CHAPTER 1 – INTRODUCTION
SETTING THE SCENE FOR CHANGE

A small group of thoughtful people could change the world.
Indeed, it's the only thing that ever has
(Margaret Mead, 1901-1978).

A research focus

We live in challenging and rapidly changing times and the calls to act locally and globally for a sustainable future are increasing internationally (Flannery, 2008; 2010; Gore, 2006; Stern, 2006; Suzuki, 2010; World Wide Fund for Nature, 2010). The daily media coverage about the impacts and challenges of human survival on this planet from climate change to water and food security, pollution and decreasing biodiversity heightens such calls. Critically, education is identified as a key platform for facilitating societal change and progressing sustainably for the future in both formal e.g. schools, early childhood services, tertiary institutions, and non-formal e.g. community groups, education sectors (Bonnett, 2002; Huckle, 2006; Sterling, 2001; Stibbe, 2009). A current global initiative promoting education as a driving force for sustainability is the *UNESCO Decade of Education for Sustainable Development 2005-2014* (UNESCO, 2005a). In broad terms the formal education sector, particularly the school sector, has responded and a range of initiatives can be cited both internationally and locally over the last two decades (Commonwealth DEH, 1999; 2000; 2005; 2007; Henderson & Tilbury, 2004; Tilbury, Coleman & Garlick, 2005). The early childhood education field has lagged behind in responding to the challenges of sustainability (Davis, 2010; Elliott & Davis, 2009; NSW EPA, 2003; Tilbury, Coleman & Garlick, 2005; UNESCO, 2008a). Notably, Davis (2009) has described a research hole in relation to early childhood education for sustainability, yet research is identified as a key element in moving forward (Davis & Elliott, 2003; Elliott & Davis, 2009; UNESCO, 2008a).

Recognition of an urgent need for change towards sustainability in the early childhood field provoked and facilitated this study. Critical Participatory Action Research (CPAR) methodology (Kemmis & McTaggart, 2005) was employed with two early childhood centres as case studies over a one-year research period. The overriding aim was to achieve transformative change in the approach to education for sustainability in the early childhood settings. In this introductory chapter the scene is set for change by beginning with a clarification of key concepts and a statement of the driving research questions. An autoethnographic statement of my professional journey offers support; a journey that now locates this study historically and has significantly provoked my engagement in research. Further, an outline of current dynamic local and global contexts justifies the need for urgent change in the early childhood field. The chapter then concludes with an overview of what is to follow.

Key concepts

In the following paragraphs some key concepts are highlighted that have been instrumental in setting the scene for change and most pertinent to this study.

While it was relatively easy to define early childhood as a key concept, defining environmental education, sustainability, education for sustainability and natural playspaces proved somewhat problematic. The following paragraphs alert the reader to some of the complexities, prior to fully engaging with this thesis.

Early childhood is often referred to theoretically as the developmental period from birth to eight years (Bredekamp, 1987), however in practice, in Australia and elsewhere, early childhood most often refers to the period from birth to six years, prior to school entry. The latter definition was applied in this study and reflects the ages of children attending the early childhood centres, further it clearly differentiates early childhood play-based child-centred approaches that are often at odds with curriculum-focussed programs in schools. Further, socio-cultural approaches informed by the work of Bronfenbrenner (1979), Canella (1997), Fleer (1995) and Rogoff (1990) and the *UN Convention on the Rights of the Child* (UNICEF, 1989) underpin early childhood education philosophy and pedagogy in many Western countries. Early childhood education as a generic term here refers to children from birth to six years, the services and professionals that promote children's education and care and the underpinning philosophies and pedagogies.

Environmental education can now be viewed in an historical context as it was framed as the antidote to growing concerns about a range of environmental issues through the 1960s and 70s (Gough, 1997). It was promoted in the Western world through pivotal international UNESCO meetings. For example, environmental education was enshrined in *The Belgrade Charter* (UNESCO UNEP, 1975) and *The Tbilisi Declaration* (UNESCO UNEP, 1977) as a means to essentially build awareness and knowledge of human interdependencies with the environment and to promote resolution of environmental issues. Environmental education was the term readily applied throughout the 1980s until *The Brundtland Report* (WCED, 1987) and *Agenda 21* (UNCED, 1992). These milestones signalled a shift to sustainability as a more encompassing term that recognised the dynamic interplay of social, economic and environmental realms. Sustainability also encompasses an overriding temporal dimension; it is not simply about us here and now, but promoting longer-term human thinking and action for the intergenerational equity of all species.

Education for sustainability has now mostly supplanted environmental education as the term of choice in Australia, although at times the terms are used together or interchangeably (Commonwealth DEH, 1999; 2005). Internationally environmental education is still more commonly employed in the United States of America and the term education for sustainable development is applied in Europe (UNESCO, 2005a). Education for sustainability is the preferred term in this thesis. A review of key literature indicates that it is most often characterised by a

list of principles (Commonwealth DEH, 2005; Commonwealth DEWHA, 2009; Davis, 2010; Sterling, 2001) such as holistic, experiential, critically reflective, collaborative, problem-based, systemic and participatory. There is no one right way to engage in education for sustainability, particularly in a dynamic global context where change is the only constant (Stibbe & Luna, 2009). However, drawing on the aims of the *United Nations Decade of Education for Sustainable Development* (UN DESD 2005-14) (UNESCO, 2005a), Davis (2010) has argued that it is the transformative agenda of education for sustainability that must take precedence for a sustainable future. Participants must be empowered to act and change their way of being in the world; it is not enough to simply be in nature. This transformative agenda strongly informs the philosophical stance and methodology (Refer Chapters 3 and 4 respectively) that underpin this study, where participants were facilitated to create their own transformative journey based on their contextualised meanings of sustainability and education for sustainability.

A natural playspace is essentially a physical context comprising diverse natural elements such as sand, rocks, soil, water and plants; and, readily distinguishable from generic synthetic playspaces predominated by plastic. At its most encompassing a natural playspace could be a mud puddle, a bushy thicket or a sensory rich garden that invites children's play. Applying this notion to early childhood settings there is much potential for children's engagement and learning through play in natural playspaces. Varied sensory experience, playful manipulation of natural elements, exploration, risk-taking, a sense of wonder and identification with place are possible (Elliott, 2008). Natural playspaces are

> *landscapes for children to embroider with the loose threads of nature.* In such landscapes, children can create meaning, develop a sense of place, connect with the natural world and feel empowered to live healthy sustainable lives. (Elliott & Davis, 2008, p. 12)

Importantly, for early childhood educators each natural playspace is uniquely determined by the landscape and the centre community and is always evolving. It is these latter points which resonate most strongly with this research study. As a researcher, I invited active centre community participation in the evolution of their playspaces.

Research question/s

The key question guiding this research study was; What occurs at the interfaces between natural playspaces as physical contexts for play and the socioculturally constructed meanings of sustainability and education for sustainability? It was proposed earlier that education for sustainability required more than natural elements outdoors for play and the interfaces were considered to be deep and complex, thus warranting investigation. The specific sub-questions for this study included:

- What perceptions about sustainability and education for sustainability were evident in the early childhood centre communities?
- How are early childhood centre communities best empowered to engage in transformative change for sustainability and was action research, as an education research paradigm, relevant to this endeavour?
- What framework can theoretically describe the interfaces between natural playspaces, sustainability and education for sustainability to prompt further dialogue, debate and change?

These specific sub-questions provided guidance throughout the study, but true to action research further questions emerged as the study progressed (Kemmis & Mc Taggart, 1988a; 1988b). These included: What was the link between early childhood philosophy and pedagogy and education for sustainability? How did leadership and relationships between participants impact on the transformative processes? What was the transformative experience of the researcher? The thesis title 'Sustainable outdoor playspaces in early childhood centres: Investigating perceptions, facilitating change and generating theory' embraces the multifaceted nature of these questions for both centres.

Autoethnographic statement: A professional journey over two decades

The focus for this research study stems from an ethical commitment to sustainability and over twenty-five years experience as an early childhood practitioner and teacher educator. Two intertwined themes have dominated my professional work during this time, education for sustainability and natural outdoor playspaces. In relation to education for sustainability, the journey began in the 1980s when the term environmental education was more commonplace and the implementation of environmental education in school curricula was well underway (Gough, 1997). The Australian Association for Environmental Education Conference (AAEE) held at Lorne, Victoria, in 1986 was a seminal time in the journey. It was then that I began to question the absence of early childhood in discussions and literature about environmental education. In the aftermath to the conference I instigated a number of initiatives over the following decade including the presentation of professional development programs, publications (Elliott, 1988; 1992; 1995; Elliott & Emmett, 1991; 1997) and the establishment in 1992 of a professional network, Environmental Education in Early Childhood Vic. Inc. (EEEC). Others in Australia around the same period also began promoting early childhood environmental education, notably Davis (1998), Kowalski (1997) and the Gordon Community Children's Centre (1993). Also, some initiatives led by Ruth Wilson (1993; 1994) provided further support for the parallel emergence of early childhood environmental education in Australia and the United States of America. At that time there was very limited research to draw upon for progressing early childhood environmental education. Further, what was available focussed on children's

knowledge about the environment (Lavanchy, 1993; Palmer, 1995) and practitioner publications often focussed on children's nature activities in the environment (Cousins, 1996; Faragher & Salter, 1994; Lewis-Webber, 1993; Shantal, 1998). A challenge for advocates throughout this early period was to construct understandings of theory and pedagogy without a comprehensive research base. This often led to what now appears to be a somewhat simplistic emphasis on knowledge, skills and attitudes (Elliott & Emmett, 1997; Gordon Community Children's Centre, 1993) and long lists of environmental activities (Targowska, 1991). A further challenge during this period was to straddle both the early childhood and environmental education fields to secure recognition of the foundational role of early childhood environmental education. The tenet that environmental education was life-long learning and therefore beginning in early childhood, not school, was identified in government publications (Commonwealth DEH, 1999; Victorian Environmental Education Council, 1992), but not readily acknowledged or evident in either field. More recently Davis' (2009) literature review, still attested to the lack of published research to inform practice, particularly research that focused on acting for the environment where young children were active and empowered participants in change.

With the new millennium and new advocates, the momentum increased over the next decade 2000-09. The New South Wales Environment Protection Authority (NSW EPA) commissioned me to review early childhood environmental education across Australia and *Patches of Green* (NSW EPA, 2003) was the resultant benchmark publication. Further, other state-based professional networks were established in Australia, namely the New South Wales Early Childhood Environmental Education Network (NSW ECEEN) and the Queensland Early Childhood Sustainability Network (QECSN), formerly the Queensland Early Childhood Environmental Education Network (QECEEN). With support from the AAEE in 2003, I founded and continue to convene the national AAEE Early Childhood Special Interest Group (AAEE EC SIG). Dedicated early childhood education for sustainability conferences bridging Australia and New Zealand were also held in 2006, 2007 and 2009. At each of these conferences the growing engagement of the early childhood field with education for sustainability was observed. Local and international mainstream organisations such as Early Childhood Australia have also demonstrated their engagement through conferences and publications in recent years (Ang, 2010; Davis & Elliott, 2003; Kinsella, 2007; 2008; UNESCO, 2008a). In 2009, the Looking Ahead report (Victorian DEECD, 2009a) flagged the extension of the Australian Sustainable Schools Initiative (AuSSI) to include early childhood services in Victoria. At the same time Young's (2009) research provided a strong foundation for the extension of AuSSI into early childhood.

The catch phrase 'mainstream not marginal' (Davis, 1999; Davis & Elliott, 2003) characterised the first decade of the new millennium. In Chapter 2, specific initiatives during this first decade are expanded upon. The current groundswell in early childhood education for sustainability is a consequence of '20 years of advocacy by a small band of individuals and their networks' according to Davis (2010, p. 26). As a key member of this band it is rewarding to observe some

credible change and reflect that my personal journey increasingly became a shared journey in early childhood sustainability.

The second theme of the professional journey, natural outdoor playspaces was very much intertwined with the first theme described above. I found the trend towards catalogue-driven synthetic early childhood playspaces to be a major cause for concern in the early childhood field (Elliott, 2008). This concern arose from a personal ethic of sustainability and research into other perspectives including children's play affordances (Fjortoft & Sageie, 2000; Gibson, 1986; Lester & Maudsley, 2006), health and wellbeing (Moore & Cooper-Marcus, 2008; Munoz, 2009) and nature connections (Kahn & Kellert, 2002; Louv, 2008). With like-minded professionals I attempted to reverse this trend by editing *The Outdoor Playspace Naturally* (Elliott, 2008). In addition, professional development across Australia about natural playspaces and the advocacy work of Play Australia (formerly the Playground and Recreation Association of Victoria (PRAV)) have spurred change. In a relatively short period, change has become evident in the field and is supported by early childhood practitioners and state and federal government documentation (Commonwealth DEEWR, 2009; Elliott, 2010e; Victorian DEECD, 2009; Victorian DHS, 2007). In particular, the national curriculum document *Belonging, Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009, p. 15-16) explicitly promotes natural outdoor playspaces as

> Playspaces in natural environments include plants, trees, edible gardens, sand, rocks, mud, water and other elements from nature. These spaces invite open-ended interactions, spontaneity, risk-taking, exploration, discovery and connection with nature.

Concurrently, international initiatives such as the World Forum Nature Action Collaborative, the Children and Nature Network and the forest preschool movement (Knight, 2009; Warden, 2010) have affirmed that play in nature must be an item on the early childhood education agenda in Australia and globally.

The intertwining of the themes, education for sustainability and natural outdoor playspaces, has created a space for much reflection and questioning in this professional journey. In my professional experience educators have often cited natural playspaces as integral to education for sustainability, but I questioned in what ways are natural playspaces seen to be integral to education for sustainability? Is playing with rocks, logs and leaves enough to elicit education for sustainability as a 'frame of mind' (Bonnett, 2002, p. 14)? What happens at the interfaces between the physical context of a natural playspace and the socioculturally constructed meanings of sustainability and education for sustainability? Further, when editing *The Outdoor Playspace Naturally* (Elliott, 2008), eleven case studies of centres developing natural outdoor playspaces were documented. It was evident that natural playspaces were more than a tangible collection of natural elements. The documented collaborative efforts of educators, children and families to create natural playspaces, the evolving sense of place and problem solving processes reflected

something deeper which bore resemblance to published principles of education for sustainability (Commonwealth DEH, 2005; Commonwealth DEWHA, 2009; UNESCO, 2005a). More recently, in a publication edited by Davis (2010), I reflected again on the interfaces and described the potential for children's affective knowing, cognitive knowing and agency in natural playspaces as links to education for sustainability (Elliott, 2010c). It is this ongoing questioning, perhaps my troubling of the interfaces between natural playspaces and the socioculturally framed notions of education for sustainability and sustainability that have provoked this study.

Therefore, my proposition is that education for sustainability demands more than the tangible rocks, logs and leaves found in natural playspaces. But, how do we describe, characterise or identify an exemplary sustainable early childhood outdoor playspace and what is the potential in a natural playspace for education for sustainability? The questions drawn from this professional journey have prompted my engagement in deeper investigation. This research journey was proposed with an underlying commitment to facilitate collaborative and transformative change in early childhood centres towards action for the environment and potentially, sustainable futures for all. Research for the environment has been much neglected in the early childhood field (Davis, 2009) and this study may partly bridge this gap.

Hence, this study is located historically and professionally at a critical juncture. It did not simply emerge now as relevant and informative, but was driven by just over two decades of advocacy, demanding action at all levels to ensure that early childhood education for sustainability was mainstream (Davis, 1999; Davis & Elliott, 2003). The time is right now for provoking and facilitating urgent transformative change in the early childhood field.

Current local and global contexts: A new decade of urgent change

In 2011 there is no denying the global concerns of sustainability. As early as 1962 the environmentalist, Rachel Carson, preempted our current global predicament warning that 'we are dealing with dangerous things and it may be too late to wait for positive evidence of danger' (p. 16). Numerous international reports (Commonwealth of Australia, 2008; Stern, 2006; World Wide Fund for Nature, 2010), intergovernmental meetings (United Nations Climate Change Conferences in Copenhagen, Denmark 2009 & Cancun, Mexico, 2010), published literature by eminent long-term advocates (Flannery, 2010; Suzuki, 2010) and the world media call for urgent change in the way we live our lives. Without change, the future appears perilous to many. At all levels education for sustainability is widely promoted as the vehicle for change (Commonwealth DEH, 2005; Commonwealth DEWHA, 2009; Tilbury, Coleman & Garlick, 2005; Victorian DEECD, 2009a; UNESCO, 2005a). Education for sustainability is also described as life-long learning beginning in early childhood (UNESCO, 2008b), yet as discussed by Elliott and Davis

(2009) the purposeful engagement of the early childhood field has been slow. These discussions are reaffirmed by the UNESCO mid-term review of the Decade of Education for Sustainable Development 2005-14 (2009, p. 49) which states 'in many parts of the world the role of early childhood education in developing and implementing ESD is not always clear and therefore hardly emphasized'.

Local interest in early childhood education for sustainability built gradually during the first decade of the new millennium. The second decade of the new millennium, beginning in 2010, was marked by a significant increase in momentum. In that year, the Australian National Education for Sustainability Network (NESN) approved the establishment of an early childhood sub-group to develop a national early childhood AuSSI program (J. Leifman, personal communication, October 21, 2010). A pilot program is to commence in 2012 under the auspices of Sustainability Victoria (J. Leifman, personal communication, October 12, 2011). These steps represent the first funded national program initiatives in early childhood education for sustainability in Australia. The proposed program will build on the research of Young (2009) and the success of one of her research sites in becoming the first accredited AuSSI early childhood centre (Willsher, 2010). Supporting these national firsts in 2010, the output of Australasian publications has continued apace (Davis, 2010; Duhn with Bachmann & Harris, 2010; Ellis, 2010; Ellwood, 2010; Phillips, 2010; Ritchie, 2010). The publication by Davis (2010) is unique internationally as the first comprehensive guide for pre-service early childhood educators in education for sustainability.

Internationally, the 2010 OMEP World Congress (World Organisation for Early Childhood Education) in Gothenburg, Sweden, promoted early childhood education for sustainability as a key theme and OMEP has published a related document (Siraj-Blatchford, Smith & Pramling Samuellson, 2010). Further, Pramling-Samuellson as the OMEP World President and a holder of UNESCO chairs in Early Childhood Education and in Sustainable Development has been a recent key advocate (Siraj-Blatchford, Smith & Pramling Samuellson, 2010). Another significant event in 2010 was the inaugural Transnational Dialogues, an early childhood education for sustainability research meeting, held at the University of Stavanger, Norway with fourteen invited Scandinavian and Australasian participants. This meeting provided a foundation for collaborative research and publication and from an Australasian perspective secured our leading role in change. A second meeting in Brisbane in 2011 consolidated an international research and publication agenda. Other countries have also begun to demonstrate greater interest in early childhood education for sustainability. For example, the United Kingdom Preschool Alliance (2010) published *My Favourite Colour is Green*. Also, the Japanese Ecosystem Conservation Society conducted study tours of Australian sustainable early childhood centres in 2010 and 2011 and the North American Association for Environmental Education (NAAEE) (2010) published *Early Childhood Environmental Education Programs: Guidelines for Excellence***.**

This brief overview of the very beginning of the second decade of the millennium clearly

demonstrates a quickening pace of change and much potential for early childhood education for sustainability as the decade unfolds. The timing of this research study is apt, as there is growing engagement in early childhood education for sustainability by practitioners, academics, key organisations and governments both locally and internationally. However, as Davis (2010, p. 38) cautions there is a 'small research base upon which to grow'. I believe the underlying imperative here is that change towards sustainability in the early childhood field is not only informed by research, but also facilitated by research. Hence, in this instance, critical participatory action research (Kemmis & McTaggart, 2005) was selected as a methodology to potentially promote transformative change with the research participants (Refer Chapter 4). The resulting thesis may well assist with transformative change in the early childhood field beyond the participants.

