality of touch shared between other non-human bodies meeting in that environment, such as the water touching and being touched by the sandy bank, or the rock's surface contacting and being contacted by the mossy growth. The walk had a quiet, meandering, and contemplative atmosphere in which we individually spent time observing, touching, and listening to different haptic ecological interactions.



Figure 3. Photograph of Wawn and Huggins on Georges River field trip, 22 September, 2020. Image by: Rhiannon Newton

On return to the studio, we undertook a series of improvised movement explorations which continued this focus on the two-way-ness of touch. Allowing the experiences and sensations accumulated during the walk to inform our embodied awareness, we focused on how parts of ourselves were touching and being touched as we moved. These movement explorations were 7-minutes in length. We observed each other in a solo format, and briefly discussed each other's experiences before undertaking a second round of movement explorations. During the discussions, the dancers and I noted that we were more sensitised to certain materials and textures in our bodies. Time in an environment different to our daily studio environment had brought new parts of ourselves to the fore. David observed that the exercise had led him to also become aware of touching relationships between the contents of his internal environment.

During a proceeding 10-minute writing exercise we made a summary or a textual effort toward recounting what had been taking place in our sensory environment. My excerpt of writing reflects how the field trip and movement explorations led me to become particularly aware of the permeability of the surface of my body:

Journal Entry, 22 September, 2020:

An open house that leaves doorways empty for airflow

A porous surface that listens for movement pressing inwards and outwards

A woven capsule that holds what it can and lets go what it cannot

A bank made of sand which upon growing wetter gets thicker, heavier

An absorption across plasma that filters that which helps and that which builds

A fortress that remains fluid

A fold that finds itself reversible.

This writing traces material-sensorial images that attached themselves to my body during the exercise. They document a sense of porousness — of noticing things leaving and entering my body. For example, noticing my breath led to the image of air moving in and out of the doorways of a building, while sensing sweat forming along the back of my neck conjured the image of water escaping a loosely woven bag: the woven capsule of my skin. This awareness of my body as a site of transmission reflects the conceptualisation of the body in Alaimo's theory of transcorporeality. Rather than sensing my body as a fixed unit separate from its ecological surroundings, the state of awareness cultivated in this exercise perceives the body as a dynamic ecological site — one that is thickly intertwined with, and flows from and into, its material surroundings.

Milstein and Castro-Sotomayor also draw attention to an understanding of the body as “made-of, part of, emerging from and constantly contributing to ecology” (2020, p. xix). As with Alaimo, their theory of ecocultural identity foregrounds an understanding of human selfhood as formed by and existing in a dynamic exchange with place-based ecological relations (2020). In the discussed exercise my awareness is zoomed-in upon the *threshold* zone between my body and its surroundings. My embodied absorption in material-sensorial transgressions at the periphery of this zone directly corresponds with what Milstein describes as ecocultural *border crossings* — ruptures of anthropocentrically disciplined boundaries which dissolve the body into its relations with its surroundings (2020, p. 44). The awareness cultivated in this exercise is attuned to movements and exchanges across the *body-world threshold* and as such these border crossings can be understood, as Milstein describes, as “undisciplining” an anthropocentric perception of myself as separate from my environment (2020, p. 44).

Elements of this exercise and the embodied awareness cultivated also correspond with the dance practice methods of Halprin. The time spent alongside the Georges River made us more aware of certain material-sensorial aspects of ourselves. My movement exploration and writing reflect a particular interest in the watery substances of my body and the capacity for liquids to more easily escape, transgress, and resist a bounded mode of being. Halprin's work in nature made her particularly aware of how bodies and the Earth are composed of the same materials and patterns. She particularly notes that the body's veins and arteries directly resemble the material processes of rivers, streams, brooks, and tributaries returning water to the ocean (1995, p. 214). Reflecting these discoveries by Halprin, the environment of the river, our attunement to haptic relations, and our methods of working through movement and writing practice enabled us to become more aware of, and sensitised to, the parts of our ecological selves that shared properties with the materials, rhythms, and textures we encountered in the Georges River environment.