Thesis overview

In this critical participatory action research investigation with two early childhood centres, an agenda of transformative change for sustainability was a key element. The clear intention was to engage with the centres using a range of methods such as participant observation, interviews and focus groups, but also inviting each centre to focus on a self-selected action priority for sustainability in their outdoor playspace. Over the one-year study period it was anticipated that the data thus created would be documented as case studies of two transformative journeys, potentially journeys of empowerment for the research participants. Further, analysis revealed participants' perceptions about sustainability and education for sustainability, various dimensions of their change process and lead to the creation of a theoretical framework about the interfaces under investigation.

In line with the ethical agreements made with the participating organisations, pseudonyms were allocated to each early childhood centre. The names selected *Banksia* and *Acacia,* are genera of Australian native flora and intended to be symbolic of the growth and changes that occurred during the research study. The pseudonyms, Banksia Childcare Centre and Acacia Kindergarten, also reflected references to Australian native tree planting as a priority that occurred in both centres as part of initial research discussions. Further, these pseudonyms had value as metaphors. Cortazzi and Jin acknowledged that metaphor is useful in creating bridges between 'the known and the unknown, the tangible and the less tangible, the familiar and the new' (1999, p. 149). In the process of bridge-making between the research writer and reader there is an opportunity for meaning and understanding to be enhanced by metaphor. The use of metaphors here served to illuminate and characterise each case study and each is described and explored in depth in Chapters 5 and 6 respectively.

In this introductory *Chapter 1*, the scene is set for this investigation of early childhood education for sustainability in outdoor playspaces, key concepts are clarified, guiding research questions identified and I have positioned this study and myself historically. The dire need for research

to inform growth in the early childhood field at this critical juncture of increasing engagement in sustainability has been established. *Chapter 2* surveys and examines the published literature across relevant discourses including children and nature, outdoor playspaces, sustainability, education for sustainability and leadership for change. Research gaps are identified, not only about early childhood education for the sustainability, but also the relationship between natural playspaces and education for sustainability. *Chapter 3* outlines the philosophical stance that firmly underpins this research study in terms of axiology, ontology, epistemology and methodology. This study is deeply grounded in my ethic of sustainability, a biocentric worldview and subscription to the tenets of Friere (1999) and systems theorists (Bateson, 1979; Capra, 2002; Maturana & Varela, 1989). *Chapter 4* builds on this philosophical stance, detailing the critical participatory action research (CPAR) methodology (Kemmis & McTaggart, 2005) employed and the research instruments implemented with the participants at the two case study centres. Research ethics and challenges are also addressed in this chapter.

In *Chapters 5* and *6,* the transformative journeys of Banksia Childcare Centre and Acacia Kindergarten are described through narratives which detail and examine the change processes with reference to the data and links to previous research. Woven into these two chapters are reflections about experiences of transformation and the research study itself for all participants. *Chapter 7* offers a reflective focus on comparative analysis and theory generation. A central feature of this chapter is a theoretical framework of nested systems depicted as triangles to conceptualise the interfaces between natural playspaces, sustainability and education for sustainability and how transformative change for sustainability may occur in early childhood settings. This theoretical framework is presented not as a fait accompli, but as a prompt for further dialogue and debate informing the growth of early childhood education for sustainability as praxis. *Chapter 8* reflects more broadly on challenges and possibilities for the future in early childhood education for sustainability. It examines how early childhood education for sustainability might progress over the remainder of this decade and beyond and what are likely to be key facilitators.

'The role of early childhood education in helping to build a sustainable society is a pivotal one' according to Ang (2010, p. 3). This research study has recognised this pivotal role and seeks to shift ways of thinking and acting in early childhood settings to help to ensure that education for sustainability becomes embedded as a 'frame of mind' (Bonnett, 2002, p. 14). If current and future generations are to live in synergy with the environment they need to come to an understanding of the critical interdependencies of life on Earth, how humans impact on the Earth and its species and how humans as a species should be on this planet. Early childhood education for sustainability is essential not optional if children are to be active empowered participants in sustainability now and into the future (Elliott, 2010a).

CHAPTER 2 – ROCKS, TREES AND LOGS ARE ONLY PART OF THE STORY: A LITERATURE REVIEW OF EDUCATION FOR SUSTAINABILITY AND CHILDREN'S PLAY IN NATURE

In a world increasingly saturated with electronic media, McKibben (Thoreaux with McKibben, 1997, p. xix) reminds us that 'It [Nature] provides reality, in place of the endless electronic mirages and illusions that we consider the miracle of our moment'.

Introduction

This literature review draws on diverse disciplines and research paradigms from positivist research about children's health to postmodern theorising about the meanings of sustainability and human constructs of nature. In turn the breadth and depth of each discipline or paradigm may pull in opposing directions. The challenge Kamler and Thomson (2006) propose is to persuade the multiple and diverse arms of the literature-review-octopus into the jar. The intention here is to contextualise this research within multiple and diverse research arms, some long established and some recent, and to elaborate on the rationale for the research questions which were postulated in Chapter 1. Influential and relevant literature arms that will be examined include: sustainability and education for sustainability; a brief history of early childhood education for sustainability; education for sustainability as a transformative process; an historical perspective on playspaces and images of children; current issues in children's sociocultural contexts; and, children and nature connections. The review concludes with identification of the research gap that this study seeks to partially fill.

Sustainability and education for sustainability: What are they and how are they linked to early childhood?

There is increasing concern about human impacts on the global environment. Most recently these have been brought to the fore internationally by Gore's (2006) film *An Inconvenient Truth*, the *Stern Review* (2006) of the economics of climate change, the *Garnaut Climate Change Review* (Commonwealth Government of Australia, 2008) and Flannery's (2008) Quarterly Essay *Now or Never* to name but a few. For those who have been part of environmental movements for many years this broad increase in awareness of environmental issues is reassuring, but unfortunately it has taken significant global events associated with climate change such as melting ice caps, cyclones and tsunamis to prompt some consideration and action. Humans are living beyond the earth's biocapacity and as Flannery (2008) has suggested we are poised at a point of no return in terms of the ecosystems that support life on Earth. It is 'now or never' that we actively seek sustainability, it is the most pressing challenge and 'for authentic human being the attitude of sustainability is not a bolt on option but a necessity' (Bonnett, 2002, p. 19). This view is

also affirmed by David Suzuki (2010, p. 3) who stated 'only by confronting the enormity and unsustainability of our impact on the biosphere will we take the search for alternative ways to live as seriously as we must'.

But, what is sustainability? The word sustainability has been increasingly used in diverse domains such as sustainable investments, sustainable building or sustainable harvesting; and, a review of the literature (Bonnett, 2002; Huckle, 2006; McKeown & Hopkins, 2003; Stibbe, 2009) locates many definitions and many debates. The purpose here is not to reignite debate, but draw on the literature to effectively define sustainability in a manner empathic to early childhood education. Most commonly sustainability is defined according to *The Brundtland Report* (WCED, 1987, p. 8) as: 'sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. In language pertinent to the early childhood field sustainability is intergenerational equity or in words a young child would grasp 'enough for all forever' (African Elder at Johannesburg WSSD, 2002 as cited in Hopkins, 2009, p. 42). It can also be described as an endpoint or a dynamic equilibrium the result of a contextually unique process named sustainable development (Reid, 1995). This is viewed by Flannery (2008, p. 31) as significantly challenging and 'an uncertain experiment, which must inevitably see setbacks and failures'. Engaging with this process is akin to the daily work of early childhood educators with young children; it requires both adults and children to positively embrace challenges, while building diverse skills and competencies, agency and resilience. Early childhood educators must engage with the process of sustainability; young children are 'most at risk from the impact of environmental challenges' (Siraj-Blatchford & Pramling Samuellson, 2009, p. 10) and tomorrow they will experience the consequences of our failure to engage with sustainability.

Bridging the theoretical to the practical, sustainability was also originally defined by *Agenda 21* in terms of three overlapping realms - economic, social and environmental (UNCED, 1992), or in corporate parlance the triple bottom line. The notion of three realms also directs focus away from just the environmental realm, which has underpinned several decades of environmental education and still pervades in some quarters, such as the United States of America. Addressing environmental issues was the focus of both the earlier *Belgrade Charter* (1975) and the *Tbilisi Declaration* (1977) with education as the vehicle for doing so, somewhat divorced from social and economic considerations. Whereas the later *Agenda 21* (1992) provided 'a more balanced blend between sustainable human development and environmental protection' (McKeown & Hopkins, 2003, p. 120) and again education was noted as foundational to the process of sustainable development. Employing the three overlapping realms, in my professional development experience, has provided a useful framework for early childhood educators to envisage what they might be doing within each realm and it does promote recognition of issues beyond green environmental ones. Similarly, Littledyke and McCrea (2009) have documented how early childhood educators might apply these realms to planning for children focussed on an integrated project approach to health.

The redefining of environmental education as education for sustainability or education for sustainable development has far reaching implications for practice. No longer is simply the modeling of positive environmental attitudes and practices in nature study, tree planting and litter collection acceptable, but a deeper reflection of values and the multiple layers of human global existence is required. Bonnett (2002, p. 14) describes education for sustainability as a 'frame of mind' that:

> represents a perspective on that set of the most fundamental ethical, epistemological, and metaphysical considerations which describe human being; a perspective which is both theoretical and practical in that it is essentially concerned with human practices and the conceptions and values that are embedded in them.

In this frame of mind, sustainable development is viewed as a co-evolution of social and biophysical systems played out in responsive and responsible relationships. The challenge has been to translate these ideals into educational praxis, when 'there is no simple, empirical way of determining whether a particular skill will help learners survive and thrive in the future conditions of the world, not least because those conditions are uncertain' (Stibbe & Luna, 2009, p. 12).

Sterling (2001) and others argue that dominant education paradigms typified by transmissive, mechanistic and reductionist approaches are at odds with the systemic holistic and participatory approaches required for sustainability. Education for sustainability is not simply about adding another curriculum component, but fundamentally changing the way we engage in education such that it is a transformative process. The latter approaches are essentially consistent with current early childhood theory and practice as previously outlined here and reflected in our earlier work (Davis & Elliott, 2003). Holistic images of the child as an active participant in his or her sociocultural systems with competencies to act are evident in early childhood literature and practice. Early childhood education is a transformative journey. It is through experiential play-based experiences that transformative learning and empowerment occurs in early childhood. The challenge for early childhood educators is to understand the links between their practice and the principles of education for sustainability. We initially noted these links and stated 'early childhood education already has the foundations for embedding sustainability into its philosophies, theories and practices but these are largely unrecognised' (Davis & Elliott, 2003, p. 7).

Later, we (Elliott & Davis, 2009) drew on the *Decade of Education for Sustainable Development (2005-2014)* (2005a) and the *Education for a Sustainable future: A National Environmental Education Statement for Schools* (Commonwealth DEH, 2005) to highlight explicit links. For example, the *Education for a Sustainable future: A National Environmental Education Statement for Schools* (Commonwealth DEH, 2005) states that experiential learning, values clarification, creative thinking, problem solving, story telling and inquiry learning are relevant strategies. The *UNESCO Decade of Education for Sustainable Development* (UNESCO, 2005a) encourages educators to adopt principles such as interdisciplinary and holistic, values-driven, critical

thinking and problem solving, multi method, participatory decision making and applicability that are locally relevant. Further, most recently the *Living Sustainably: National Action Plan* (Commonwealth DEWHA, 2009) identifies transformation and change, education for all and lifelong learning, systems thinking, envisioning a better future, critical thinking and reflection, participation and partnerships for change as foundational to national action for education for sustainability. These principles and strategies align closely with contemporary early childhood philosophy and pedagogy and firmly indicate a 'pedagogical advantage' (Elliott & Davis, 2009, p. 68) for early childhood educators. Similarly, Pramling Samuellson and Kaga (UNESCO, 2008a, p. 13) stated 'it is not necessary to invent 'new' pedagogies in order to 'do' education for sustainability in the early years – one can build on its pedagogical traditions to do so'.

Based on our melding of understandings about early childhood education and education for sustainability, we defined early childhood education for sustainability as:

> an empowering approach to education underpinned by both humanistic and ecological values that promote change towards sustainable learning communities. Consequently, early childhood education for sustainability seeks to empower children and adults to change their ways of thinking, being and acting in order to minimise environmental impacts and to enhance environmentally and socially sustainable practices within early childhood settings and into homes and the wider community. (Elliott & Davis, 2009, p. 68)

This definition provided a benchmark for moving forward in early childhood education for sustainability, beyond simply play in nature.

Given the links with early childhood theory and pedagogy and the rapid uptake of education for sustainability in the school sector over several decades (Tilbury, Coleman & Garlick, 2005), one might expect embedded practice and a diverse theoretical and research base at the intersection of early childhood and environmental education/education for sustainability. This is not the case and the following historical snapshot describes and explores the brief history of early childhood environmental education/education for sustainability beyond the introductory outline offered in Chapter 1.

A snapshot of history: Practice and research

In Australia, the history of early childhood environmental education in practice is best characterised by the advocacy catch cry 'mainstream not marginal' first invoked by Davis (1999, p. 2). In using this catch cry Davis and I sought to position early childhood environmental education as mainstream both in the spheres of early childhood education and environmental education (Davis & Elliott, 2003). While the school based environmental education sector was growing in the 1980s (Gough, 1997), it was not until 1992 that sufficient groundswell led to the establishment of the first network of early childhood professionals interested in environmental

education in Melbourne, Victoria (EEEC Vic. Inc., 2010 online). As founding convenor for eight years I can attest that the progress in raising awareness was very slow in the 1990s. Around 2003 the pace quickened with wider acknowledgment, particularly by local government and professional bodies. The notion of being mainstream not marginal has become a reality in the new century (Davis, 2010; Early Childhood Australia, 2007; Elliott, 2006; 2010a; Kinsella, 2007; 2008; Tilbury, Coleman & Garlick, 2005).

As noted earlier, when I was commissioned by the New South Wales Environment Protection Authority (NSW EPA) to review early childhood environmental education across Australia; the metaphor of a patchwork quilt most effectively described the ad hoc and somewhat isolated *Patches of Green* (NSW EPA, 2003). The patches were typified as 'exemplary individuals, organisations and centres that share a passion and commitment to the importance of early childhood environmental education' (NSW EPA, 2003, p. 1). A broader systemic uptake with resourcing, supporting and researching was firmly advocated in the review. These points have been vigorously reiterated since (Davis, 2009; Davis & Elliott, 2003; Davis & Elliott, 2007; Tilbury et al., 2005) and while state and federal governments are only just beginning to tangibly support the sector as noted in Chapter 1, various organisations and local governments have actively promoted change. Six examples are:

- the implementation of early childhood programs with supportive resources and professional development in extension education services, best exemplified by the Royal Botanic Gardens, Melbourne (Royal Botanic Gardens, 2003);

- the development and evaluation of the 'Rous Water Aware Centre Program' specifically designed for early childhood services (Davis, Miller, Boyd & Gibson, 2008) which has prompted other Australian water utilities to develop programs;

- the local government initiated program 'Little Green Steps' (Gosford & Wyong Councils, 2007) which is now being taken up by other local governments and promoted through the Australian Association for Environmental Education;

- the 'Green Kinders Tool Kit' created by Hobson's Bay Council (2009) as a result of energy audits and ongoing collaboration with two childcare centres which have become local exemplars;

- the publications of Early Childhood Australia, the peak early childhood organisation (Davis & Elliott, 2003; Early Childhood Australia, 2007; Kinsella, 2007; 2008; Moore, 2010) and posters developed by the Early Childhood Australia Victorian Branch Special Interest Group (Moore & Young, 2010; Ralton & Young, 2008); and,

- the Australian Association for Environmental Education Early Childhood Special Interest Group (AAEE EC SIG) established in 2003, essentially an advocacy group and electronic professional network across the nation for sharing issues, resources and practice.

As author of the *Patches of Green* review (NSW EPA, 2003) and one of the long-term advocates in this sector, it seems that a quilt coloured by hues of green is now just stitches away. The Australian initiatives now underway and the emergence of international interest (Ang, 2010; United Kingdom Preschool Alliance, 2010; UNESCO, 2008a) in early childhood education for sustainability have hastened the pace of change.

Tandem to the building number of resources noted above, has been the emergence of a research base and Davis (2009) has argued the tardiness of this emergence. In her literature search of fourteen internationally prominent early childhood and environmental education/education for sustainability journals over the 12-year period 1996-2007 revealed less than five percent of articles focussed on this area. Further, Davis categorised those published according to content around the concepts of *in* the environment, *about* the environment or *for* the environment. Most commonly, articles described young children *in* the environment experientially engaged with gardening or nature observations. A few described children acquiring knowledge *about* the environment. Almost no articles described young children as acting *for* the environment, thus not reflecting current images of young children as capable and competent participants in the world and agents for transformative change towards sustainability. Only in recent years has this avenue been explored in research and conference papers by Australasian based authors such as Davis et al. (2005), Davis and Elliott (2007), Davis, Elliott and Vaealiki (2008), Duhn with Bachmann and Harris (2010) and Vaealiki and Mackey (2008). This research base has made explicit the pedagogical links between early childhood education and education for sustainability and advocated for an embedded culture of education for sustainability in the early childhood field.

Beyond these local authors and initiatives in research and practice there are now signs that early childhood education for sustainability is emerging internationally, predominantly through the work of UNESCO. In 2007, the first international UNESCO meeting focussed on early childhood education for sustainability was held in Sweden with participants attending from about thirty countries. Derived from this initial meeting was the publication *The Contribution of Early Childhood Education to a Sustainable Society* (UNESCO, 2008a) which documented the responses of sixteen countries. Most papers were aspirational, rather than based on local research or practice in education for sustainability. A subsequent UNESCO meeting in 2008 produced the *Gothenberg Recommendations on Education for Sustainable Development* which included specific early childhood recommendations (UNESCO, 2008b). These were ratified at the UNESCO World Conference on Education for Sustainable Development in Bonn, Germany and fully adopted by UNESCO in 2009.

In parallel, there has generally been an increasing political awareness of education for sustainability and its pivotal role in promoting sustainability across all education communities both locally and internationally. The Victorian Department of Education and Early Childhood Development published *Looking Ahead* (Victorian DEECD, 2009) which charted a range of

education for sustainability initiatives for action across the schools and early childhood sector. This publication marked the first time early childhood services were explicitly included in a state level strategic plan. The Australian Government published two national action plans for education for sustainability (Commonwealth DEH, 2000; Commonwealth DEWHA, 2009), an environmental education curriculum statement for schools (Commonwealth DEH, 2005) and a strategy to support the UN Decade of Education for Sustainable Development (Commonwealth DEH, 2007). In the last decade major federal initiatives have included the formation of a funding and coordination body [the National Council on Education for Sustainability (NCES), formerly National Environmental Education Council (NEEC)], and a research and publication body - the Australian Research Institute into Education for Sustainability (ARIES). Internationally there have been various commissions and summits, the publication of *The Earth Charter* (2000) and the *UN Decade of Education for Sustainability 2005-14* (UNESCO, 2005a), all of which have helped to create a focus. These broad initiatives have provided a supportive backdrop for changing practice and engaging in emergent research in early childhood education for sustainability. However, specific and widely accessible initiatives to move the early childhood field forward systemically and build on this ground swell of the early childhood field are still largely lacking.

In Australia, beyond education for sustainability, the early childhood field is now experiencing politically high visibility at both state and federal levels. The focus on strategies to improve the quality of early childhood education (Council of Australian Governments, 2008) and the publication of the first national curriculum framework (Commonwealth DEEWR, 2009) are currently driving broad debate and change. There is potential for education for sustainability to be an integral aspect in the current atmosphere of change. This is explicitly indicated in the *Belonging, Being and Becoming: Early Years Learning Framework for Australia* under the heading 'Outcome 2: Children are active participants in and contribute to their world (Commonwealth DEEWR, 2009, p. 25)'. However, beyond specific outcomes I believe there is a significant challenge to extend the interpretation of the underpinning tenets of *Belonging, Being and Becoming* beyond the anthropocentric (Bowers, 1993). If sustainability is to be embedded in the early childhood field, then a biocentric interpretation is also required:

> Educators must recognise that Belonging, Being and Becoming is shaped not only by sociocultural contexts, but by natural contexts. Belonging to the Earth recognises the interdependent relationships between humans and the Earth, Being supports the significance of experiencing the moment as nature is often transient and Becoming promotes knowledge, skills and capacities for working towards sustainability in a rapidly changing world. (Elliott, 2010b, p. 12)

The current early childhood political backdrop is more than supportive, it invites questioning, innovation and strategic approaches to ensure that the early childhood field fully embraces education for sustainability. This study has been played out against an increasingly dynamic early childhood profession where there is much scope for research to inform values and change practices.

In concluding this historical snapshot, the question remains: Why has the early childhood field been so slow to embrace education for sustainability? Davis (2009) and Elliott and Davis (2009) explored this question and our theorising is most relevant to this thesis. Davis (2009) identified two reasons for the observed slowness. Firstly, even though sustainable practice is consolidating in the field through actions such as waste free lunches, vegetable gardens, water conservation and natural playspaces, the practices are generally not documented as research stories to share with others. It seems to be only informally that practice is shared and others are inspired to undertake transformative journeys of their own. Secondly, conducting research with young children is a somewhat daunting task, both ethically and practically as noted by Dockett, Einarsdottir and Perry (2009) and Harwood (2010). Young children, particularly in an outdoor playspace, are moving research participants with play agendas of their own. They are not easily thwarted or re-directed by well-meaning researchers who may have different agendas. Researchers require a responsive and innovative approach to authentically engage young children as participants. This issue is explored in depth in Chapter 4.

In a recent paper I postulated with Davis a further three explanations for the tardiness of engagement with education for sustainability in the early childhood field (Elliott & Davis, 2009). Firstly, we suggest that traditions of outdoor play in nature, although somewhat eroded over recent decades, informed a view that just being in outdoor play in nature was already sufficient to address education for sustainability in the early childhood context. While play in nature per se provided a rich foundation for education for sustainability, it did not explicitly convey the pedagogies of sustainability that could lead to broader consideration of social, economic and environmental realms. Secondly, we raised the issue of the pervasive developmental paradigm that not only limited views of what young children could cognitively grasp, but also limited understandings of what sustainability was about. As recent research has demonstrated young children engaging in sustainability are learning more than just about the environment, they can also be active players in transformative change (Davis et al., 2005, Vaealiki & Mackey, 2008). Lastly, we postulated that the dominant contemporary research perspectives, that have prompted both theoretical and pedagogical change in childhood education, have failed to embrace intergenerational and inter-species equities. Such equities are fundamental to education for sustainability, but beyond the anthropocentric stance that has informed poststructuralist research (Canella, 1997; MacNaughton, 2003) in particular.

Reflecting and theorising about why the sector has been slow to engage with education for sustainability provides guidance for further research and moving forward to consolidate a mainstream position. In particular, questions about relevant research paradigms and methods for investigating education for sustainability in early childhood settings have emerged. Further factors, not yet explicitly linked to moving forward in education for sustainability in the early childhood context, are notions of leadership and organisational change. Somewhat tenuously drawing on Davis's (2009) assertions, about the lack of documented research stories from the field, but supported by anecdotal evidence, many early childhood educators engaged in education

for sustainability do not view themselves as advocates, leaders or researchers doing anything of broader significance beyond their centre fences. Notions of leadership do not sit comfortably in early childhood practice or literature and are still emerging (Geoghegan, Petriwskgi, Bower & Geoghegan, 2003; Henderson-Kelly & Pamphilon, 2000; Rodd, 2006; Waniganayake, Morda & Kapsalakis, 2000; Woodrow & Busch, 2008). It has been noted by Rodd (2006, p. 198) that 'many early childhood practitioners still appear hesitant to define research as part of their professional roles and responsibilities'. The following section explores studies of leadership and change that will inform later discussion.

Education for sustainability as a transformative process: Leadership and change

Leadership and management are both critical to transformative change processes, and I suspect that they are even more critical than acquiring sustainable project grants or external expertise. Rodd (2006) acknowledged that leadership and management were interwoven, but typified management as orientated towards current objectives or tasks, co-ordination, control and efficiencies. In relation to leadership, she drew strongly on beliefs, values and philosophy supported by relationships, strategic approaches and visions for the future. Informed by these definitions the implementation of education for sustainability pragmatically requires management, but also more importantly leadership, a willingness to question values and envision change.

Education for sustainability is a transformative learning process and over a period of time change does become an embedded lived experience for all participants. Brown and Prosner (2001) convincingly drew together transformative learning and transformative leadership which they described as facilitating change towards a shared vision that reflects both the interests of the leader and followers. Bennis and Nanus (1997) described transformative leadership as: collective, resulting from the interactions between leaders and followers; causative, in that leaders empower others; ethically driven; purposeful; and, conscious raising for followers. A transformative leader can:

> establish direction in relation to the complex challenges and changes in their context, shape a culture that is conducive to that vision, and inspire their people, bringing forth their talents, uniqueness, and energies toward a worthy future. (Brown & Prosner, 2001, p. 279)

However, Sinclair (2007) questioned the moral high ground that transformational leadership may create and advocated for liberating leadership through spirituality and efforts to focus more on relationships than self. She coined the phrase 'less-ego leadership' to describe new forms of leadership characterised by 'compassion, connection and being in the moment' (Sinclair, 2007, p. 165). Such questioning was particularly pertinent around the topics of sustainability and action research.

Along similar lines Senge (2006, p. 24) provided direction for sustainability leaders, suggesting that 'systems intelligence, building partnership across boundaries, and openness of mind, heart and will' were required capacities. Senge (2006) challenged traditional positional notions of leadership and advocated for a decentralisation of the leadership role if sustainability was to be implemented. Further Nichols and Shorb (2007) promoted leadership for sustainability through collaborative relationships, community engagement, critical reflection, shared visions and collective action. Such notions align with the shared and collaborative approaches concomitant with the current sociocultural paradigms in early childhood education (Fleer & Richardson, 2004). The struggle for early childhood educators has been how to move away from superimposed positional authoritative leadership models and to see merit in collaborative and shared leadership models (Ebbeck & Waniganayake, 2003; Rodd, 2006). Such models would not only support leadership in sustainability, but also offer an approach for responsively dealing with the daily dynamics of early childhood settings and broader changes afoot in the Australian early childhood field.

Various leadership descriptors such as feminist, distributive, educative, shared and strategic have been applied to the early childhood field, but currently there is no one dominating descriptor. Research around leadership models and styles is on going in this field (Ebbeck & Waniganayake, 2003; Geoghegan et al., 2003; Henderson-Kelly & Pamphilon, 2000; Rodd, 2006; Waniganayake et al., 2000; Woodrow & Busch, 2008). However, according to Rodd (2006, p. 29) it is relationships and teamwork underpinned by 'trust, sharing, collaboration and empowerment' that are the keys to success. Woodrow and Busch (2008, p. 90) were somewhat more strident arguing for 'activist professional leaders' capable of 'embracing conflict and difference as necessary for change and growth in relationships'. Any transformative journey of sustainability requires such robust leaders. These sentiments resonate with preceding statements characterising transformational leadership.

Davis et al. (2005) also offer support for collaborative leadership in their application of complexity theory to the evolutionary nature of cultural change towards sustainability examined at Campus Kindergarten in Queensland. Davis et al. (2005, p. 587) noted that change was not rapid or systemic, but 'slow, small-scale and imperfect', thus reflecting the dynamics and complexity of early childhood contexts. They suggested that collaborative leadership was essential to embedding a culture of sustainability where all participants can be leaders and have ownership of the changes. Similarly, Duhn with Bachmann and Harris (2010, p. 6) in their study of centre change highlighted as important,

> strong collaborative leadership and ongoing work with the teaching team, open and effective communication with families, risk taking and the ability to work with uncertainty and commitment to act. By taking small steps frequently, change becomes tangible.

Overall, there appears to be a sense of congruence in the literature. The rethinking of: the limitations of traditional positional leadership roles; research into effective leadership within the early childhood sector; and, perspectives on leading for sustainability. This rethinking requires more examples of collaborative leadership styles underpinned by empowering relationships,

ethically informed visions of sustainability and a robust commitment to values and action. Such leadership is likely to inspire transformative change for a sustainable future.

The preceding pages have clearly set the scene in relation to sustainability and education for sustainability with particular reference to history, research, relevant initiatives and the broader early childhood field. As this particular study explored education for sustainability as a transformative journey in the context of outdoor playspaces, it is also relevant to consider historical and current perspectives about outdoor play and playspaces. In the following pages I specifically address: lessons from history about playspaces and images of children; current issues within sociocultural contexts for children; and, children and nature connections. Addressing such areas strengthens the imperative to engage with sustainability and education for sustainability and offers a sound basis for investigating the interfaces within natural early childhood outdoor playspaces.

Lessons from history about playspaces and images of children

In order to gauge the impact of history this section must begin by questioning how the current challenges of education for sustainability and connecting with nature in early childhood playspaces have arisen given the legacy of early childhood theorists such as Rousseau (1712-1778), Froebel (1782-1852), Steiner (1861-1925) and Montessori (1870-1952). All advocated the importance of children's experiences in the natural environment, whether directly for play or as a source of spiritual growth and development. Froebel, in particular, who is often cited as the father of kindergartens, viewed early childhood educators as gardeners and 'envisioned children being educated in close harmony with their own nature and the nature of the universe' (Morrison, 1995, p. 54). Such visions arose from a romantic image of the child as born with innate capacities including curiosity, understanding, spontaneity, resourcefulness and strength (Postman, 1994).

The innate capacities of young children were later questioned and examined by developmental psychologists, including Gesell (1880-1961), Piaget (1896-1980) and Vygotsky (1896-1934) which led to significant understanding of child development as a biological process. Early childhood educators were there to help children achieve developmental milestones and work towards developmental objectives in physical, cognitive, social and emotional domains. However, with this understanding came a shift in early childhood pedagogy to images of young children as not yet capable and needing help to progress on their biologically determined developmental timeline; this is now oft referred to as the deficit model of the child (Woodhead, 2006).

Juxtaposed with changing pedagogical views and concerns in the mid-twentieth century was the advent of purpose designed playspace equipment to promote children's physical development in safe, adult planned and directed ways. Driven by improving twentieth century technology, outdoor playspaces became synonymous with fixed manufactured equipment. In Australia many early

childhood centres, along with schools and local governments, largely adopted the fixed-equipment approach for creating outdoor playspaces. Such playspace trends were similarly evident in the United States of America (Frost, 2007) and England (Woolley, 2007) and became the pervasive norm in both public places and educational settings, far removed both physically and theoretically from the visions of earlier theorists like Froebel.

While the developmentally driven deficit model of the child persists in the wider community, in recent decades early childhood educators have embraced the work of Bronfenbrenner (1979), Gardner (1983) and Malaguzzi (Edwards, Gandini & Forman, 1993) and responded positively to postmodern research as described by Canella (1997), Dahlberg, Moss and Pence (1999) and MacNaughton (2003). Images of children have been reconceptualised, so they are now widely perceived as active co-constructors of meaning, capable, competent and having specific strengths and multiple ways of engaging in their physical and social contexts. Such reconceptualisation promotes children as active agents with rights more than needs in the broader social fabric of communities (Woodhead, 2006). Also, this reconceptualisation aligns with changed perspectives on play and playspace design that have been advocated over the years by key theorists such as Moore (1986), Frost (1992) and Hart (1987; 1997). In particular, Hart (1997) strongly argued for participatory approaches to playspace design and described a ladder of children's participation, from the lowest rung being manipulation by adults up to the highest and most desirable rung being child initiated shared decisions. Similarly, Frost (1992) supported participatory approaches to design and child centred free play, while Moore (1986) drew on ecologically informed understandings of the child's physical and social contexts to advocate for play and spaces to play in. A significant cornerstone in these decades was the international enshrining of the child's right to play, to freely express views and be an active participant in decision-making in the *United Nations Convention on the Rights of the Child* (UNICEF, 1989), Articles 12, 13 and 31. The notion of developmentally prescribed equipment-based playspaces selected by an adult from a catalogue continues to be at odds with these revised images of children and their playspaces.

It is against this historical backdrop of changing playspaces and changing images of children that a return to natural playspaces and the importance of childhood connections with nature in the new century has been heralded (Elliott, 2008; Greenfield, 2007; International Play Association, 2009; Lester & Maudsley, 2006; Louv, 2008; Moore & Cooper-Marcus, 2008; Munoz, 2009). The call for outdoor play in nature is also very much fuelled by concerns about changes in the broader sociocultural contexts for children today from decreasing accessibility to outdoor play to increasing risk mitigation and the busyness of children's lives. The following paragraphs explore recent research that documents these concerns.

Current issues in today's sociocultural contexts for children

Issues regarding the sociocultural contexts, in which children live and play, have been raised recently in popular publications by Gill (2007), Honore (2004; 2007), Louv (2005) and Palmer (2006). There have been no shortage of media headlines such as 'The serious business of play' (Brookfield, 2007), 'UK Parents: Our children are overscheduled' (London Daily Mail, 2008), 'The game wardens' (Costello, 2010) and 'Children playing outside laugh more' (McDonagh, 2008) to alert the wider community to what is happening. The issues raised focus on the impacts of various interrelated sociocultural factors on children's health, wellbeing and development and there is now a growing research base to draw on (Clements, 2004; Owens & Hofferth, 2001; Veitch, Bagley, Ball & Salmon, 2005). A summary of key issues cited in the research is offered here.

Globally there are multiple impacts of urbanisation on young children (Bartlett, Hart, Satterthwaite, De La Barra & Missair, 1999); reduced access to outdoor playspaces is just one emerging influence particularly in Western countries. Over a decade ago Rivkin (1995, p. 2) evocatively described that 'children's access to outdoor play has evaporated like water in sunshine' and the situation is more perilous now. In Australia over the last decade the size of house blocks decreased by 15% and the size of houses increased by 15% (Hoban, 2005, p. 8). It now appears that children are being squeezed out of backyard playspaces by town planning and adult entertainment priorities. But, where do children play outdoors and where is the 'rough ground' with 'qualities of openness, diversity, manipulation, explorability, anonymity and wildness' as described by Moore (1986, p. 243)? The natural urban landscapes for play, romanticised by adults and described by Moore in 1986, have all but disappeared and access outdoors to streets and public playspaces has been impeded by 'parental paranoia' in the 'risk averse society' (Furedi, 2001; Gill, 2007).

Current generations of children are popularly described as deprived of risk by 'bubble wrapping' and 'helicopter parents', however 'many risks are well worth taking because of their stimulating effect on a child's development' (Furedi, 2001, p. 19). In the United Kingdom and internationally, Gill (2007), Furedi (2001), Speigal (2008) and others have provoked discussion about a revisioning of the relationships between risk and play. Further, it is not just parents who have succumbed to this precautionary principle approach to play; early childhood centres in Australia are subject to regulations and/or standards that some educators view as restrictive and an impediment to contextualised professional judgement about risk (Refer Figure 1 at the end of Chapter 2). Risk is essential for active engagement in play. Speigal (2008) has coined the phrase 'No risk, no play' to imply that risk is an inherent element of play, thus prompting a broader rethinking of these principles. This rethinking of play, and playspaces in the United Kingdom has been described as benefit-risk analysis to differentiate from the traditional risk audit approaches to playspace safety (Ball, Gill & Speigal, 2008). The influence of this rethinking is spreading internationally.

Further, Honore (2004) in the vein of Elkind's (1989) *The Hurried Child: Growing up too fast too soon* has popularised the notion of going slow in relation to childhood and suggests that time for play is at a premium in the busy schedules of today's children. Hofferth and Sandberg (2001) in their examination of the busyness of children's lives revealed that between 1981 and 1997 children's free playtime dropped by an estimated 25%. In the main, they attribute this change to more adult-directed, structured activities invading children's lives. Significantly, this downward trend in time for free play correlates with Clement's (2004, p. 72) comparative research which indicated a 39% drop in the frequency of daily outdoor play between the generations of mothers and their children. This trend was reaffirmed in a 2009 survey commissioned by Natural England (England Marketing, 2009) which identified that children today mostly liked to play indoors, compared to their parents who played mostly outdoors. Of the children surveyed 81% stated that they would like more freedom to play outside (England Marketing, 2009, p. 5). Furthermore, according to Sallis, Prochaska and Taylor (2000) and Veitch et al. (2005) being outdoors is a key indicator for physically active play. Moore and Cooper-Marcus (2008, p. 156) encapsulated these trends when they expressed concern about the disappearance of 'free range childhood', where children actively and playfully roamed outdoors and only came home for tea. A multitude of factors such as working parents, grandparent care, smaller family sizes, academic pressures and cultural diversities are potentially underpinning these trends and require further investigation (Ginsburg, 2007). Early childhood educators in daily contact with families anecdotally attest to these factors; and, they are uniquely placed to not only facilitate outdoor play, but also to be advocates for children's outdoor play.

Even if the above issues can be addressed, access given and time found to play outdoors, Veitch et al. (2005) indicated a key reason for the lack of engagement with equipment-based playspaces was that such places were boring for children. In early childhood centre outdoor playspaces there is an opportunity to challenge the precedent of equipment based playspaces and create natural playspaces where children can constructively and safely engage in a diversity of play opportunities, experiences and challenges (Refer Figure 1 at the end of Chapter 2). Lester and Maudsley (2006) in a comprehensive review of research which advocated for children's play in nature, argued that both play and connections with nature were innate drives for young children. The studies indicated play in natural playspaces was seen as both obvious and logical for children's outdoor play. Further, recent studies by Knight (2009), Borradaile (2006) and others have positively evaluated the emerging Forest Schools trend in the United Kingdom and called for practitioners to embrace natural outdoor playspaces (Elliott, 2008; Greenfield, 2007; Keeler, 2008; National Arbor Day Foundation & Dimensions Educational Research Foundation, 2007; White, 2008; Wilson, 2008). In Australia, the Victorian Department of Human Services Office for Children (2007) published *The Outdoor Play Guide for Children's Services* that promoted natural outdoor playspaces. More recently, the *Children's Services Regulations* (Victorian DEECD, 2009) and the National Quality Standards (ACECQA, 2011) have stipulated that natural features for

children to explore and experience must be incorporated into outdoor playspaces. Drawing from the understandings evident in research, the promotion and acceptance of natural playspaces can be envisioned. There is growing support for a return to Froebel's earlier conceptualisations of gardens for young children (Morrison, 1995) in the early childhood field and beyond.

Beyond play in nature for promoting nature connections, concerns have been raised both locally and internationally about the impact of the lack of access to outdoor play on children's health and wellbeing. Louv (2008), Lester and Maudsley (2006), Munoz (2009), Palmer (2006), VicHealth (2005) and others cite access to outdoors as vital for children's physical and mental health, perhaps as critical as adequate sleep and nutrition. Childhood obesity continues as a major health concern and the longitudinal implications for health and wellbeing are no surprise. Magarey, Daniels and Boulton in 2001 stated that 25% of children in Australia were overweight or obese and if such trends continue this will reach 50% by 2020. While nutritional aspects of obesity are frequently a focus, evidenced by campaigns to change school canteen fare and reduce advertising of popular snack foods, it seems evident that increasing sedentary technology-based activities also link with a lack of physical activity (Oliver et al., 2007; VicHealth, 2005). Prompted by these factors local stakeholder consultation was undertaken to develop *Healthy Eating and Physical Activity Guidelines for Early Childhood Settings* (Commonwealth DHA, 2009a) as part of the Australian Government's Plan for Tackling Obesity and their Plan for Early Childhood. The *Get Up and Grow* Resources (Commonwealth DHA, 2009b) developed to promote the guidelines address healthy eating, physical activity and particularly, caution against sedentary screen-based activities for young children. These initiatives signal significant national interest in promoting children's long-term health and wellbeing through active play.