Attuning to the two-way direction of touch led to an awareness of the *body-world threshold* as an active zone of transmission. In identifiably trans-corporeal or ecocultural ways this exercise cultivated awareness of continuities between the body and the world, and also resembled those identified by Halprin. As the fluids from my body formed sweat beads at my neck, I sensed this material as connected to or even as sharing a history with the dampness soaking through the river's sandy bank. This distinctly ecological correlation knitted my body into a felt sense of proximity to the materials and flows of the ecological world. This form of *embodied awareness* explains a mode of being that is explicitly attuned to the *ecological* dance of the more-than-human world — that recognises the body as a dynamic continuance of this dance.

Exercise for Attending to an In-motion Condition

In the cases discussed above, the haptic and kinaesthetic senses play a key role in developing awareness of the body's connection to its more-than-human surroundings. With this case study, I discuss how a tuning up of these senses also develops the capacity to recognise the dynamic, *in-motion condition* of the world. During a three-day research laboratory⁹ supported by the Critical Path choreographic research centre that was undertaken at the ReadyMade Works studio on Gadigal Land in central Sydney in April 2021, I worked with six Australian dance and interdisciplinary artists: Amaara Raheem, Ivey Wawn, David Huggins, Emalyn Knight, Raynen O'Keefe and Nikki Heywood. In reflecting on an exercise I shared with the group, I detail how it cultivated the kinesthetic sense and trained attention to action and agency in our non-human environment. I link these experiences to Carson (1965), Latour (2017) and Abram's (1996) explanation of the importance of recognising the in-motion condition of the body-world in undoing assumptions of inertness in the non-human world.

In a practice reminiscent of Paxton's *Small Dance* (Paxton, 2009; Turner, 2010), which involves closing the eyes, standing still and noticing the internal dance of the body's negotiation of gravity, I led the group through an exercise that involved inviting them to find a comfortable lying or sitting position, to close their eyes, and to pay attention to any movements they sensed. Unlike *Small Dance* this supported position meant the exercise was less about noticing the small movements needed to negotiate balance, but rather about sensing change/movement in one's internal and external environment. During this exercise, the instruction to notice movement

⁹ Research Laboratory on 8-10 April 2021 through the Critical Path Responsive Residency program, conducted at the ReadyMade Works Inc. studio on Gadigal Land, Sydney with: Amaara Raheem, Ivey Wawn, David Huggins, Emalyn Knight, Raynen O'Keefe and Nikki Heywood.

brought my attention quickly to my breath. I noticed the effects of its movement through my neck, nose, and mouth; the expansion and contraction of my ribcage; residual movements in nearby tissues; and increases and decreases in pressure where my torso rested against the floor. Where my forearm rested on my thigh, I felt the rhythmic movement of my pulse. Noises from the day-care centre below, the slight shuffling of another member of the group, and the sound of distant traffic also relayed movement taking place at varying distances in varying directions.

In the second phase of the exercise, I invited the group to continue this act of noticing movement but to also open our eyes and allow changes in the direction of the head to let different movements come in through the eyes. I also suggested noticing persistent forces and directions of movement in our environment which might visually present themselves as stillness. For example, I had become aware of weight moving down through the side of my hip at the point where it contacted the floor. Feeling this weight and the sense of gravity moving through it also made me particularly aware of the resistance of the floor — its solid, material boundedness creating an almost upward movement against my weight. Upon opening my eyes I noticed a similar, seemingly static, but gravitationally dynamic relationship between an upright pillar and the ceiling weighing down on it.

After 10 minutes in this mode of noticing, we paused and discussed our different experiences. We discussed how noticing persistent forces animated the space around us. The inert studio we had entered in the morning was suddenly more perceivably full of action. We also discussed how the body absorbed and accumulated the movements it sensed. I described how noticing a branch moving in an irregular fluttering pattern beyond the doorway seemed to land into, and inscribe its

rhythm and movement quality in my shoulder. Others also noted this responsive kinesthetic interplay between the body's internal and external environment, describing how it seemed to create layers of dynamic sediment. We discussed how re-noticing an external source of movement also reactivated a previously inscribed dynamic layer, giving rise to the sense that the body was becoming a kind of kinesthetic recording of environmental movements.

In the third phase of this exercise, I introduced two further inputs, firstly, to introduce one's own voluntary bodily movement. I encouraged an approach to moving that amplified or sustained a relationship we were already noticing in our internal or external environment. Secondly, I also offered the option of switching to writing as a mode of tracing, recounting or getting more specific about the movements we were noticing. In the discussion afterwards, members of the group noted that the process of tuning to movements already taking place in the body-world meant that our own movement felt plugged into this network of these established movements. Knight described how moving very slowly enabled her to witness more vividly the different layers of body-world movements she was attending to.

The following is an excerpt of embodied writing from this task. It incorporates the movement I was noticing in my body and surroundings and includes reporting on the movement of other members of the group.

Journal Entry, 9 April, 2021: A path that sniffs out physical traits of exchanging pressures, textures and perspiration. Empty space between limbs. The sensitivity in the soles of the feet - warmed by the movement through the window. Corners and changes in direction. The imprint of sound on the nervous system lands in a felt quality. A touch

disappears simply because it is always there. These practices of what is being done.

This writing describes dynamic relationships intersecting in my kinesthetic awareness. For example, the movement of sunlight entering through the window and warming a particular patch of studio floor touching my foot, or the sound of a bird outside moving toward my body and transcribing particular tones, speeds and directions on my nerve endings and muscle fibres.

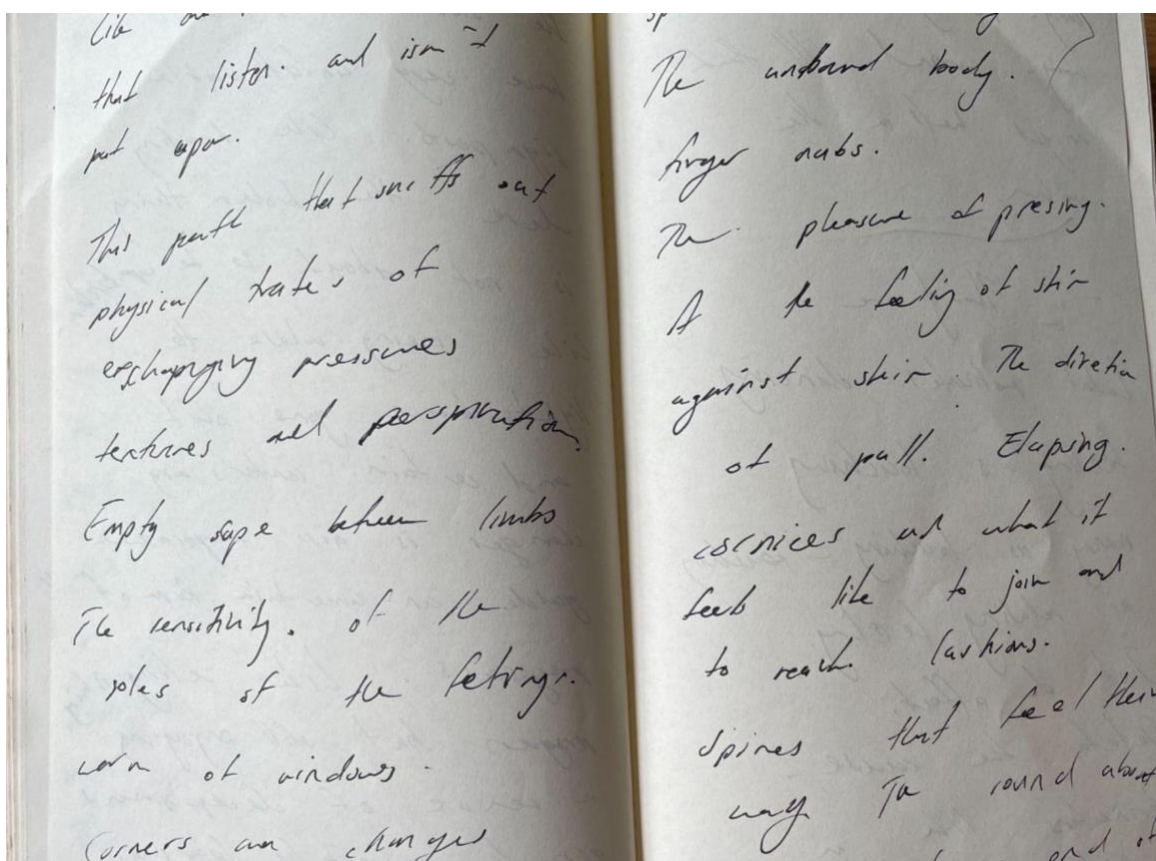


Figure 4. Photograph of journaled embodied writing during Critical Path research laboratory, 9 April, 2021. Image by: Rhiannon Newton