Despite the caution noted above, research studies on the impacts of sedentary technology-based activities on young children are both varied and somewhat limited. The impacts on children's behaviour, physical activity, emotional wellbeing, social skills, eyesight, orientation to consumerism and body weight have been the primary focus of recent work (Hoban, 2005; Moore & Cooper-Marcus, 2008; Oliver et al., 2007; Palmer, 2006; Rose, Morgan, Ip, Kifley, Huynh, Smith et al., 2008). In the United States, Vandewater, Rideout, Wartella, Huang, Lee and Shim (2007, p. 6) reported that 18% of children aged birth to two years and 43% of children aged three to four years had a television in their bedroom. Also, on a typical day 27% of five to six year olds used a computer (2007, p. 2). It is not surprising then that children are choosing to 'play inside, cause that's where the electric outlets are' (Louv, 2005, p. 10).

In summary, the research into this range of dynamic sociocultural factors suggests that young children are being short-changed with respect to outdoor play opportunities. The potential longer-term implications for their health and wellbeing are now visible and just beginning to be described. Munoz (2009), Oliver et al. (2007) and Vandewater et al. (2007) have acknowledged that further research with young children is critical in terms of public health. Moore and Cooper-

Marcus (2008, p. 160) succinctly summarise, ‘the cure for the lifestyle maladies of contemporary childhood seems glaringly obvious and simple: outdoor play in nature’. These studies have highlighted an opportunity for both early childhood services and the wider community to respond by providing longer periods of time for young children to engage in a diversity of challenging play experiences in natural outdoor playspaces.

Children and nature connections

A deeper exploration of children’s connections with nature is also pertinent to this study, as the promotion of children’s connections with nature is a driving force for paradigm change in outdoor playspaces. I cannot explore this topic without paying tribute to the work of Rachel Carson (1907-1964), a pioneering environmentalist of the 1950’s who first raised alarms in the United States about dichlorodiphenyltrichloroethane (DDT) in the food chain via her contentious publication *Silent Spring* (Carson, 1962). Less challenging, but in many ways more significant, is Carson’s (1956, republished 1998) oft quoted essay *A Sense of Wonder,* that documented her ramblings along beaches and through forests with her young nephew. Carson’s astute observations of her nephew’s engagement with the natural environment and reflections about her role as mentor and interpreter have provided an inspiring guide for educators. In this essay she states:

> If a child is to keep alive his inborn sense of wonder ... he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in. (Carson, 1998, p. 55)

Her essay alerted educators to the foundational importance of children’s connection with nature at a time when children were free to roam in nature; the situation is more dire now as indicated by the sociocultural factors previously described. The writings of Carson have continued to be a source of inspiration for many in environmentally challenging times.

Over recent decades, Chawla (1988; 2006), Kahn and Kellert (2002), Lester and Maudsley (2006), Louv (2008), Moore and Cooper-Marcus (2008), Nabhan and Trimble (1994), Pyle (1993), Rivkin (1995), Sobel (1990) and others have strongly supported the foundational importance of nature connections in childhood. The popular media have taken the nature message about play to the wider community with headlines such as ‘Nature lessons make children smarter, fitter’ (Nixon, 2006), ‘A dose of nature for attention problems’ (Cummins, 2008), ‘Suffering an unnatural deficit: essential greens’ (O’Connor, 2010) and ‘The benefit of nature on nurture’ (O’Connor, 2008). The theoretical and research perspectives that underpin childhood connections with nature are highlighted below.

From an evolutionary perspective E. O. Wilson’s biophilia hypothesis (1993) suggested that we cannot deny our innate connections with the natural environment and that we do so at our peril. Humans have evolved in natural environments for many thousands of years and as Ehrlich (2000)

states we have an ‘evolutionary hangover’. He suggests we are still hard wired to our evolutionary past when survival required quick responses to immediate danger, rather than longer-term visions of impending dangers. It can be speculated that our vision of impending sustainability issues has been impeded by our ‘evolutionary hangover’ and the challenge of education for sustainability is to ameliorate the hangover, so we may envision future issues. Rivkin (1995, p. 6) informed by the work of E. O. Wilson (1993), proposed that nature experiences were essential to children’s development and wellbeing, as ‘children reared apart from nature are necessarily limited’. This suggests children are not only limited in tacit ways through lack of direct experience in nature, but also constrained in their construction of meanings about the interrelationships between the Earth and humans. In support of these understandings Bonnett (2004, p. 93) asserted that all children must experience an acquaintanceship with nature, ‘a direct, intimate and tacit knowledge that affects us’.

Pragmatically, Heerwagen and Orians (2002) drew on evolutionary biology to predict that as young children begin to explore their world, away from significant adults, they are innately motivated to seek refuges or shelters. Their playspaces can be naturally occurring or actively built by the children (Figure 1 at the end of Chapter 2). Informed by observations of preschool children’s play in nature, Kirkby (1989) also describes children’s innate need to look-out through peepholes to see who or what might be approaching. Similarly, Kylin (2003) observed school aged children creating spaces in their local landscape, such dens or refuges as secret places that afforded an illusion of seclusion for them. Most recently Moore (2010), in her study of early childhood playspaces, confirmed that natural playspaces most effectively support young children’s drive for secret spaces. Many early childhood educators that I have professionally engaged with have attested to young children’s innate drive to create refuges in early childhood settings.

According to Kellert (1993) children are biophilic beings from birth, so inherently they have intrinsic drives to investigate the natural world without trepidation. Whether children retain biophilic affiliations with the natural world or become biophobic, such that nature is viewed with some discomfort or even fear and simply as a resource, depends on their significant adults. Hyun (2005) further theorised that adults could nurture biophilia by being socio-emotionally responsive to the sense of wonder children readily share and by offering intellectually congruent input that positively promotes construction of understandings about the natural world. Drawing these evolutionary lines of inquiry together supports the notion that natural playspaces are more than just places for play, but inextricably linked to undeniable primal human drives. These drives should be recognised and nurtured by early childhood educators to optimise each child’s opportunities to connect with nature.

Kahn and Kellert (2002) alerted the world to the potential of ‘generational amnesia’ in describing how each generation of humans is becoming successively removed from the natural environment such that definitions of what is nature are changing. Children in early childhood centres who may have never experienced non-urban areas and whose benchmark for nature might be the strip of

grass in front of their homes, illustrate the realities of this scenario. Louv (2005) later coined the evocative phrase 'nature deficit disorder' to make clear the potential consequences for children who do not make nature connections. Louv's nature deficit disorder describes children who experience symptoms of disconnection from nature, such as diminished sensory use, physical or emotional illness and attention difficulties. Nature deficit disorder has been adopted and popularised in the United States of America and internationally to the point that an international movement 'The Children and Nature Network' was established in 2006. In 2008, largely through this movement, the United States Congress passed a bill entitled 'Leave no child inside' and annual network reports substantiate the upsurge in initiatives to reconnect children with nature. For example, nature clubs for families and toolkits for nature leaders. Perhaps Gardner (1983; 1999), who had earlier proposed Multiple Intelligences theory and later identified naturalistic intelligence as a key intelligence, was well aware of the importance of nature for children's learning. Research validating Gardner's earlier work as well as both Kahn and Kellert's (2002) and Louv's (2005) descriptive terms is outlined below.

Chawla (1998; 2006) building on Tanner's (1980) earlier significant life experience research, reaffirmed that the early years are a foundational period for connecting with nature. Although such research relies on the memories of childhood shared by environmentally active adults, the potency of the memories shared across a number of studies attests to the importance of direct contact with nature and the roles of significant others in forging lifelong connections with nature. Chawla's (1998; 2006) findings were also reinforced by Wells and Lekies (2006) and Ward Thompson, Aspinall and Montarzino (2008). In a study of a broad adult population sample, Wells and Lekies (2006) noted direct childhood participation in wild nature experiences, and to a lesser extent domesticated nature experiences, was most influential in determining concern for the environment in adulthood. Similarly, Ward Thompson, Aspinall and Montarzino (2008) found that adults who had visited green spaces in childhood were not only more likely to do so in adulthood, but had positive physical and emotional relationships with green spaces. They aptly term this impact on adults 'the childhood factor' to underline the lifelong importance of exposure to green spaces in childhood. While Significant Life Experience research can be challenged as romanticised recollections of childhood, there is now significant evidence from infant brain research that reinforces the formative role of early childhood experiences natural or otherwise (Shonkoff & Phillips, 2000). Essentially formative and direct nature experiences provide contexts for construction of authentic and lifelong meanings, as Beck (1994, p. 39) simply stated 'the meanings of nature do not grow on trees, but must be constructed'. Kellert (2005) also argued such meanings could not be effectively constructed from the indirect or vicarious nature experiences that increasingly pervaded children's lives. Nature has an 'intensity, variability, instability and ambience' (Chawla undated as cited by Kellert, 2005, p. 85) that affords a diversity of authentic learning opportunities. The implications for early childhood outdoor playspaces and educators are evident, if young children are to avoid generational amnesia and nature deficit disorder.

Beyond promoting concern for the environment in adulthood, natural spaces are often cited as significantly important for health and wellbeing. The *Healthy Parks Healthy People Report* (Deakin University & Parks Victoria, 2008) comprehensively summarised why natural spaces were important for adult health and well being, but noted similar research for children was very much lacking. Few research studies (Bagot, 2005; Faber-Taylor & Kuo, 2008; Faber-Taylor, Kuo & Sullivan, 2001a; 2001b; Wells, 2000) specifically consider the impact of natural green leafy spaces on children; but, those published do well support the positive impact of children's green exposure for health and wellbeing. For example, children's symptoms of Attention Deficit Disorder were relieved by exposure to green play spaces according to Faber-Taylor, Kuo and Sullivan (2001b). Also, after a walk in a park they were better able to concentrate (Faber-Taylor & Kuo, 2008). Similarly, Wells (2000) described how children in inner urban areas were found to exhibit higher attention levels when able to view leafy green spaces through a nearby window. These reports corroborate Kaplan and Kaplan's (1989) Attention Restoration Theory that described how leafy green spaces did not demand attention and engagement like many elements in our daily urban settings. Leafy green spaces provide opportunities for the brain to disengage then re-engage with the task at hand in a refreshed and refocused manner. Kaplan and Kaplan (1989) characterised leafy green spaces as invoking a sense of fascination and curiosity; a sense of being away from usual settings, a sense of being part of a larger whole, and compatibility with an individual's needs. These characteristics can be readily applied to natural outdoor playspaces in early childhood services and I speculate that the implications of more natural playspaces may well be the promotion of increasingly harmonious and productive indoor and outdoor play for all young children.

Further sources of support for outdoor play in nature are the evaluative studies of the increasing number of Forest Nursery Schools and Schools across Scandinavia, the United Kingdom and Germany (Borradaile, 2006; Fjortoft, 2001; Knight, 2009; Murray, 2004; Murray & O'Brien, 2005). While local interpretations vary, essentially children attending Forest Nursery Schools or Schools spend long and regular periods of time playing in natural forest spaces, ranging from weekly over a school term to an everyday all year round experience. The evaluative reports from the United Kingdom cite diverse benefits such as increased confidence, motivation and concentration, increased social, physical and language skills and deeper conceptual understandings and respect for the natural environment (Borradaile, 2006; Murray, 2004; Murray & O' Brien, 2005). These reports reaffirmed earlier comparative research by Grahn, Martensson, Lindblad, Nilsson & Ekman (1997) that was conducted in Swedish nursery schools. They found that children who spent more time outdoors and had access to woodlands demonstrated physical benefits and increased social and imaginative play according to standard developmental measures. While research with young children is limited at this point, the benefits of playing outdoors in nature for children's health, wellbeing and education appear significant (Refer Figure 1 at the end of Chapter 2).

In addition to the tangible benefits noted above, natural playspaces nurture a sense of agency and place which are critical to education for sustainability. According to Sobel (1990, p. 12) a sense

of agency begins, 'if we allow people to shape their own small worlds during childhood, then they will grow up knowing and feeling they can participate in shaping the big world tomorrow'. Such notions of agency align with the reconceptualising of young children as active agents and participants in learning and their lives more generally. Natural playspaces afford genuine opportunities for practicing agency, whether it is constructing a bush cubby or simply moving some logs (Refer Figure 1 at the end of Chapter 2). Based on her mapping of preschoolers' dramatic play, Kirkby (1989) advocated for bushy-type child-built cubbies as opposed to purpose built ones. The former invited more creative, sustained play and offered significant hands-on physical activity for children, thus promoting a sense of agency. Kirkby (1989, p. 7) stated, 'a natural setting has the degree of complexity, plasticity and manipulability which allows a child to experience many developmentally significant play behaviours'. It is through agency that both a sense of place and connections to place are promoted. Drawing on their own childhood experiences, Nabhan and Trimble (1994) effectively described how apparently insignificant and subtle elements in nature, such as smooth rocks to climb, frogs to discover and leaves to collect, translated into an identification with place for young children. A place is not just somewhere one physically exists. Tuan (1974, p. 4) described the 'affective bond between people and place or setting' as topophillia and asserted this bond was promoted by experiential play in nature. Yet as Orr (2005, p. 88) noted 'the importance of place has been overlooked in education', partly because nearness of place creates a familiarity that breeds insignificance and partly because outdoor playspaces are traditionally designed and defined from adult rather than child perspectives (Thomson, 2007).

The range of education publications currently advocating natural playspaces across three continents is reassuring (Casey, 2008; Elliott, 2008; Keeler, 2008; White, 2008; Wilson, 2008). For early childhood educators in Australia, the *Belonging Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009) offers unequivocal support for natural outdoor playspaces. In Victoria, the *Outdoor Play Guide for Children's Services* (Victorian DHS, 2007) has supported the inclusion of rocks and logs and the possibility of climbing trees over several years. Also, the recent addition of a natural features requirement in the *National Quality Standard* (ACECQA, 2011) affirms that natural outdoor playspaces are essential to high quality early learning environments. As an active participant in the early childhood field, I believe a changing paradigm is evident (Elliott, 2010e). Synthetic and generic playspaces informed only by budgets, adults' views, colourful catalogues and safety regulations are giving way to more natural playspaces created and constructed in a collaborative and participatory manner with children, educators and families. This perhaps signals a return to the more community-focussed approaches of the past.

Furthermore, international organisations such as the World Forum Foundation Early Childhood Education and Care's Nature Action Collaborative for Children, the Children and Nature Network, the United Kingdom Royal Horticultural Society have been increasingly vocal about the urgent need to reconnect children with nature. This is underlined by the fact that children from birth to

six years of age may spend more hours in childcare centres than in primary and secondary schools combined; this fact has been referred to as an 'institutionalised childhood' by Moore and Cooper-Marcus (2008, p. 161). An institutionalised childhood is unlikely to offer active and authentic participation in the complexities and dynamics of 'real life' as argued for by Nimmo (2008). Daily access to outdoor playspaces as microcosms of real life is imperative in early childhood. Nimmo and Hallett (2008) suggest productive gardening with young children as a useful entry point to begin exploring such a microcosm. If the outdoor playspaces are natural, or at least include some natural elements, then young children may fulfil evolutionary drives, construct meanings about nature, experience improved health and wellbeing, engage in more diverse learning opportunities and feel personally empowered by a sense of agency and place. These outcomes for young children are credible justifications for reflection and action by early childhood educators. Such reflection and action may also include consideration of links with sustainability and education for sustainability. In the following section I elucidate my initial thinking about the links and identify the gaps I propose to investigate.

Identifying the gap: Linking education for sustainability and natural playspaces

Drawing on the literature reviewed and professional insights as a long-term activist in the drive to make education for sustainability mainstream not marginal, I have found many gaps in our understandings about education for sustainability. In particular, I felt concerned by the lists of discrete sustainable practices described as education for sustainability and questioned is that all it is, just doing the practices? Successive documents have identified research gaps (Commonwealth DEWHA, 2009; NSW EPA, 2003; Tilbury et al., 2005) to little avail and most recently Davis (2009) identified a research hole. She suggested a number of avenues to be addressed including: children's active participation in change; professional practices including leadership for change; inservice and preservice training; and, partnerships beyond the early childhood field that expand boundaries. Davis added that investigating such research avenues is contingent upon funding and building research capacity. However, despite such rich and varied avenues, to my knowledge only a handful of academic researchers are so engaged in Australia (Davis, 2010; Edwards & Cutter-MacKenzie, 2011; Littledyke & McCrea, 2009; Miller, 2010; Moore, 2010; Phillips, 2010; Young, 2009).

Internationally, sustainability has only very recently become a conference theme in early childhood (EECERA, 2008; OMEP Asia Pacific, 2009; and, OMEP World Conference, 2010). UNESCO's documentation of international perspectives (UNESCO, 2008a) indicates that Australasian researchers are well positioned to contribute to the leading edge of research. Affirming this position, Julie Davis (Queensland University of Technology, Australia) and Eva Johanssen (University of Stavanger, Norway) jointly organised the first international research meeting, *The Transnational Dialogues,* to specifically address early childhood education for

sustainability. The meeting was held at the University of Stavanger, 16-18 August 2010 and attended by fourteen researchers from Scandinavia and Australasia. Over a few days they created an international agenda and a sense of collaborative collegiality to facilitate further research and publication. A second more broadly international research meeting was held in July 2011 just prior to the World Environmental Education Congress (WEEC) in Brisbane, Australia and for the first time the WEEC included an early childhood strand. Both internationally and locally, there are many research avenues to investigate given the emergent nature of the field. In addition, there is a sense of urgency in catching up to the depth and breadth of education for sustainability research evident in other education sectors, not to mention the overriding environmental urgency.

Alongside this research hole, the tradition of playing in nature has been researched, albeit often with primary school aged children. A significant number of researchers over many years have identified the importance of children's direct contact with nature in relation to life long wellbeing and learning (Bagot, 2005; Chawla, 1988; Kaplan & Kaplan, 1989; Sobel, 1996). There appears to be an underlying imperative to reconnect children with nature emerging from these studies. Professional interest in natural play spaces for young children has become increasingly evident in the field nationally and internationally (Victorian DEECD, 2010; Elliott, 2008; Keeler, 2008; International Play Association, 2009; White, 2008; Wilson, 2008). Natural playspaces that afford opportunities to play in nature are anecdotally described as a significant aspect of a holistic approach to education for sustainability, but a shift to nature-based playspaces alone is insufficient to address the issues. Play in nature is not enough; children and adults must be collaborators and active participants in cultural change, change for sustainable living.

In summary, the identified gap that this research seeks to partially fill is both in terms of the meagre research available to support early childhood education for sustainability and an elaboration of the interfaces between natural playspaces, sustainability and education for sustainability. How do natural playspaces contribute to education for sustainability? Is it simply the direct contact with nature or something less tangible about the sociocultural context and pedagogy that promotes education for sustainability? Drawing on this research study it is my intention to theorise about such links between natural playspaces, sustainability and education for sustainability. Perhaps a sustainable playspace is more than just tangible natural elements or perhaps it is an evolving complex of relationships. Based on the research that has been cited in this chapter, advocacy, ethics, commitment, vision, collaboration, relationship, participation, action and leadership appear to be key elements in this complex field of praxis. My contention is that rocks, trees and logs are only part of the story. The action research undertaken in this study involved educators and parents from two early childhood centres and together we examined perceptions of sustainability and education for sustainability with a view to change. The philosophical stance underpinning this research approach is outlined in Chapter 3 and later Chapter 4 describes the methodology in detail. With limited research in early childhood education for sustainability to draw on in this study the outcomes are critical to hastening systemic and transformative change in early childhood education for sustainability and for shifting paradigms about outdoor playspaces.

Links between nature and play have been identified in this chapter from the perspective of children's connections with nature. Nature can also be viewed as a dynamic and inviting canvas for play from play theory and research perspectives. Here I highlight key elements of play theory and research that support this view.

Play is the fundamental way that children engage with the real world and is often described as a vehicle for learning in the early years. Theories about children's play have evolved over centuries from Plato (Jenkinson, 2001) to Parten (1932), Piaget (1962), Smilansky (1968), Vygotsky (1978) and Sutton-Smith (1997) and play-based programs are widely advocated in early childhood education (Arthur et al., 2008; Commonwealth DEEWR, 2009; Victorian DEECD & VCAA, 2009). Opportunities for outdoor play, in particular, are to be valued and promoted (Frost, 1992; Greenman, 1988; Hart, 1979; Moore, 1986; Nabhan & Trimble, 1994; Rivkin, 1995; Weinstein & David, 1987), yet in practice such opportunities are often limited (Herrington, 2008; Maynard & Waters, 2007). Support for children's outdoor play, particularly in natural playspaces, is garnered here from four areas of play theorising and research; play units, loose parts, affordances and risk.