Latour describes how in coming “close to nonhuman beings, we do not find in them inertia” but rather “agencies that are *no longer without connection* to what we are and what we do” (2017, p. 62). This exercise stimulated an awareness of the studio as an environment in which human and

non-human agencies intersected and affected one another in a web of lively relations. By taking time to pay attention to movement in our internal and external environment, our awareness shifted from perceiving ourselves as moving within an inert space, to sensing that this environment was animated by many and varying forces and differently acting agencies. Latour (2017) and Haraway (1988) describe such perceptual shifts as critical to recognising and valuing agency in the more-than-human world and note that awareness of non-human agency resists the anthropocentric tendency to reduce the more-than-human world to the status of resource for human instrumentalisation (Haraway, 1988, p. 592).

Halprin's focus on the kinesthetic sense also resonates with this recognition of agency and what she describes as ALIVE-ness (1995). Halprin details how the tuning of the kinesthetic sense allows one to become aware of, and consciously participate in, the in-motion, ALIVE, condition of the world (Halprin, 1995, p. 32). She also details how kinesthetic attunement leads to a more sustainable approach to moving because it integrates the individual's action with the forces and energies of their surroundings, such as gravity and momentum.

During this exercise, the tuning of the kinesthetic sense led to a deeper sense of participation within my environment. This awareness was residually present for some time after undertaking this exercise — during my lunch break, details in my surroundings seemed larger and more animate somehow. Something of this residue remains even to this day. As I revisit these studio notes, there are certain places and tingles in my body that awaken and recall that particular patch of warmth and that particularly rhythmical flutter. As Abram, and Neal and Kelly reminds, dynamism plays an important role in how we embody information: the body “cannot readily

appropriate inert facts or data... Yet the living body can easily assimilate other dynamic or eventful processes” (1996, p. 120; 2020). The relations with non-human others encountered during this exercise feel inscribed a little deeper under the skin than had I encountered them without this cultivated form of kinesthetic embodied awareness. In generating awareness of a no-longer inert environment, this dance practice exercise decentred where action and agency were perceived. Simultaneously, the attunement of the kinesthetic sense inscribed my body with particularly sharp memories of the more-than-human relations encountered during the exercise. As such, this dance practice exercise not only cultivated *embodied awareness* of the *ecological* condition of *motion* and more-than-human agency, but the kinesthetic attunement also more vividly archived the knowledge experiences in my embodied memory.

Discussion of Case Studies

With this series of case studies, I detail the procedural practices I engaged with in different dance practice settings, analyse the forms of embodied awareness they gave rise to and highlight the potentially transformative character of these forms of awareness. Together the cases illustrate a particularly body-centred awareness of an ecological condition. Time is sensed by the duration of a breath, the cellular shimmers into palpability, sweat droplets conjoin with rivers and solar movements imprint the heel’s flesh. The point-of-view offered by the body-centred autoethnographic approach is fittingly situated and scaled to detail how new insights emerge from and in turn become incorporated into the body. As such, the cases demonstrate how the exercises progressively cultivate embodied forms of awareness that develop corporeal understandings of the interconnected, in-motion, multiplicities constituting and interweaving the body’s internal and external environments.

In the exercise led by Nelson, the attunement of the neglected senses generates a *multisensory* way of knowing and this makes previously imperceptible relationships between my body and surroundings vibrate into prominence. During the solo practice experience in Helsinki, different scales of body-world *multiplicity* become viscerally apparent and give rise to an invigorating sense of connection and dissolution into material granularity. In the exercise undertaken during the creative process of *Explicit Contents*, the focus on the two-directional nature of touch, and the stimulation provided by the field trip to a different material environment, honed our awareness of material-sensorial movements and connections across the *body-world threshold*. In the exercise undertaken with collaborators during the research laboratory, the focus on the kinesthetic sense led to heightened awareness of the *in-motion condition* of our bodies and surroundings, and this led to kinesthetic tracings of the more-than-human world that became incorporated in embodied memory.

These case studies can be seen to have produced four types of embodied awareness: a *multisensory way of knowing*, awareness of a state of *multiplicity*, attunement to an *in-motion condition* and recognition of interconnection across the *body-world threshold*. These forms of awareness are implicitly interlinked and support and enable one another in their being. For example, the tuning of a kinesthetic — a multisensory form awareness — supports understandings of the in-motion condition of the body-world. In analysing and interpreting the forms of awareness cultivated through an ecofeminist lens, the case studies highlight correspondences with the understandings of ecology and embodiment developed in Chapter 2. What emerges through this analysis is the relevance and direct applicability of these forms of awareness to recognising and attending to the ecological condition of the body and the more-

than-human world.