- *The classic work of Kritchevsky and Prescott (1977) describes the notion of simple, complex and super play units to inform outdoor play. It is the latter two types of play unit that juxtapose manipulable materials and offer a diversity of play possibilities to actively engage and sustain children's interests. Elliott, (2008), Greenman (1988), Greenfield (2007), Moore (1986), Prescott (1987), Veitch et al. (2005) have raised concerns about simple play units, typified by commercial fixed equipment installed on a patch of synthetic softfall, that pervade many early childhood, school and public playspaces. Such play units lack the 'real life' (Nimmo, 2008) complexity, dynamism and manipulability of natural playspaces that children crave and deserve in play.*
- *Nicholson's (1971) theory of loose parts described the promotion of play through manipulation of loose parts such as open-ended play equipment and natural or reusable materials, but according to Fjortoft (2004) the best loose parts are natural ones. 'Children immersed in a treasury of loose parts that they can use for experimentation and construction' (Chawla, 2006, p. 68) suggests children's agency in play with loose parts. Such experiences also foster dramatic play and social skills (Maxwell, Mitchell & Evans, 2008). Natural loose parts are engaging and inspiring play elements in natural outdoor playspaces.*
- *Affordances theory describes the unique relationship between an individual and his or her environment; the relationship is about not only awareness, but also perceiving the potential for function (Gibson, 1986). For example, a tree might convey a climbing affordance. Hefts (1988) and later Kytta (2002) created a taxonomy of affordances that categorised the environmental qualities evident with the play affordances observed. Fjortoft and Sageie (2000) confirmed that natural playspaces with green elements, loose parts and varied topography communicate high affordances to children.*
- *Risk is an inherent aspect of children's play, yet until recently risk has been viewed through a negative safety lens. A number of researchers have examined the benefits of risky play and tensions around risk for early childhood educators (Fenech, Sumsion & Goodfellow, 2006; Little & Wyver, 2008; New, Mardell & Robinson, 2005; Sandseter, 2007; Stephenson, 2003). Risk is an individual and contextual matter, each playspace is different and each child is different (Stine, 1997) and early childhood educators must make ongoing professional decisions about risk (Elliot & Blanchet-Cohen, 2009; Maynard & Waters, 2007). Natural playspaces in particular are rich contexts for experiencing risk and practising risk management skills (Fjortoft & Sageie, 2000; Waters & Begley, 2007).*

***Figure 1* – Play, play theories and natural playspaces: play units, loose parts, affordances and risk**

CHAPTER 3 – PHILOSOPHICAL STANCE

Schwandt (2000, p. 191) in describing social science inquiry stated 'acting and thinking, practice and theory, are linked in a continuous process of critical reflection and transformation'

Introduction

In the previous two chapters I have outlined the context of this study and the research gaps that it seeks to partially fill. As noted there is scant early childhood education for sustainability research (Davis, 2009: Elliott & Davis, 2009) to inform or guide decisions about the philosophical stance and methodology that would engage fully the identified research questions. Thus, I needed to search broadly and create a research paradigm that would support a transformative approach (Sterling, 2001) for investigating the interfaces between sustainability, education for sustainability and more natural outdoor play spaces. The significant challenge of how to transform the underlying values of early childhood professionals and their pedagogy, such that education for sustainability becomes mainstream not marginal (Davis, 1999), lies at the core of this research. The creation of my researcher philosophical stance has been an evolving process of critical reflection and self-transformation over time and to some extent, a grappling at the margins of social science research. The key outcomes of this have been my declaration that I am a researcher with an ethical commitment to sustainability and the intertwining of a biocentric ontology (Taylor, 1986) with an epistemology of social constructionism (Crotty, 1998). Such foundations have provided the basis for engaging with critical theory after Fay (1987) and Freire (1976; 1999 first published 1972) with transformation and empowerment (Freire, 1999) being key to this research. Further support has been drawn from systems theorists Bateson (1979), Capra (1997; 2002) and Maturana and Varela (1987) who explored social systems through a biologist's lens. In this chapter I also draw on Elliott and Davis (2009) to document both a personally evolving process and my philosophical outcomes which underpin later chapters.

Grappling at the margins and moving away

Over a number of years prior to engaging in this study I reflected from a distance on the dominant broad research paradigms related to early childhood education and questioned specifically where research in education for sustainability would theoretically fit. Early childhood research was dominated during much of the last century by positivist research paradigms arising from the discipline of psychology. It is only relatively recently that exploration of postmodern, social constructionist and poststructuralist paradigms have promoted the reconceptualising of children and early childhood education (Woodhead, 2006). Specifically, poststructuralist research which brings into sharp relief power relationships with a view to addressing inequities has prompted significant pedagogical change in early childhood education (Dau, 2001; MacNaughton, 2003).

As a novice researcher, with a commitment to creating a more equitable planet both socially and environmentally, this poststructuralist view initially appeared a logical vantagepoint to theoretically locate early childhood education for sustainability research. Drawing on *The Brundtland Report* (1987), sustainability can be defined as a 'temporally-located equity' (Elliott & Davis, 2009, p. 72) crossing both generations and species.

> It is apparent ... that the thinkers and researchers who have been at the forefront of reconceptualising early childhood education have ignored intergenerational and inter-species equity as discussions about these equities are virtually non-existent in ... newer early childhood literature. (Elliott & Davis, 2009, p. 72)

When questioning this apparent oversight in collaboration with my colleague Associate Professor Julie Davis we identified two 'blind spots' (Wagner, 1993, p. 16) of poststructuralist researchers (Elliott & Davis, 2009). We argued that the anthropocentric (Bowers, 1993) lens of poststructuralists places humans, and more specifically their language, centre stage thus blinding the voice and agency of the biosphere (Refer ontology discussion below). Relationships between the biosphere and humans are inextricable from a biocentric worldview; humans are not elevated beyond the biosphere, but they are in it and impacted by it in their daily construction of meanings. Further, the exploration of power dichotomies is fundamental to poststructuralist research and the obvious human/nature dichotomy is a likely candidate for such exploration. But, the human/nature relationship is dynamic, complex and contextualised and therefore does not submit easily to scrutiny as a power dichotomy. An anthropocentrically informed view of the human/nature relationship is at odds with the perspective of many environmental advocates informed by systems theory (Bateson, 1979; Capra, 1997; Maturana & Varela, 1987), deep ecology (Berry, 1988) and the Gaia hypothesis (Lovelock, 1979). The latter environmental advocates broadly subscribe to a complexity of responsive and interdependent human and non-human relationships, typified by ecological systems and cycles, not dichotomies of power.

Berry (1988, p. 240) encapsulated the inextricable and complex relationships between humans and the biosphere they inhabit when he stated:

> The natural world is subject as well as object. The natural world is the maternal source of our being as earthlings and life-giving nourishment of our physical, emotional, aesthetic, moral and religious existence. The natural world is the larger sacred community to which we belong. To be alienated from this community is to become destitute in all that makes us human. To damage this community is to diminish our own existence.

Thus, through a process of critical reflection about poststructuralist perspectives as a theoretical framework for research in early childhood education for sustainability and something of a self-transformation, it became evident that there was a task inherent during this study to create a theoretical framework informed by a biocentric ontology.

It is both challenging and stimulating to move away from the dominant anthropocentric ontology that fuels, most if not all, human constructs and meanings of human social systems without reference to the ecological system within which humans are embedded. Creating a research paradigm that locates humans as players in a complex ecological system raised questions for me about: How reality is viewed? Who and what are subject and object? How can value-laden researchers and participants authentically engage in such research?

Responding to these challenges Guba and Lincoln (2005) supportively asserted ecological values might be reflected in future research efforts. Clearly, the future they made reference to is now given the mounting physical evidence of a rapidly changing Earth and the current socio-political frenzy about sustainability issues. Paul and Marfo (2001) identify that socio-political contexts throughout history have fostered particular approaches to inquiry and perhaps it can be forecast at this historical juncture that the imperatives of sustainability will increasingly impact on social science inquiry. Lotz-Sisitka (2009) and Scott (2009) suggested that to date sustainability research has been methodologically limited, but ripe for methodological experimentation to create new and diverse theoretical frameworks. Paul and Marfo (2001) also actively promoted the need to seek alternative research paradigms and rejected fitting the proposed research question within the dominant paradigm. They stated 'research should be driven by interests and imagination and a willingness to find credible avenues for investigation, not merely by readily available methods' (Paul & Marfo, 2001, p. 544). So, with committed interest, imagination and much grappling at the margins of social science inquiry my intention here is to create an alternative research paradigm for meaningful engagement with early childhood education for sustainability.

A framework for creating a research paradigm

A paradigm is a set of foundational beliefs that guide research inquiry. In line with this position Guba (1990, p. 80) asserted that foundational belief systems 'cannot be proven or disproven, but they represent the most fundamental position we are willing to take as researchers'. Each researcher endeavours to create a research paradigm of best fit. Guba (1990) and Guba and Lincoln, (2005) characterised a research paradigm in terms of ontology, epistemology and methodology. Denzin and Lincoln (2005, p. 183) more recently added axiology or ethics as a fourth characteristic in accordance with Guba and Lincoln's (2005, p. 212) prediction of 'an age of greater spirituality within research efforts'. Each of these four characteristics invited me to pose questions about what is a meaningful research paradigm and through responses to these questions I then defined the relevant research paradigm for this study. The questions have been informed by methodological review of Denzin and Lincoln (2005), Guba (1990), Paul and Marfo, (2001) and Schwandt (2001) and provided a framework for creating an alternative paradigm of best fit:

- Axiology - What ethics or values are embedded in the paradigm? What is the researcher's view of an ethical community in the world today?

- Ontology - What is reality? How does the researcher view the world?
- Epistemology - How is the world knowable? What is the relationship between the researcher and what is known or knowable in the world?
- Methodology - How can the researcher best create the knowledge sought? What theoretical perspectives facilitate this acquisition?

The above framework of paradigm characteristics and questions facilitated elaboration and discussion of my tentative research paradigm, but a limitation is noted. The interweaving of ontology and epistemology and also methodology and axiology is increasingly evident in social science research (Crotty, 1998; Guba & Lincoln, 2005; Schwandt, 2001); and, compartmentalisation may fail to convey the commensurability of the proposed paradigm parts. A common thread underpinning the paradigm parts is essential to a cohesive research paradigm. Every endeavour will be made in the following discussion to address this limitation.

Responding to the framework: An alternative research paradigm

- **Axiology**

Axiology identifies a researcher's underpinning values and ethics that are at the core. Christians (2005) asserted that being explicit about underpinning values and ethics was part of a new model of qualitative social science research. He also argued that revision was long overdue and that an ethic of community collaboration, participation and engagement with values was required. In praxis the researcher does not research *on* the values of the participants, but becomes engaged in articulation and interpretation of community values and community transformation as part of an underpinning ethical responsibility to the community.

In this inquiry an ecological or sustainability ethic has guided me to engage in research that promoted the evolution of more sustainable communities; that operated collaboratively and acknowledged humans as part of a complex and dynamic biosphere. Sustainable communities prioritise the reciprocal and fluid relationships between environmental, social and economic dimensions that contribute to sustainable living. In particular, it was my engagement as a researcher with early childhood communities in this study that facilitated the exploration of educators, parents and children's values about sustainability. As Rohan (2000, p. 270) stated 'A value is a ... principle constructed from judgments about the capacity of things, people, actions, and activities to enable best possible living' and in this instance the best possible is sustainable living. In the spirit of Christians' (2005) ethic of community responsibility in research, a collaborative approach to constructing values for best possible living within early childhood settings, informed by an ethic of sustainability guided this research. Education for sustainability is essentially about transforming or reaffirming one's values and so, conducting this study without

explicitly stating an underpinning axiology as part of the research paradigm was incongruous. Also, this study was undertaken with an ethical commitment to collaborative change akin to 'the call to action' described by Guba and Lincoln (2005, p. 201). Further, it was aligned with the recent recasting of sustainability education research as focussed on social change with capacity building and strengthening agency as prime foci (Gough, 2006; Lotz-Sisitka, 2009; Scott, 2009).

- **Ontology**

Addressing ontology presented an opportunity to examine my biocentric worldview and question what is reality from this perspective, a somewhat marginal position in social science inquiry. Guba and Lincoln (2005) described a crisis of authority and a crisis of representation in the social sciences and thus, promoted a movement to the margins to facilitate more relevant research beyond conventional boundaries. This meant 'to create a social science about human life rather than on subjects' (Guba & Lincoln, 2005, p. 211). A biocentric view of the world lies beyond traditional social science research boundaries as previously exemplified in relation to poststructuralist early childhood research. It invites a more holistic view of human life within the universe, rather than human life as subject and central to existence. A biocentric worldview is often cited (Biocentrism-Wikipedia, 2006, online; Taylor, 1986) as the antonym of an anthropocentric worldview. Within a biocentric worldview humans are part of complex and dynamic systems, all elements both human and non-human have intrinsic value, both objects and perceptions (metaphysical realism) exist and relationships take precedence over discrete entities. Such a worldview is supported by deep ecologists who promote the intrinsic value of all species not just humans (Berry, 1988; Sessions, 1995). Also, systems theorists including Bateson (1979), Capra (1999) and Maturana and Varela (1987) cited the primacy of relationships over objects in their efforts to interweave social and ecological systems in a holistic manner.

A biocentric worldview perspective also raises the question, what is reality? From a biocentric worldview the Earth does exist irrespective of human consciousness of it. There are rocks, trees and water despite no human minds to make meaning of them. Reality described in this manner is not a direct or naive realism where the object takes priority over perception, but metaphysical realism where both objects and perceptions exist (Schwandt, 2001, p. 220). There is acceptance that things do happen in the real world as determined by natural laws. As a researcher I sought a paradigm informed by an ontology that acknowledged humans as part of complex and fluid systems and cycles comprised of both human and non-human elements, where meaning is derived from relationship and not discrete entities. Such a paradigm is supported by Lotz-Sisitka (2009) who noted the mixing of social sciences and environmental sciences methodologies; she viewed this mixing as fertile ground for methodological experimentation.

For some researchers values and beliefs may be almost invisible or assumed, but the values and beliefs concomitant with a biocentric worldview are explicitly embedded at the core of those who share such an ontology. 'Ontology is truly itself only when it is personal and persons are truly

themselves only as ontological' (Lotz, 1963 quoted in Christians, 2005, p. 158). As a researcher I cannot divorce myself from the ontology that informs who I am and how I view the world; and thus, while somewhat controversial, expressing this paradigm position has been critical to this study. I believe there is an emerging place in social science inquiry, and very specifically early childhood education research, for biocentric worldviews. It is the engagement in interactive relationships with and between both humans and non-human elements that has created the raw data in this study. Here the intrinsic value of plants, rocks and logs in children's natural playspaces, along with the primacy of all relationships, was acknowledged. The interacting of humans and non-human elements evident in an outdoor playspace reflected a complex and fluid system, which captured my research interest. My ontological view encouraged a holistic approach to exploring the relationships between subjects (educators, parents and children) and objects (outdoor elements) as evidenced in the following chapters.

- **Epistemology**

Epistemology questions how the world is knowable and thus encouraged my reflection on relationships between self and knowledge. In this study, both constructivism and, in particular, social constructionism were the underpinning epistemological views. Constructivism holds that:

> all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. (Crotty, 1998, p. 42)

Refining this epistemological stance further, Crotty (1998) referred to social constructionism. This is a form of constructivism that emphasised collective construction of meanings in the light of social contexts and values. The current sociocultural and historical global context (Flannery, 2010; Suzuki, 2010), earlier described as a frenzy about sustainability issues, was significant for this research study and impacted on the collective construction of coherent meanings. It was acknowledged throughout that all stakeholders constructed unique meanings about sustainabilty in relation to outdoor playspaces. This study provided a space for interactive, reciprocal and transformative relationships around these meanings with a view to forming coherent and shared meanings.

Truth or validity from a constructionist stance lies in the 'most informed and sophisticated construction on which there is consensus among individuals most competent (not necessarily most powerful) to form such a construction' according to Guba and Lincoln (1989, p. 86). In a later elaboration, Guba and Lincoln (2005, p. 196) placed less emphasis on the participants and outcomes and more on the process, when they referred to 'collective reconstructions sometimes coalescing around consensus'. Schwandt (2000) added that collective reconstruction and potential consensus arise from a process of testing and modification of values and perspectives in the light of new experiences. This research study was a new experience for all stakeholders and therefore, offered fertile ground for the ongoing processes of 'critical reflection and transformation'

(Schwandt, 2000, p. 191). In other words, the practical doing of this research was a transformative experience in itself for all concerned and thus, reflective of my underpinning axiology in which I valued collaborative change towards more sustainable living.

A further consideration relevant to a social constructionist epistemology was the interactive relationship between researcher and participants that created the data. Values are formative in such relationships and cannot be ignored as Guba and Lincoln (1989, p. 88) suggest 'an inevitable element in the inquiry mix is the values of the inquirer and a whole variety of other persons in and around the inquiry'. Values are to be acknowledged and explored in the construction of meanings and were a significant element in this study.

A social constructionist epistemology invites the researcher to construct 'the knowable' in a particular sociocultural and historical context. Schwandt (2001) suggested many constructionists do so with a view to facilitating transformation or change of the phenomenon under investigation. Social constructionism also accepts that 'the social world and the natural world are not to be seen ... as separate distinct worlds existing side by side' (Crotty, 1998, p. 57). It was envisaged in this study that the constructed community consensus about outdoor play spaces for young children would create a potential for action and change aligned with an ethical commitment to sustainability. As previously noted Guba and Lincoln (2005) asserted that such calls to action are increasing in social science research.

Thus, my intention to research relationships required an epistemology that was inclusive of the social and physical contexts and created opportunities for construction of consensual meanings about - what is a sustainable outdoor playspace? An early childhood centre is a social context comprising educators, children, parents and often-local community members. Interactive and collaborative relationships characterised by respect, reciprocity and responsiveness (Barrera & Corso, 2002) between all participants was envisaged. These relationships fostered the deeper exploration of diverse values and meanings about sustainability. Also, a social constructionist epistemology supported a transformative approach whereby some change was facilitated through shared critical reflection around values and meanings. As a researcher with an ethical commitment to sustainability and collaborative change, such a transformative process of social change was envisaged prior to the study and what actually happened is described in following chapters.

- **Methodology**

Two theoretical perspectives pertinent to this research paradigm were critical theory (Fay, 1987; Friere, 1976; 1999 first published 1972) and systems theory (Bateson, 1979; Capra, 1997; 2002; Maturana & Varela, 1987). As a researcher my ethical commitment to empowerment, transformation and challenging inequities for best possible living led to critical theory and systems theory. These theories provided the methodological framework for embracing the complex and dynamic relationships of both social and biological worlds. Contributors to critical theory

include Fay (1987) and Freire (1976; 1999 first published 1972) amongst others. Crotty (1998) described how critical theorists seek to integrate theory and practice, interrogate values, question power relationships and promote ethically informed action. Guba and Lincoln (2005, p. 201) also stated that critical theorists 'have always advocated varying degrees of social action, from the overturning of specific unjust practices to radical transformation of entire societies'. Such transformation results in what Crotty (1998, p. 156) envisioned as a conscientised people:

> They are people emerging from their situation to reflect upon it and cast aside the culture of silence that has held their consciousness submerged. They are people whose critical awareness melds reflection and action and enables them to transform their lives in a new found spirit of hope and courage.

Fundamentally, critical research 'is aimed at not merely understanding the world, but at changing it' (Comstock, 1982, p. 389). This is a crucial outcome for sustainability research. Calls to live sustainably are about radical axiological transformations for all humans and specifically, in this inquiry this means radical transformation of daily living within early childhood communities. Hence, a critical methodology was relevant to my research paradigm and this study.