Multisensory awareness, in cultivating the neglected senses, has the capacity to sense and therefore make apparent previously imperceptible phenomena (Banes & Lepecki, 2007). This has the capacity to reconfigure what humans notice in the world and how they value it. Abram shows how multisensory synesthesia — and the *Tuning Scores* laboratory case study particularly demonstrates — how a tuning-up of the especially corporeal kinaesthetic, haptic and proprioceptive systems, gives rise to connected experiences of the more-than-human other, such that one seems to momentarily participate in the sensual nature of their being (Abram, 1996, p. 128). This thickly felt sense of embodied resonance with the other makes perceptible the previously less perceptible ecological condition of human inseparability from, and enmeshment with, the more-than-human.

Awareness of *multiplicity* gives rise to understandings of the self as a cohort of coalescing human and non-human actions (Parkinson & Bigé, 2018), and as constituted by ecological relations (Milstein & Castro-Sotomayor, 2020). We understand how awareness of multiplicity at the body scale leads to a greater capacity to sense and conceptualise ecosystem scaled multiplicity (Abram, 2020). As such an embodied awareness of multiplicity has significant ramifications for understanding and negotiating the ecological condition of the more-than-human world.

Awareness of exchange and continuances across the *body-world threshold* is shown to transgress a bounded anthropocentric sense of the self (Milstein, 2020) and extends the ethics of the

corporeal self to the more-than-human. This form of awareness reveals the sensorial and political ramifications of perceiving the ecological condition of the body as implicitly continuing and interconnected with the ecological condition of the more-than-human world.

Awareness of an *in-motion condition* tunes the individual to a critical characteristic of the ecological condition: the world is not inert, and neither is the material-sensorial body. The agencies and dynamism of the more-than-human world, as Carson reminds, reverberate through ecosystems, transgress corporeal thresholds and effect and incorporate change in seemingly unrelated, or distant parts of ecosystems (1965). This distinctly ecological mode of sensing therefore has critical ramifications for how humans perceive themselves implicated and entangled with the wellbeing of the more-than-human world.

In analysing these four forms of embodied awareness, I demonstrate how the corporeal understandings they engender have significant ramifications for perceiving the ecological condition of the world, and especially the ecological character of human enmeshment in the more-than-human world. As such, I identify that these forms of awareness constitute a way of knowing that is aptly encapsulated by the term *embodied ecological awareness*. Based on this analysis of methodical dance practice processes and the clear trajectories of practice-based methods causing embodied awareness effects, I therefore propose that the practice-based methods of dance have the capacity to engender an embodied awareness of the ecological condition of the world, or, more simply put, dance practices develop *embodied ecological awareness*.

Chapter 5: Discussion

This thesis investigates how the practice-based methods of contemporary dance cultivate embodied awareness of the ecological condition of the body and its lively enmeshment in the ecological condition of the more-than-human world. The dance practitioners' methods discussed and my case studies show how dance practices engender specific forms of awareness. They give rise to an understanding that the body is a dynamic material-sensorial ecology that is viscerally interconnected with the more-than-human ecologies of the encompassing world. As such, my thesis develops the concept of *embodied ecological awareness* to indicate the particular knowledge of human-world entanglement developed through dance practice. This corporeal understanding — that being human involves being ecological — has important ramifications for how humans sense themselves as involved in the destruction and recuperation of their ecological home.

Summoning disciplinarily specific insights from founding ecofeminists, choreographer Anna Halprin and ecologist Rachel Carson, my thesis establishes that embodiment, that implicating humans at the scale of their own fleshy corporeal ecology, is critical to the production of meaningful understandings of human-earth interdependence. Indigenous standpoint insights provide an important non-Western point of view for understanding how embodied knowledge practices, including dance, form an incorporated part of First Nations ontologies and epistemologies which are grounded in understandings of human-earth indivisibility. These perspectives enable my research to consider the role of embodied knowledge practices, such as contemporary dance, in fostering understanding of human-environment interconnection in Western/ised contexts dominated by anthropocentric systems that perceive humans as separate

from or superior to the more-than-human world.