Friere (1976), as a critical theorist and educationalist with a particular interest in transformative education and praxis, was of direct relevance here. He advocated (Friere, 1999, p. 60) the abandonment of 'banking approaches' to education where teachers taught to deposit information for dialogical approaches in which problem-solving approaches about human relationships with the world could promote change or transformation. Friere stated in an interview 'education is not the key to transformation, but transformation is in itself educational' (cited in Gismondi, 1999, online). Underpinning transformation is the notion that the world including humans is not viewed as a 'static reality, but as a reality in process' (Friere, 1999, p. 64).

Conscientisation of the current biospheric crisis may in Friere's (1999, p. 66) words lead to 'a deepened consciousness ... to apprehend that situation as an historical reality susceptible of transformation'. Education for sustainability research must be committed to transformative approaches in praxis that enables individuals and social collectives to empower themselves to enact change for the future. Systems theorists also support this approach. O' Callaghan (2004, online) stated 'it will be far more effective, less costly and more fun to empower people to see for themselves what they can do to a make a difference, to be the change'. Friere's research appeared to be supportive of systems theorists, 'as Friere has said, there is an indivisible solidarity between humans and the world. No dichotomy can be made between the two' (Crotty, 1998, p. 149). These ideals cemented my move away from poststructuralist paradigms.

In this study the employment of critical theory invited ethically informed reasoning and supported integration of theory and practice, such that participants experienced conscientisation and felt empowered towards making transformative changes (Crotty, 1998). If a paradigm shift was to occur

with participants' values and perceptions of education for sustainability in outdoor playspaces for young children, then challenging each other's belief systems and promoting critical reflection was integral to the process. Also, simultaneous action and reflection were fundamental to this theoretical framework and mutually illuminating (Friere, 1976). Ongoing action and reflection supported my progressive research analysis and generation of theory about what was a sustainable outdoor playspace and how such spaces could be created in early childhood communities.

Systems theory is not new and has been described as part of Buddhist, Chinese and Indigenous cultures in past centuries (O'Callaghan, 2004, online; Suzuki, 2003). Contemporary systems theorists, including Bateson (1979), Capra (1997; 2002) and Maturana and Varela (1987) have provided significant input into bridging the academic silos between the study of biological systems and the study of social systems to forge systems theory perspectives that more fully inform social science inquiry. Capra (2002, p. 29) recognised the foundational work of Bateson and Maturana and noted their work was significant in abandoning 'the Cartesian view of mind as a thing, and to realise that mind and consciousness are not things but processes', from a systems theory perspective.

Bateson's perspective on systems theory arose from a branch of cybernetics (O'Callaghan, 2004, online) that dealt with complex control processes through which both biological and social systems regulate themselves and maintain stability or homeostasis. In such systems, context and relationships are important and constant messaging to convey changes within systems promotes longer-term stability and adaptability. Humans are only part of these systems and can never control them. In fact, Bateson (cited in O'Callaghan, 2004, online) doubted that we could survive as a species if we continued to view the world in terms of dualisms, which was one of the blind spots of poststructuralists previously discussed. Bateson (1979) asserted that mind and nature were one organism, but not in the sense that idealists would assert that nature only exists as an interpretation of the mind. Bateson focused on the interrelationships between mind and nature and how each influenced the other to maintain stability as in one whole organism.

The fundamental importance of relationships is echoed in the systems theory thinking of Maturana and Varela (1987). They referred to autopoiesis (Maturana & Varela, 1987) and 'the crux of autopoiesis is also a systems idea - that the organism maintains itself as a unity, not by its parts per se, but by virtue of the relationship among its parts' (Fell & Russell, n.d. online). Further, Maturana stressed that organisms were involved in a two-way interactive relationship whereby the organism and the context would change over time. While Maturana referred to this as structural coupling, it could also be described as a form of co-evolution. Norgaard (1984, p. 528) suggested the co-evolution of ecological and social systems such that human activities 'modify the ecosystem, while the ecosystem's responses provide cause for individual action and social organisation'. In applying this theoretical perspective to social sciences inquiry, again relationships are crucial, but also recognition of the context as an active, not passive or inert, aspect of relationships is evident.

Capra (1999, p. 4) lent further support for systems theory when he stated this thinking 'implies a shift of focus from objects to relationships'. In particular, Capra (1999) was concerned with the multiplicity and patterns of relationships and the impacts or potential impacts of each on every other relationship throughout the system or web. Humans are enmeshed in a complex web of relationships involving both ecological and social systems and the sensitivity of the web is such that to damage one part is to risk repercussions for some or even all other parts. To live sustainably we must recognise 'that we are an inseparable part of the web of life, of human and non-human communities, and that enhancing the dignity and sustainability of any one of them will enhance all others' (Capra, 2005, p. 4). Stability, adaptability and co-evolution are key elements of systems theory, but at critical points of instability new structures and relationships may appear (Capra, 1999).

In relation to seeking a relevant new research paradigm for early childhood education for sustainability research, Elliott and Davis (2009, pp. 73-74) asserted:

> In accepting the value of systems theory, one leaves behind reductionist and dichotomous approaches and embraces the notion that the sum of the whole is more than just the sum of the parts. There is no room for dichotomies and relationships of power in systems theory. Human relationships are researched, then, as one part of the complex social and ecological systems in the biosphere, not as the central set of relationships.

Systems evolve over time through stable and not-so-stable phases. Given the contemporary daily media coverage that reinforces a socio-political frenzy about sustainability issues, it would seem humans have ignored systems theory for too long. I believe our critical period of global instability requires radical axiological change. Systems theory provides an authentic window into the changes occurring in the social and physical contexts that comprise an early childhood outdoor playspace. My study has been not only about self-transformation for all stakeholders, but also observation of the transformation within two early childhood settings. The playing out of the interrelationships which evolved during the research phase and will continue to evolve through times of ebb and flow, as varying degrees of stability are likely to be experienced in the future.

Encapsulating my stance

While grappling with the adoption of this alternative paradigm and the idea of moving my thinking forward, I found reassurance in Schon's (1995) swampy lowland metaphor as the place of practitioner research. He stated 'in the swampy lowlands, problems are messy and confusing and incapable of technical solution ... (yet) in the swamp lie the problems of greatest human concern' (Schon, 1995, p. 28). This metaphor affirms the reality of this research study and sustainability as a global issue. There can be no greater human concern for me than living sustainably, such that the generations of children that educators engage with in early childhood settings may equitably and sustainably share some of the Earth's resources and ethically care about them too.

My philosophical stance has emerged to encapsulate an ethical commitment to sustainability and collaborative change in early childhood outdoor playspaces guided by a biocentric worldview. I believe early childhood centres are complex sociocultural and physical contexts where a social constructionist epistemology is relevant for effectively promoting consensual values and meanings. A critical theory methodology supported my vision of enlightenment and feelings of empowerment for creating high quality sustainable outdoor playspaces with children. Systems theory was also supportive in the illumination of the interweaving of the social with the biological. Action for change was not an add-on to the research process employed here or simply an outcome, but an embedded and integral element within this study. My stance was reinforced from an action research perspective by Reason and Bradbury (2008, p. 9) who advocated 'an attitude of inquiry [that] seeks to recognise the profundity of ... active and increasing participation with the human and more than human world' as a living whole.

CHAPTER 4 – METHODOLOGY

'There is no singular, authoritative, and agreed upon set of methods for conducting qualitative research' (Liamputtong & Ezzy, 2005, p. 29).

Introduction

The challenge for this qualitative study was to select a methodology of best-fit, one that fully engaged the socially and physically dynamic research context of early childhood settings and resonated with my philosophical stance. Aligned with my axiological commitment to transformative change and an epistemology of social contructionism, critical participatory action research was the selected methodology (Kemmis & McTaggart, 1988a; 1988b; 2005; Kemmis, 2006). Further, as Liamputtong and Ezzy (2005, p. 29) have suggested there is no one right methodological way for conducting a qualitative study and specifically, for early childhood education research there is only a relatively brief history of research discussion to draw on. For example, Hatch (1995; 2007), Goodwin and Goodwin (1996), Lambert (2003) and MacNaughton, Rolfe and Siraj-Blatchford (2001) are key authors in the early childhood research field. The pages that follow outline the methodology and how it was implemented with two early childhood centre communities. This chapter also addresses specific data creation instruments, analytical strategies, ethics and some methodological and ethical challenges.

Critical participatory action research: Principles, practices and co-participants

Critical participatory action research as outlined by Kemmis and McTaggart (2005) has been an evolving research methodology since the initial conception of action research by Lewin (1952), who challenged the dominant paradigm of the distant and disengaged social science researcher. Action research today has many guises including participatory action research, practical action research, action science and emanicipatory action research (Kemmis & McTaggart, 2005; Liamputtong & Ezzy, 2005; Mills, 2007, Reason & Bradbury, 2008); but, all action research can be broadly characterised by context, collaboration, participation and self-evaluation (Burns, 2000). Action research is strongly contextualised and seeks not to apply theoretically drawn strategies or set prescribed objectives, but to engage participants in a process of reflecting and evaluating with a view to resolving locally identified challenges or concerns. Action research is living inquiry and as such contributes to 'a stream of action and inquiry which aims to enhance the flourishing of human persons, their societies, communities and organisations and the wider ecology of which we are all part' (Reason & Bradbury, 2008, p. 12). As living inquiry, action research also reflects the life experience of researchers (Wicks, Reason & Bradbury, 2008) as seen in this study. Action research is represented in education research methodology publications from the earlier seminal publications by Kemmis and McTaggart (1988a; 1988b) to the more recent (Hendricks, 2006;

Mills, 2007; Stringer, 2004) and it aligns strongly with reflective practice, a key pedagogical element of all education.

Expanding on the above foundational characteristics of action research, Liamputtong and Ezzy (2005, p.183) describe 'participation, education and collaborative action' as the cornerstones of participatory action research (PAR). They have stated 'PAR aims to create new forms of knowledge through a creative synthesis of the different understandings and experiences of those who take part' (Liamputtong & Ezzy, 2005, p. 182). Aims of shared ownership of the research and links between PAR and the emancipatory potential of human rights advocacy and community development projects, were noted by Kemmis and McTaggart (2005). PAR invites the active engagement of participants in the research and promotes practical outcomes and reflective change for them (Berg, 2001; McIntosh, 2010; Reason & Bradbury, 2008; Somekh, 2006). In this instance, I anticipated that the staff and parent participants could collaboratively identify and implement an action priority for each early childhood outdoor playspace that would precipitate practical outcomes. The identified priority offered a focal point for taking action in each centre. Also, beyond the potential changes in local knowledge for the research participants there were opportunities envisaged at the public knowledge level to transform early childhood theory and practice. Other educators and researchers beyond the actual research site might also engage in transformative processes in response to this study (Ospina, Dodge, Foldy & Hofmann-Pinilla, 2008, p. 426).

The notion of reflective change for participants (Berg, 2001) can be further enhanced when participatory action research is informed by critical theory. The link between critical theory (Refer Chapter 2) and participatory action research was initially established by Carr and Kemmis (1986) and further revised by Kemmis and McTaggart (2005). In their revised view of critical participatory action research (CPAR) greater attention was given to the collective, as they described:

> a process of sustained '*collective deliberation'* coupled with a sustained '*collective investigation'* of a topic; a problem, an issue, or a theme that allows people to explore possibilities in action, judging them by their consequences in history and moving with a measure of tentativeness and prudence ÷ but also with the support that comes with '*solidarity'.* (Kemmis & McTaggart, 2005, p. 598)

In essence, the change is viewed as a collective process, both open and inclusive and a means for transformation. Kemmis (2009) offered an example of critical action research in education for sustainability and described participants as thinking, acting and relating differently with potential to also transform others. Pertinent to this study and that of Kemmis (2009) is the fact that change in the research contexts was played out against a backdrop of broader social and global change, labelled sustainability. Somekh (2006, p. 8) described the location of action research inquiry 'in an understanding of broader historical, political and ideological contexts' as a key principle. This research aimed to facilitate participants' reflection beyond the constraints of their immediate settings, prompting engagement with understandings of sustainability as a global issue.

The practice of CPAR is informed by Lewin's (1952) original Action Research Cycle and its later re-configurations noted by Mills (2007) and McNiff with Whitehead (2002). The cycle as described by Kemmis and McTaggart (2005, p. 564) required repeated revolutions of planning, acting and observing then reflecting, thus creating an Action Research Spiral. Preceeding the first action research cycle of the spiral a reconnaissance phase was indicated by Kemmis and McTaggart (1988a). In this study, as seen in Figure 2, the reconnaissance phase proved to be essential for establishing collaborative rapport with centre staff and parents. 'A communicative space' as described by Kemmis (2001, p. 100) was created. Drawing on the seminal work of Lave and Wenger (1991) this type of space has been described in early childhood education as a community of practice or community of learning (Anning, Cullen & Fleer, 2009). Also, I made effective use of the reconnaissance phase to establish and clarify my role as a co-participant, rather than external expert that was going to fix the playspace. In terms of the various researcher positionality stances described by Herr and Anderson (2005), I was an outsider seeking to work collaboratively with insiders. The reconnaissance phase was a time for my strategic reflection about options for potentially co-facilitating change in both centre practices and participants' understandings. I was mindful of the underpinning fundamentals of action research and critical methodology in determining the best way forward to facilitate such change.

The Action Research Spiral that informed this study is illustrated in Figure 2 below. The symmetry and patterning of the depicted spiral does not convey the messiness of the actual research context or process; however, the spiral created a framework for all participants to take a role in re-shaping as the research process unfolded. Essential elements of CPAR that were apparent included fluidity, openness and responsiveness (Kemmis, 2001). While I attempted to ensure these characterised my behaviour as a researcher, the research participants varied somewhat in their degree of demonstration of these elements. In this study, just as pragmatically noted by Kemmis and McTaggart, 'initial plans quickly become obsolete in the light of learning from experience' (2005, p. 563).

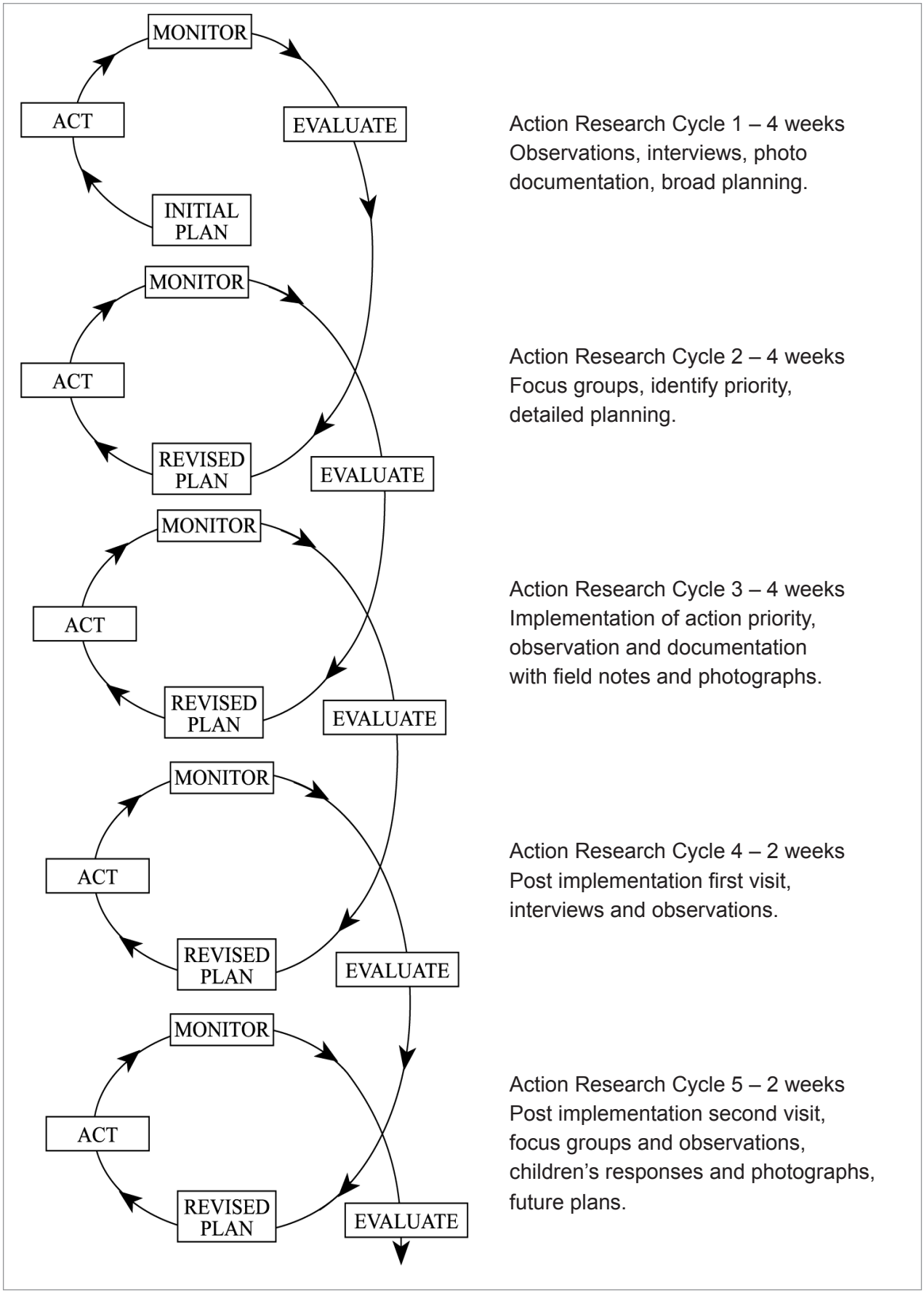
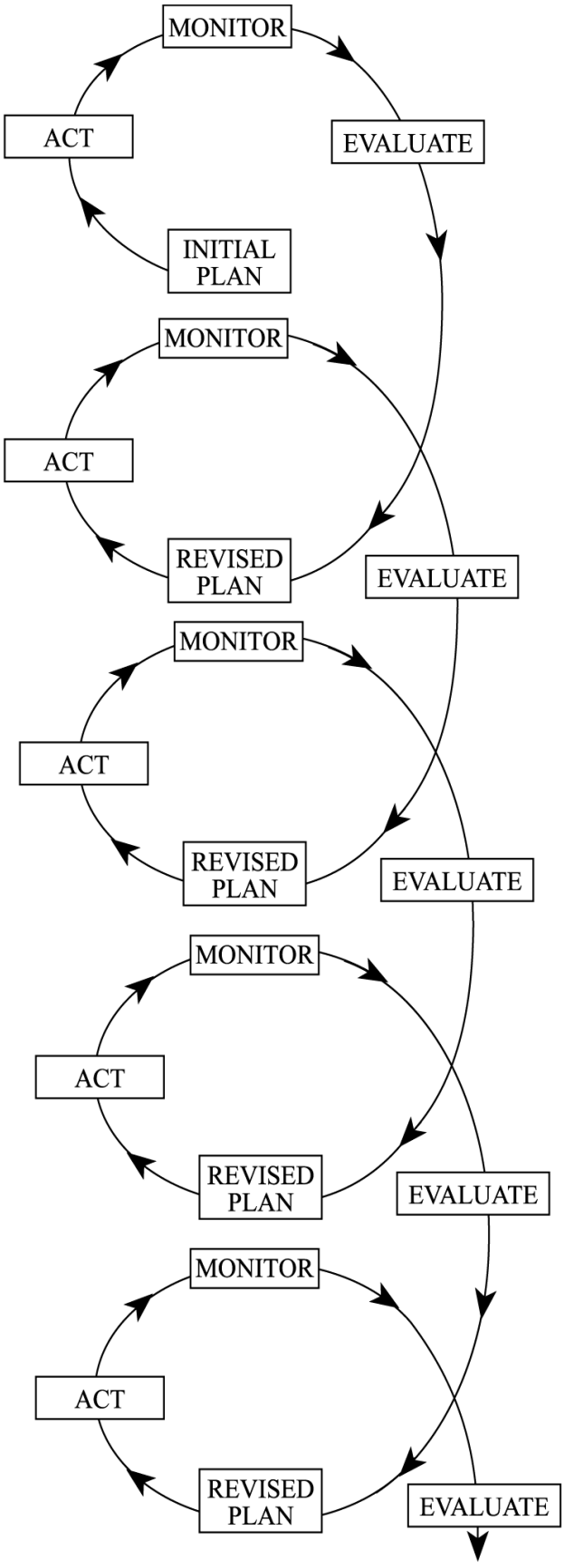


***Figure 2* – Action research spiral plan for case studies (adapted from Kemmis, 1983)**



Action Research Cycle 1
Reconnaissance, consent, first interviews and focus groups, action priority, resourcing centre and reflections, 14-02-08 to 04-08-08.

Action Research Cycle 2
Second interviews and reflections, 05-08-08 to 03-09-08.

Action Research Cycle 3
Second focus groups and reflections, 04-09-08 to 06-10-08.

Action Research Cycle 4
Researching with children and reporting back to centre, 07-10-08 to 02-12-08.

Action Research Cycle 5
Third interview and final reflections, 03-12-08 to 31-03-09.

Figure 3 **– Banksia Childcare Centre action research spiral (adapted from Kemmis, 1983)**

Figures 3 (above) illustrates the completion of five action research cycles for Banksia Childcare Centre and Figure 4 (below) displays three action research cycles for Acacia Kindergarten (for details refer to Appendix 1 and 2 respectively). These cyclical differences attest not only to the unique and evolving nature of each action research journey, but to the differing levels of responsiveness and engagement with the research process by each participant. These differences impacted on my opportunities as researcher to challenge, analyse and test emergent understandings. I concur with Dick (2001) that more frequent and shorter cycles create more opportunities than infrequent and longer cycles. A further overriding factor that may have promoted this difference was that the research with Banksia Childcare Centre began first and my learnings from the experiences in this centre informed and possibly expedited the research process at Acacia Kindergarten. The similarities and differences between the two Action Research Spirals are explored further in detail in Chapters 5 and 6.

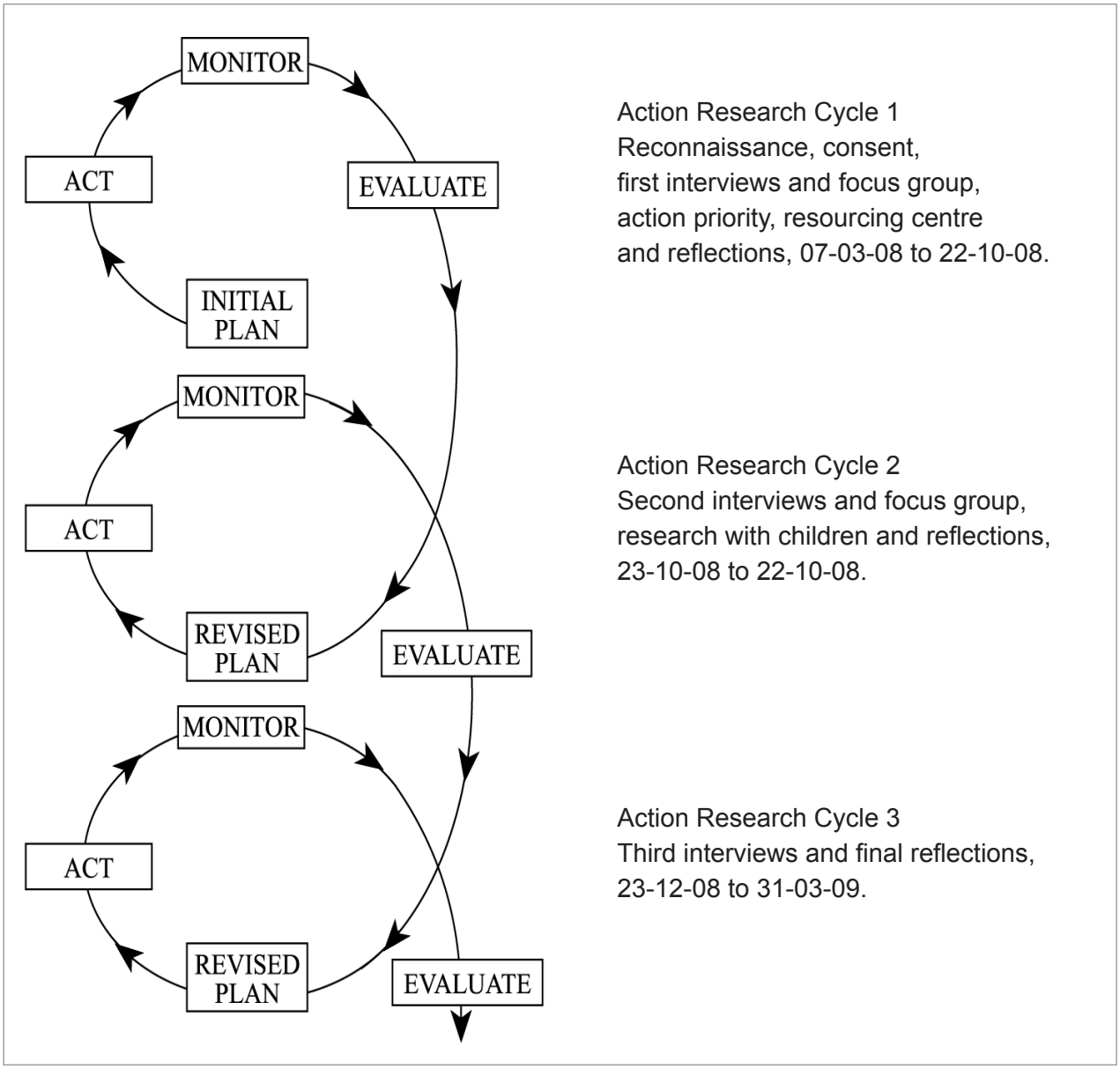


***Figure 4* – Acacia Kindergarten action research spiral (adapted from Kemmis, 1983)**

All stakeholders in the early childhood communities, both adults and children, had roles as co-participants helping to evolve the collective emphasis of CPAR and the tenets of collaboration and inclusion. They brought to the study expertise, beliefs and opinions worthy of valuing and capturing. My position as research facilitator strongly reflected the frame described by Kemmis and McTaggart (2005, p. 594) who stated that this person 'can be a co-participant, but one with some special expertise that may be helpful to the group in its endeavors'. My focus was 'change with others' (Reason & Bradbury, 2008, p. 1), not changing others. Local, public and personal professional knowledge were part of this co-generative inquiry and together as stakeholders, we created strong research teams (Greenwood & Levin, 2005; Ospina et al., 2008).

In the role of 'primary instrument for data collection and analysis' (Punch, 2000, p. 57), my access to the participants and contexts and their acceptance of me were essential to authentic interactions. Throughout each project I was immersed in each specific centre context, but at the same time I was conscious of Punch's (1999) caution regarding the vulnerability of this position. My intent was to become personally and experientially knowledgeable about the activities, relationships, spaces and participants of each centre, such that they were embraceable (Stake, 2005). The process was thoroughly reflexive, 'this means that the researcher should constantly take stock of their actions and their role in the research process, and subject these to the same critical scrutiny as the rest of the data' (Mason, 1996, p. 6). Reflexivity required me to achieve an ongoing balancing of authentic engagement and stepping back to apply a researcher lens to all aspects of the research context and process under scrutiny (MacNaughton, Rolfe & Siraj-Blatchford, 2001). This reflexive process was documented in my professional research journals to account not only for the transformation of the centres studied, but of myself as a researcher.

Case studies: The settings and the stories

CPAR was implemented with two early childhood centres as illustrative case studies, Banksia Childcare Centre and Acacia Kindergarten. The original research plan and timeline for this study (Refer Appendix 3) incorporated three centres with sequentially overlapping case studies over a one-year period. However, by the midway point it became evident that the specific timelines for each centre needed to be extended due to a range of practical constraints. Therefore, only two rather than three centres participated in the research study, thus resulting in an in-depth study of each.

While CPAR remained the driving methodology, both case study and narrative approaches (Stake, 2005; Yin, 2009) were influential in informing the research process and telling this research story. Similarly, Davis' (2003) CPAR study of environmental education in a school playground, remained philosophically committed to emancipation, but reflected on employing a patchwork of methodological approaches. This combination of methods has also been referred to as hybrid research by Ospina et al. (2008), who employed narrative inquiry, ethnographic inquiry and

co-operative inquiry in parallel with participation at the core. Case study is often featured in education-based action research according to Mills (2007) and Stringer (2008). My application of case study was guided by Yin's (2009, p. 18) definition where this approach 'investigates a contemporary phenomenon in depth within its real life context, especially when the boundaries between phenomenon and context are not clearly evident ÷ [and] relies on multiple sources of evidence'. It can be described as a unique bounded system or unit of analysis comprising both a real life context and a phenomenon of interest (Stake, 2005; Yin, 2009). In this instance the unique bounded system was an early childhood centre outdoor playspace. Each centre's system comprised a physical space in which early childhood educators, families and children created and sustained their relationships; each was a sociocultural context for learning. This real life context was a venue for exploring the phenomena of sustainability and education for sustainability. Elements, human and non-human, internal and external impacted on sustainability, education for sustainability and the potential for centre transformation. The links between the elements are shown in the Figure 5 conceptual map as an initial step towards exploring the complexities and uniqueness of each case study.

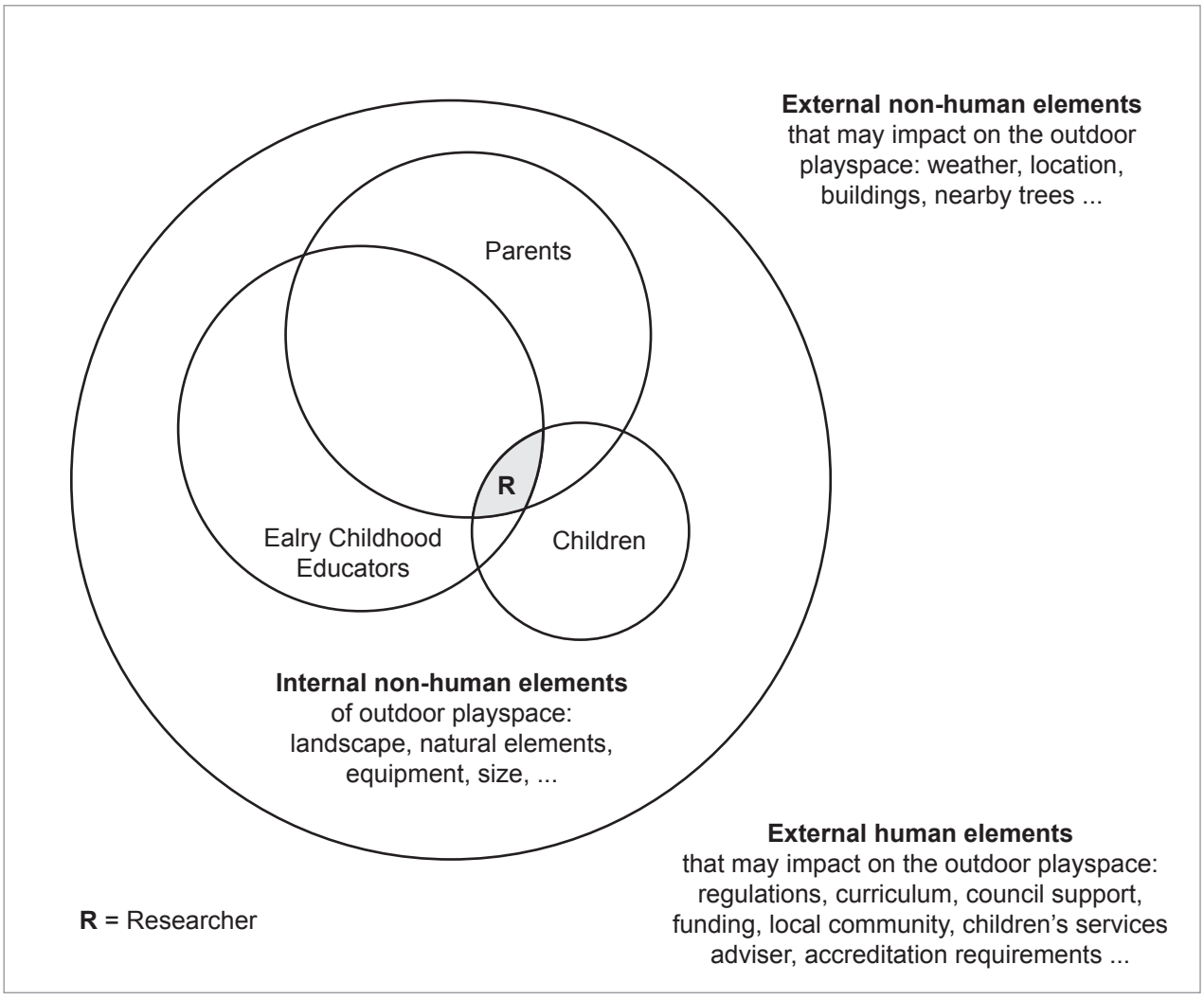


***Figure 5* – Conceptualising an early childhood centre outdoor playspace**

A further point illustrated in the conceptual map above is the notion of collective investigation as relevant to CPAR in this study; the relative input of children compared to adults including the researcher requires explanation. In my professional experience, adults (parents, extended family and early childhood educators) typically have been the main drivers of playspace changes. Therefore, it is their values and understandings of sustainability and education for sustainability that have tended to be of most significant interest to researchers. Increasingly children's voices are now part of early childhood research (Christensen & James, 2008; Dockett, Einarsdottir & Perry, 2009; Harwood, 2010) and their responses to the outdoor playspaces were elicited in this study through drawings and photographs. As children were not the primary focus of this research their contributions to the study have been noted elsewhere (Elliott, McCrea & Edwards, 2009). Their participation and influence in the research process was for the most part accessed in a secondary manner through documented observations and through interpretations by adults.

As the researcher I was located centrally in the conceptual map, but acted as a co-participant. I had a role to instigate and facilitate, but not dominate or control. The collective group of stakeholders held the locus of ownership for any transformative process. My role was to responsively engage with participants and document the collaborative research enterprise, such that meanings about the phenomena of sustainability and education for sustainability, plus signs of transformation were derived from the two research contexts.

Sites and sampling

Selection of the case study sites required consideration as CPAR in education has frequently been associated with individual educators or schools seeking to address a local problem or facilitate change (Davis, 2003; Macintyre, 2000; Mills, 2007; Whitehead & McNiff, 2006). The focus of such studies has been a phenomenon in a specific context, rather than multiple contexts. In contrast, Ospina et al. (2008) and Somekh (2006) described large-scale action research projects involving many participants across multiple organisations and identified the challenges of creating broadly accessible public knowledge from multiple action research sites. However, both studies identified this particular outcome as crucial if deeper understandings of a phenomenon were to inform policy and practice. While only two centres were considered here, both of the above perspectives were relevant to the selection of the sites. There was an ambition driving this research to facilitate transformation in each context through local knowledge changes, but also to create a research story to share as public knowledge. It was envisaged that this story would inform policy and practice in early childhood education for sustainability beyond these centres and this point in time.

Drawing specifically on case study methodology, purposive sampling (Liamputtong & Ezzy, 2005, p. 45) has most often guided the selection of case studies in qualitative research. Stake (2005, p. 451) argued that we should lean 'toward those cases that seem to offer opportunity

to learn', in other words cases which are information-rich (Liamputtong & Ezzy, 2005) and best serve the purpose of the research. Purposefully selected case studies are the ones most likely to promote in-depth understandings and pertinent theory generation about the researched phenomenon, rather than readily generalisable results. Additionally, a criterion of representativeness is worthy of consideration when more than one case is studied and pragmatic factors, such as accessibility and time constraints were relevant (Liamputtong & Ezzy, 2005; Silverman, 2000; Stake, 2005).

In this study the two cases were selected purposefully from within the sampling frame of one Victorian local government area. This sampling frame was driven by geographical expedience for the duration of the research period and personal knowledge of the particular local government area's commitment to sustainability. Additionally, selection occurred in consultation with the Children's Services Manager of the local government area. This minimised the potential for inherent bias in personal direct selection of centres based on my prior contacts and knowledge. Thus, a selection process at arm's length occurred and was informed by the Children's Services Manager's local knowledge of centres. Also, the potential for impacts beyond the research context collective was envisaged. Because both centres were located within one local government area, they could potentially provide local peer support, be role models or mentors and/or set a precedent for other local government areas wishing to facilitate change towards sustainability and/or review of outdoor playspaces in early childhood centres.

I was aware that the two selected centres had not recently done any major work in their outdoor playspaces, nor had they been involved in the implementation of education for sustainability. The Children's Services Manager informed me that one centre was intending to review their outdoor area. These insights suggested rich potential for change and therefore 'opportunity to learn' (Stake, 2005, p. 451). In addressing the criterion of service-type representativeness, a long day childcare centre and a sessional kindergarten were selected, as examples of the two predominant forms of early childhood service in Australia. Both services were community managed by an elected parent group with staff representatives, however in the kindergarten this was implemented as part of a local cluster management group of three kindergartens. The centre properties, building and land were owned and serviced by the same local government council.

Narrative or story approaches are frequently associated with case studies and in this instance were applied to document the results of the research in an accessible and meaningful way (Chase, 2005; Liamputtong & Ezzy, 2005; Stake, 2005; Yin, 2009). This provided the opportunity 'to portray the case comprehensively, using ample but non-technical description and narrative ... a story' (Stake, 1995, p. 134). Narrative was an appropriate documentation tool here given the supportive links between narrative and my philosophical stance and research methodology. In particular narrative invited a contextualised chronology of the social processes of change, was sympathetic to a theme such as sustainability and promoted holistic understandings of complex transformative journeys (Liamputtong & Ezzy, 2005). Documented as narratives, made it possible to capture the

everydayness of the lived change within these centres, such that others might be stimulated to embrace and enact sustainability from the described journeys.

With an underpinning focus on CPAR, informed by case study and narrative approaches, various instruments for data creation were developed. The choice of data creation, rather than data gathering is deliberate and reflective of the interactive and responsive nature of CPAR. Engaging in a process of CPAR created the case study narratives of transformative change. An evolving and interactive research process created the data; and the narrative presented it in a logical and meaningful manner. My role in this process as a researcher could be viewed as analogous to how a child interacts with play materials and peers in an outdoor playspace to create play scenarios. Like a child I was responsively interacting with the context, exploring evolving play scenarios, managing challenges and delighting in the serendipitous, but also stepping back from being in the thick of it to observe, ponder and record, thus creating the data.

Data creation: Instruments and beyond

A range of instruments including document and photograph collation, interviews, synergetic focus groups and active participant observation were utilised to construct the study; however, beyond these identifiable instruments I concur with Stake's (1995, p. 49) statement that 'qualitative study capitalises on ordinary ways of getting acquainted with things'. Getting acquainted in this instance: began during initial discussions with the Council Children's Service Manager; the first telephone call with each centre coordinator; and then, on-site discussions about the possibility of engaging in the research. With each successive contact I became further acquainted with the people and contexts and began to construct my understandings of each research setting, as recorded in my professional research journals. Growing acquaintance over the one-year research period was interspersed with the implementation of specific instruments that formed the basis for obtaining rich data.

Mills (2007, p. 73) described the three E's of action research data collection as 'Experiencing, Enquiring and Examining'. Each one of these aspects was incorporated in the range of specific methods utilised during this study. Further, in reference to case study research, Yin (2009) asserted that multiple sources of evidence were fundamental and varied methods of accessing evidence created richer data for analysis. These priorities informed the principal data creation instruments as outlined below.

- **Document and photograph collation**

Collation and examination of centre documents such as policies, learning programs, playspace plans and philosophy statements occurred particularly during the initial reconnaissance phase of the action research cycle (Refer Figures 3 & 4), but some documents were gathered at later stages as the research process evolved. Appendix 4 lists the range of centre documentation collated

throughout the research period including plans drawn of the outdoor playspaces (Refer Figure 6 in Chapter 5 and Figure 9 in Chapter 6). This tangible evidence was drawn into the analysis described in Chapters 5 and 6. I photographed the outdoor playspaces at intervals during the research period to convey and visually document a baseline and any changes (Refer Figures 7 & 8 in Chapter 5 and Figures 10 & 11 in Chapter 6). Once the photographs were collated into temporal collages and viewed for analysis alongside the other data, compelling and contrasting case studies of physical and social transformation emerged (Refer Chapters 5 & 6).