From my position as a contemporary dance artist and researcher, I unpack how the specific and methodical processes of dance exemplify a practice-based approach to embodied knowledge that engenders greater understanding of the ecological condition of the body and its interconnection with the ecological world. Analysis of the practice-based methods of influential contemporary dance artists Anna Halprin, Steve Paxton, Lisa Nelson, and Chrysa Parkinson in relation to key humanities and social sciences theories including situated knowledges (Haraway, 1988), ecocultural theory (Abram, 1996; Milstein & Castro-Sotomayor, 2020), non-human agency (Latour, 2017) and trans-corporeality (Alaimo, 2008) demonstrates how dance practices train, put into practice, and promote understandings of an embodied ecological condition. The insights emerging at the intersections of these knowledge worlds highlight four distinctive ways that dance practices give rise to *embodied ecological awareness*. These forms of awareness which include the knowledge of an embodied state of *multiplicity*; recognition of an *in-motion condition*; perception of interconnection across the *body-world threshold*; and *multisensory* awareness, underpin critically more ecocentric ways of relating to the more-than-human world.

Further elucidating the procedural embodied methods involved in contemporary dance, the four body-centred autoethnographic case studies highlight how dance practices demonstrably give rise to these four forms of *embodied ecological awareness*. The case studies reveal how dance practices affect *multisensorial* attunement that produces a heightened sense of connection to more-than-human others. They also demonstrate how a corporeal knowledge of *multiplicity* enables comprehension of ecosystem multiplicity. Correspondingly, the *body-world threshold* is

transformed into a zone that fosters, rather than limits, ecological movements, while a heightened perception of *motion* develops the capacity perceive how actions have follow-on effects that permeate through vast ecological worlds. Through a rigorous process of transdisciplinary analysis and body-centred autoethnographic research, my thesis reveals the fundamentally ecological character of the forms of knowledge developed in dance practice — knowledge that is imminently relevant to the task of recuperating human-environment relations in the face of the climate crisis.

Significance

The world needs knowledge practices that can transform the still dominant anthropocentric paradigm which understands humans as separate from or superior to the more-than-human world. Significant humanities and social sciences scholarship argues that these understandings must become embodied; they must become meaningful to the emotional-material-semiotic corporeality of the human beings involved with causing and transforming such destructive ways of being in order to affect significant behavioural change. With my thesis, I demonstrate how a dance practice-based approach to embodiment involves knowledge processes that engage with the systems of the corporeal body and effect understandings that inhabit, that *live* within, the body. As such, my study establishes that the kinds of understanding produced by a practice-based approach to embodiment are different to, and significantly enrich, the kinds of understanding produced by theoretical explanations of the role of embodiment in broader ecological discourses.

In the context of the ecological crisis, the capacity to effect new kinds of understanding of

human-environment relations is critical. Throughout this study, I demonstrate how the practice-based methods of dance develop one's capacity to perceive and engage with a body-world condition constituted by *multiplicity*, *mutability*, and *interconnection*. I show how these qualities underpin an ecological condition. I describe how from such a position of embodied awareness, one cannot help but sense oneself as deeply entangled in a web of interconnection and exchange with the more-than-human world. One recognises that oneself, one's body, thought processes, actions, and impulses are all deeply embedded in flows and relations, consequences and follow-on effects that ricochet through earthly ecologies and implicitly involve and impact more-than-human others. If dismantling dominant anthropocentric paradigms requires humans to sense themselves as connected to, rather than separate from or superior to, more-than-human ecologies then the development of an embodied awareness of an ecological condition has significant ramifications for the knowledge practices humans need to engage with to address the climate crisis. With this research, I establish that embodied practices are critical to arriving at adequate understandings of the ecological condition of earthly being and put forth the claim that practice-based approaches to embodied knowledge must play a critical role in knowledge systems committed to recuperating human relations with the more-than-human world.

My research proposes that an embodied awareness of being ecological will help humans better understand their place within planetary eco-systems. If one touches a part of the world (and one is always in contact with the world) then one is immanently engaged in its relays of cause of and effect. These relays permeate multi-directionally through the vast ecological webs of the body and the more-than-human world; through organs, tissues, nerves, hormones, sensations, and drives to action; through soil worlds, insect lives, plant processes, water movements, air

compositions, microbial colonies, and vast ecosystems of more-than-human others. Down to the simplest action of breathing, the starting place for many of the dance practice exercises discussed, we perceive how the body is permeated by and in turn permeates the ecologies threaded within, beyond, and touching up against its skin membrane.

Acting in a world on the brink of ecological destruction requires ways of acting that remain awake to relays of ecological effect; it requires comprehending the multitudes of more-than-human bodies/agents, miniscule and large, that are affected by human action. My proposition is that *embodied ecological awareness* is a form of awareness that makes it harder to act without a sense of impacting and being involved with the more-than-human world. I envision this form of awareness means that the *multitudes* of lives or actors involved in any situation become more comprehensible, more understandably relatable to the *multiplicity* that constitutes one's own self. The awareness of an *in-motion condition*, similarly, makes it harder to ignore the actions in process, the more-than-human lives being lived, at timescales different, though no less valuable, than that of a corporeal human life. The entanglement of the senses that make objects at a distance feel-able and knowable within the flesh of the body, entails a way of acting that means the consequences for the other also always inhabit the corporeality of one's own being. If to talk about a temperature rise is also to know the feeling of one's own body overheating, or if discussing extreme weather events also saturates one's own nervous system with the sensation of impending obliterating physical force, then the body provides a material site for perceiving, for anticipating, how one is involved in ecological continuities that might otherwise seem distant, separate, or not imminently applicable to the individual human life being lived. As such, with the concept of *embodied ecological awareness*, my research speculates that the forms of knowledge

engendered by a more embodied and practice-based approach to understanding our human place on the planet might affect the ways human act with a sense of responsibility to, and interdependence with, the more-than-human others they are implicitly involved with.

In formulating the concept of *embodied ecological awareness*, and fleshing it out through an analysis of contemporary dance methods, my study makes dance practices and the embodied knowledge produced by the artists cited eminently relevant to broader interdisciplinary discussions about the methods and knowledge practices required to reconfigure entrenched and destructive human ways of relating to the more-than-human world. The practice-based methods of dance effect embodied understandings of a condition of ecological interdependence, and hence directly enact what environmental humanities and social science theories speculate might be achieved by an embodied approach. Therefore, dance practices can be understood to offer significant actionable practice-based new knowledge, tools and methods to these the humanities and social sciences.

Another point of significance is this research's contribution to the ways dance practices become relevant and valuable to wider fields of knowledge. Dance knowledges are recognised for their capacity to expand embodied and conceptual discourse and practices in the creative arts (Lepecki, 2012, 2016), and their positive ramifications for health and well-being are significantly documented (Karkou et al., 2017). With this study of how dance practices develop embodied ecological awareness, I contribute to a new, under-theorised area of study: that is, how dance knowledges help humans to understand their embeddedness in environmental and ecological problems. My research, therefore, expands how dance practices are valued and relevant in other

disciplinary fields of study, as well as within the transdisciplinary and arguably most urgent problem of our time: how humans can transform dominating anthropocentric modes of being and engage in ways of being that are more attuned to their embodied connection and interdependence with the more-than-human world.

With the concept of *embodied ecological awareness*, I theorise a potentially transformative transdisciplinary practice-based concept. My research demonstrates how *embodied ecological awareness* is developed through contemporary dance practices. As such, this study may provide a useful framework for other practice-based embodied knowledge forms to develop their ecological ramifications. This thesis, therefore, bolsters the way embodied knowledge practices are recognised as actionable in efforts toward dismantling anthropocentric behaviour and enacting alternative ways of being that are grounded in felt understandings of more-than-human responsibility.

Limitations

The limitations of my thesis relate to the size and scope of the MPhil format. The thesis is focused on addressing the primary research question: how do contemporary dance practice methods develop embodied ecological awareness? In the study, I focus on the practices of four significant dance artists from the canon of Western contemporary dance practice, Anna Halprin, Steve Paxton, Lisa Nelson, and Chrysa Parkinson. I also further develop my theory through body-centred autoethnographic reflections on my personal dance practice experiences in largely Western/ised dance practice contexts. I acknowledge that the dance artists studied, and case studies addressed reflect my particular positionality within a Western/ised and therefore limited

area of dance practice. A broader survey of diverse dance artists' methods would strengthen and generate a more nuanced understanding of how dance practice methods cultivate embodied ecological awareness.

Furthermore, I frame this study by acknowledging that embodied methods involving dance practice play a significant role in diverse cultural practices that connect different cultures in different ways into strong knowledge relations with environments. I acknowledge that embodied practices are foundational to Australian Indigenous knowledge systems. In analysing the importance of embodied knowledge practices in developing understandings of human responsibility to the more-than-human world, the research would benefit from further literature, and in-depth first-hand case studies led by First Nations dance practitioners.

Beyond identifying that dance practices develop an embodied form of awareness that is recognisably ecological in character, my research also aims to indicate that these practices are relevant to broader discourses dedicated to reconfiguring human-environment relations in the context of ecological crises. Therefore, the broader aims of this research would be enriched by the inclusion of different practice-based approaches to the development of embodied knowledge, such as meditation, yoga, somatic practices, and other embodied knowledge systems. The study would also benefit from greater research into the impacts of embodied practices in developing ecological understandings for both expert and non-expert practitioners of the method. These more diverse approaches to researching the impacts embodied practices would expand the methods and definition of embodied practice I put forward. This would potentially contribute to a broader scope of applicability for this study and strengthen my proposition that embodied

approaches to knowledge are explicitly relevant to how humans act in relation to the ecological crisis. This is important because embodied knowledge practices are, by their very corporeal nature, implicitly grounded in already-ecological material systems, modes of perception, and ways of being.

Further Research

In this study, I establish a strong foundation for further research. Given the clear focus on practice-based approaches to embodied knowledge, this study lays an important foundation for further research through a practice-based approach. Such research would have the capacity to widen the scope of the study beyond extant literature and autoethnography. In such a study one might focus on developing and engaging in embodied practice-based processes with participants with both diverse dance and non-dance experience. With this study I also lay the groundwork for the development of a specific practice-based methodology, grounded in dance knowledges, for cultivating embodied ecological awareness. I imagine this as a permeable kind of repository of tools/methods that are accessible and diversely applicable to different education and engagement contexts, particularly for people with no prior dance experience.

This thesis establishes a productive framework for further enquiries into (the impoverishment of) embodied practices in Western culture and the historical processes of Western cultures' disconnection from more ecocentric ways of being. It also establishes an important rationale for research of embodied ecological awareness situated in non-Western dance practices, led by culturally diverse and First Nations dance practitioners/researchers. The frameworks developed through this study are not necessarily appropriate for differently positioned standpoints, but the

ideas and knowledge practices discussed would be enriched by further interaction with research led from non-Western perspectives. Such research has the capacity to produce strong, time-tested evidence of the critical role of embodied knowledge in practices of human-earth responsibility.

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Appendices

Appendix A: List of Works, Residencies and Workshops

This list details the creative works, workshops and residencies discussed in the *Chapter 4: Exercising Embodied Ecological Awareness* case studies.

1. *Workshop, 12-17 January, 2019*: Lisa Nelson (workshop leader), *TUNING SCORES Laboratory: Composition, communication, and the sense of imagination* at Movement Research, MELT Winter Intensive, 150 1st Avenue New York, NY 10009.
<https://movementresearch.org/event/9687>
2. *Artist Residency, 10 September - 3 December, 2019*: Rhiannon Newton (artist-in-residence), Helsinki International Artist Programme (HIAP), Suomenlinna Island, Finland, supported by the Australia Council for the Arts International Residency Program
<https://www.hiap.fi/resident/rhiannon-newton/>
3. *Creative Development, 14 September - 2 October, 2020*: Rhiannon Newton (choreographer), of the dance work *Explicit Contents*, developed and presented Campbelltown Arts Centre, Dharawal Land, Campbelltown, in collaboration with dancers: Ivey Wawn and David Huggins, composer: Peter Lenaerts, lighting designer: Karen Norris and costume designer: Agnes Choi, presented in Sydney Festival 6-9 January, 2021. <https://c-a-c.com.au/explicit-contents/#>

4. Dance Research Laboratory, 8-10 April, 2021: Rhiannon Newton (workshop leader), Critical Path Responsive Residency program, undertaken at ReadyMade Works Inc. studio, Gadigal Land, Sydney, with dancers and interdisciplinary artists: Nikki Heywood, Amaara Raheem, David Huggins, Ivey Wawn, Raynen O’Keefe and Emalyn Knight.
<https://criticalpath.org.au/programs/rhiannon-newton/>