- **Interviews**

Interviews are a common qualitative research method and in this study individual dialogical forms of engagement complemented the group approach of synergetic focus groups outlined below. In-depth interview in a semi-structured manner as described by Minichiello, Aroni and Hays (2008) guided this process and allowed for construction of questions around the topic of interest, plus permitting flexibility in application (Refer Appendices 5-9). As a social process, for an interview to be meaningful and successful both interviewer and interviewee 'must act together' according to Stewart and Cash (2006, p. 15). They described three different levels of interview interactions from Level 1 interactions that are safe and essentially sociable to Level 3 interactions that invite full disclosure about intimate and/or controversial topics. In between 'Level 2 interactions deal with personal, controversial or threatening topics and probe into beliefs, attitudes, values and positions' (Stewart & Cash, 2006, p. 21) which was the level attained and most pertinent here. Such interactions required close trusting relationships that supported risk-taking. In particular, the educators involved may have perceived reflecting on one's practice, in the light of sustainability issues, as somewhat risky.

Aligned with the underpinning philosophical stance, such risk-taking was also essential to this potentially transformative research process. In addition to questions that may have prompted new insights for the participants, the semi-structured dialogical nature of the interviews created teachable moments, which 'represent new and emerging ways for us to learn from one another by temporarily ignoring our institutional identities' (Hyun, 2006, p. 87). Shared constructions of meanings were possible as both interviewer and interviewees were active and questioning co-participants (Mills, 2001). Appendix 10 provides illustrative transcript examples of teachable moments. Additional factors supportive of productive interview interactions included acknowledgement of the chronological context, including time in the day for the interviewee, interviewee familiarity with the interview space, spatial arrangements for the interviewer and interviewee and a place of privacy (Stewart & Cash, 2006).

Interviews were conducted with educators and parents during both the first and the second action research cycles, before and after implementing the action priority in each outdoor playspace. A third interview was conducted with co-ordinating educators only in the final action research cycle

(Refer Figures 3 & 4). The interview proformas are located in Appendices 5 to 9 and a summary of all interviews conducted is provided in Appendix 11. The three interview phases over the research period were undertaken with a view to exploring change and facilitating ongoing reflection. The interview content at each point was guided by the reconnaissance phase, the evolving research process, documented literature and my professional knowledge. Broadly the interviews enquired about participants' values and perceptions with respect to the outdoor playspace, sustainability and education for sustainability, priorities and processes for action, and resource availability. The third interview was more reflective in nature about the whole research process and what future action priorities might be implemented. Proformas of open-ended questions guided each interview; however, interviewees were invited at the outset to contribute any information or thoughts they felt were relevant or pertinent from their perspectives at any time.

Overall, the interviews were conducted in a dialogical manner with an awareness that most interviewees were unfamiliar with a research interview process; my intention was to create a comfortable atmosphere in which to elicit sustained and meaningful discussion. I employed the qualities of skilled dialogue such as respect, responsiveness and reciprocity espoused by Barrera and Corso (2002). The interviews lasted for between thirty-five and sixty-five minutes and were held at the centre for educators or at the homes of parents as determined by each interviewee. All interviews were electronically sound recorded and I transcribed all tapes employing Dragon Software (Dragon Naturally Speaking, Version 9). The interview transcripts were then subjected to analytical strategies as described later in this chapter.

- **Synergetic focus groups**

Focus groups in general aim to facilitate social interaction and sharing, ready researcher access to a range of responses around a topic and can be useful planning tools in action research (MacNaughton, Rolfe & Siraj-Blatchford, 2001; McLachlan, 2005; Morgan, 1997). Focus groups may also provide a safe environment for sharing thoughts and feelings, particularly for those who feel disempowered (McLachlan, 2005). Further, McLachlan (2005) advocated the use of focus groups in early childhood research as they align well with the tenets of communication and collaboration in early childhood communities. However, a weakness is that 'focus groups are driven by the researcher's interests [and that] the researcher creates and directs the groups makes them distinctly less naturalistic' and possibly open to questions of participant compliance (Morgan, 1997, p. 14). The possibility of the researcher driving or directing appeared incongruent with my underpinning philosophical stance. Therefore, rather than more typical researcher-led focus groups, synergetic focus groups as described by Lidstone (1996) were conducted. The choice of synergetic focus groups reflected positively not only my philosophical stance, but also on my commitment as a researcher to explicitly encourage and facilitate feelings of empowerment amongst the research participants and their ownership of the research outcomes.

Synergetic focus groups require the researcher to begin the session by reading a monologue that defines the area of research interest and raises questions that the group can address. In this study, after the reading I invited the group to take ownership of the ensuing discussion and then as the researcher I withdrew from direct participation in the group. From a distance I took notes, while avoiding eye contact or any responsiveness to the discussion and only re-joined the group when it appeared that a natural conclusion had been reached to end the session. Documentation of the protocol and monologues used in the synergetic focus groups are located in Appendices 12 to 15. All groups included both parents and educators (Refer Appendix 11). The appropriateness of combined groups was ascertained during the reconnaissance phase discussions with centre coordinators and viewed as an opportunity to further build educator-parent relationships. Combined groups also aligned with the inclusive and collaborative tenets of this research and could be described as a natural grouping relevant to the research focus (McLachlan, 2005). Further, the sense of shared contextual experience and acquaintanceship between group members appeared to enhance the data generated (Liamputtong & Ezzy, 2005). The space created by the synergetic focus groups in this research context invited the sharing of perspectives, issues and ideas about the outdoor playspace and education for sustainability. It also provided an opportunity for building a consensus about the way forward, a sense of collective responsibility and the potential for ongoing momentum beyond the focus group (McLachlan, 2005) and this research study.

The synergetic focus groups were conducted in the first and third action research cycles for Banksia Childcare Centre and the first and second action research cycles for Acacia Kindergarten (Refer Figures 3 & 4 respectively). The initial focus group centred on exploration of the meanings of the term sustainability. Another primary aim was to reach a group consensus about the action priority participants wanted to undertake in their outdoor playspace. For both case studies the somewhat later second focus group created an opportunity for reflection about the action priority undertaken, revisiting meanings of sustainability and considering further potential actions. Most participants attended both focus groups in each centre (Refer Appendix 11). All focus groups were electronically sound recorded and I transcribed all tapes with the use of Dragon Software (Dragon Naturally Speaking, Version 9). The process of self-transcription, accompanied by my notes recorded during the synergetic focus groups, provided the data and promoted a closeness that facilitated in depth analysis.

In theory, adopting a synergetic focus group method appeared to be most philosophically relevant; however the outcomes of the experience highlighted some points for further reflection. Pens and large sheets of paper were provided for each group to promote documentation of possible action priorities, which I anticipated I would collect at the conclusion of each focus group. However, all focus group participants assumed ownership of the documentation. On later reflection it became apparent that this was an important statement of ownership by each group. In hindsight, I realised I should have been prepared to photocopy the sheets or ask for an opportunity to review them at a later date to add further data.

Synergetic focus groups were described by Lidstone (1996) as dynamic, free flowing and spontaneous in nature, a definition which was affirmed by the following observations. While the intent was for all participants to have the opportunity to feel empowered within each focus group, both positional and natural leaders emerged. They adopted the main roles of facilitator, noting key ideas and decisions. As in any social interaction some participants were less vocal and less influential than others were, but this did not necessarily mean they were less involved. The social interactions of each group exposed participants to a range of perspectives and this may have led to different ways of thinking not necessarily vocalised at the time. To explore the possible influence of participation in synergetic focus group sessions, follow-up individual interviews may have had merit as a methodological approach. A final observation was the tendency for each group to focus discussion on the tangible, that is the action priority, rather than the somewhat abstract and complex meanings of sustainability. This reflected the safe and sociable areas for discussion typified by Stewart and Cash's (2006) Level 1 interactions, whereas the more risky Level 2 interactions were less evident. This tendency was also common within individual interviews and is discussed further in Chapters 5 and 6. Overall, participants were very positive about their involvement in the synergetic focus groups indicating that the session had created a unique space for specific discussion about a shared interest, the centre's outdoor playspace.

- **Active participant observation**

An active participant observation role enabled me to experience the research context and 'draw extensively from participant practice to create new knowledge in the voice of the researcher' (Ospina et al., 2008, p. 423). This role, originally derived from ethnography, is integral to action research according to Liamputtong & Ezzy (2005), Mills (2007) and Stringer (2004) and was a significant method during all stages of this study. I took care to act in an unobtrusive, but facilitative manner to help avoid the potential biases associated with taking an active role and to allow time for careful researcher observation. Documentation with notes and photographs supported my participation and in situ analysis. Some unexpected, but fortuitous opportunities for participation arose during the research year; these included working bees, parent information evenings and staff meetings, which also extended the possibilities for data creation. Active participant observation was well suited to the everyday context of the early childhood centres and provided unique authentic insights into the reality of the phenomenon under investigation.

- **Children's photographs and drawings**

The outcome of this study attests to Christensen and James (2008, p. 1) claims that when researching with children there are 'no well tested recipes with formulas guaranteeing a successful result'. Drawing on my lengthy experience as an early childhood educator I proposed that following the implementation of each action priority in the centres' outdoor playspaces, children's responses would be sought through dialogue and an invitation to graphically represent their

responses. The method was not to explicitly invite comments from the children on the implemented action priority; to avoid eliciting conceptually based responses. What children might know and wish to share about the implemented action priority would likely inform such a response. Rather, my plan was to invite children's general comments about anything new in their playspace and then to determine if the implemented action priority was part of children's observations and their actual play experience outdoors (Refer Appendix 16). It was anticipated that this broader ethnographic approach would more effectively acknowledge children as active participants in their own playspace with personal values and perspectives to share about what they did in this space (Siraj-Blatchford & Siraj-Blatchford, 2001).

Experience with children in the research context and reflection (Refer Figures 3 & 4) quickly indicated that this plan was not the most fruitful, in practice. Simply inviting conversation was insufficient to engage children when they were outdoors, even though I made every effort not to interrupt periods of active sustained play. There was something about the outdoors context that suggested active movement, not focussed sustained conversation. I also found the choice of language to be critical to any conversation with children. I had to leave the jargon of playspace behind and use descriptive and culturally relevant terms for each centre, such as 'the big room yard'. In addition, Brooker (2001) cited familiarity of the child with the adult as important to research outcomes. Although I had been a frequent visitor to the centres, my prior engagement with the children had been minimal; and so in hindsight, establishing relationships with them over an extended time could have led to more in-depth responses. However, as stated initially the focus in this study was with adults and time constraints precluded establishment of stronger relationships with children. Lastly, the notion of asking the children about something new in the playspace became nonsensical in situ. Many changes occurred in the playspace on a weekly or even daily basis; these were determined not only by educators' planning, but also by the children present, how they used their playspace or quite simply seasonal impacts. From the children's perspectives there were multiple and ongoing layers of novelty and change in the outdoor playspace. Therefore, upon reflection my inquiry with children about something new, when I meant a specific new item associated with the study, seemed less than useful and unlikely to provide any data about the research study's implemented action priority.

Prompted by both the relative success of inviting children to draw, the interest they displayed in my camera and other published research employing cameras with children (Burke, 2005; Clark, 2007; Greenfield, 2004), I reconsidered my approach in the fourth action research cycle at Banksia Childcare Centre (Refer Figure 3). The methods and focus were reoriented to children drawing and photographing spaces where they liked to play when outdoors (Refer Appendix 17). In support of this reorientation James, Jenks and Prout (1998, p. 190) state:

> engaging children in what might be called 'task centred activities' which exploit children's talents and interests might provide a better way of allowing children to express their ideas and opinions than the use of 'talk centred' methods.

While somewhat removed from the original intent, the invitation to draw and photograph where they liked to play was an approach that the children readily engaged with. Children's responses accompanied by descriptive dialogue provided a more holistic overview of the two playspaces and the play affordances perceived by the children (Gibson, 1986). Such methodological flexibility and responsiveness was not only underpinned by CPAR, but also by images of children as subjects or social actors in this research, not merely objects (Christensen & James, 2008; Dockett, Einarsdottir & Perry, 2009; Harwood, 2010).

The research with children occurred during the fourth action research cycle with Banksia Childcare Centre and during the second action research cycle for Acacia Kindergarten (Refer Figures 3 & 4 and Appendix 1 & 2). Following acquisition and collation of the drawings and photographs, the drawings were scanned and photographs printed. The original drawings, plus copies of their specific photographs, were then returned to each child with a note of thanks. This was done as a tangible way of expressing my respect and appreciation of the children's participation and potentially offered opportunities for each child to discuss their contribution with their parent(s). Recently, Mackey (2010) raised the issue that researchers need to focus not only on the ethics of gaining assent with children, but also on ethically removing themselves from research relationships with children. Simply departing is unacceptable and steps need to be taken to acknowledge the child's participation and respectfully bring closure to the relationship with the child. I believe that the approach I took here to closure of the relationship was ethically sound. Upon later reflection, the reorientation to more interactive research methods with children was the most significant and challenging methodological adjustment I made across the entire study. However, despite considerable methodological interest, the reorientation drew the children's participation away from sustainability. Therefore, further discussion of this collated data will be deferred to a later research paper more appropriately targeted to children's perceptions about outdoor playspaces in general.

- **Data documentation: Electronic and hard copy**

The data collated from multiple sources of evidence via the methods outlined above required diligent and confidential documentation. The evolving dynamic process of CPAR demanded effective ongoing documentation. As Yin (2009) stressed, clearly categorised and organised formal databases needed to be maintained separately from any reports or researcher commentary. In this study organisation of the formal databases occurred electronically with photographs and text documents of recorded transcripts. However, my own reports were handwritten. I maintained a case study journal of specific actions and observations for each centre (denoted as JA & JB in later chapters) and a separate more reflective research journal (denoted as RJ in later chapters). The latter documented major study decision-making, methodological reflections, comparative insights, analysis and links to relevant literature as the study developed. My retrieval of data and opportunities to delve directly back into the data at critical junctures (Yin, 2009) was facilitated

by this dual electronic and hard copy approach. A further strategy to enhance the quality of data, in particular case study data, was achieved by maintaining a 'chain of evidence' (Yin, 2009, p. 122) and 'audit trail' (Liamputtong & Ezzy, 2005, p. 39). These chains and trails outlined the methodological and analytical decisions I made as the researcher and permitted the reader to retrace my steps from the findings back to the created data. The journals maintained throughout the study continuously informed the creation of audit trails and the final documentation of the study (Refer Appendix 18). Also, given the prospective, rather than retrospective nature of the CPAR approach, the trails documented the flexible and responsive nature of this method.

In conclusion, a mixed-method approach created a wealth of data for critical analysis (Creswell & Plano Clark, 2011) from which to write the early childhood centre case studies and to generate theories about sustainability and education for sustainability in early childhood settings. The various methods engaged participants individually (interviews, drawing and photographs) and created shared opportunities (synergetic focus groups, action priority implementation), which I was then able to elucidate further (active participant observation, researcher journals, document/ photograph collation). This triangulation of methods and findings promoted validity and rigor (Liamputtong & Ezzy, 2005; Yin, 2009) and supported mutual illumination such that a more complete story of transformation could be told about the two early childhood centres.

Analysis strategies

Data analysis is most commonly conceived at a post data collection point, but in action research, as Mills (2007, p. 120) asserts it occurs 'before, during and after the action research process'. It is an ongoing process of distilling, sorting and sifting, identifying patterns, themes or trends and seeking pertinent features and explanations (Macintyre, 2000; Mills, 2007; Stringer, 2008; Whitehead & McNiff, 2006). This process was documented throughout the research study in my journals as noted above.

In-depth analysis after the action research followed the steps described by Stringer (2008, pp. 100-104). Units of meaning (sentences, phrases or words) were identified and highlighted in the collated data, then categorised and coded. The latter process required up to seven iterations to effectively accommodate the emerging data plus well reflected shuffling and reshuffling of the data (Mills, 2007). This shuffling was not simply a technical process, but guided by value judgements, as outlined in my philosophical stance (Refer Chapter 3). According to Whitehead and McNiff (2006, p. 92) the articulation of value judgements is essential for generating evidence and validating action research as living enquiry. Further this process was also fundamental to the grounding of action research in my lived experience. It was first person self-inquiry, as much as a second person inquiry with others about topics of common concern (Reason & Bradbury, 2008).

The analysis strategies adopted created evidence for further in-depth reflection and comparison with my proposition that there are links between natural playspaces, sustainability and education for sustainability (Elliott, 2008; 2010c). The study intention was to generate theories about these links, with the aim of answering the overriding research questions outlined in Chapter 1. According to De Vaus (2001, p. 223) in theory building 'we begin with only a question and perhaps a basic proposition, look at real cases and end up with a more specific theory or set of propositions as a result of examining actual cases'. Simultaneous data creation and data analysis with sequential, rather than concurrent, case studies invited a gradual building of theories from this study. It also provided opportunities for continually reflecting on the relevance and applicability of emerging theories in each case.

While the analytical strategies utilised were theoretically fruitful, as the researcher in the thick of it, I endeavoured through publication (Elliott, 2010a), conference presentations (Elliott 2009; 2010d; Elliott & Edwards, 2009; Elliott, McCrea & Edwards, 2009) and reviews by critical colleagues to further refine my data interpretations and theory generation. The aim of the analysis was to create a compelling and powerful story from each centre's data. The most effective way to do this, according to Janesick (1994) was to remain close to the data. The close relationship between researcher and data in CPAR was evident and this closeness continued for me throughout the analysis and case story development.

At its core CPAR is about emancipatory change, such that research participants are in a position to feel empowered to review and reconceptualise ways of thinking, acting and relating (Kemmis, 2009). Analysis of CPAR required more than describing change per se, it becomes the 'means by which people have transformed their worlds' (Kemmis & McTaggart, 2005, p. 599). In the analysis of this data transformative cues supported the stories of personal and collective learning and growth in Chapters 5 and 6. As a researcher I was not divorced from these stories, as a co-participant I experienced self-inquiry and transformation.

Ethics: Priorities and process

As described in Chapter 3, ethics were at the core of this research and a requirement of CPAR; they had the potential to drive individual or centre transformation and broader social change. Attention to ethics as a requirement of doctoral studies was formally sought from the University of New England and granted for the one-year research period (Refer Appendix 19). In addition, centre engagement approval was gained from the relevant local government authority (Refer Appendix 20). Further, written consent was sought and gained from the management body of each centre (Refer Appendix 21) prior to any communication with centre staff and parents. From a generic research perspective, consideration of ethics was guided by four main principles: protection of participants' privacy; effective communication of the intent of the research; informed consent by participants to be part of the research project; and, communication of the research findings (UNE, 2007, p. 26).

In this research study the privacy of participants was maintained through the use of coding and pseudonyms in all communication (Refer Appendix 22). The relevant key was stored separately and securely from the collated data. A published paper (Elliott, 2010a) and presented communications (Elliott, 2009; 2010d; Elliott & Edwards, 2009; Elliott, McCrea & Edwards, 2009) were rigorously checked to assure anonymity of individuals and centres, plus participants were provided with copies of one paper (Elliott, 2010a) at pre-publication stage.

The implementation of some research method instruments required specific attention to privacy and confidentiality. As part of my introduction to the synergetic focus group sessions, I requested participants (staff and parents) to respect the privacy of individuals involved by not repeating and attributing comments beyond the group at a later date, but this could not be guaranteed (Refer Appendices 12 to 15). The recording of data using photographs was noted in the plain language statement, as photographs were an essential element of the research. However, photographs may have been problematic if they permitted identification of the case study site or individual participants, thus breaching confidentiality. Only photographs essential to illustrate the research process were used in this thesis and resizing/cropping was employed as necessary to remove any identifiable elements or persons.

Participation by adults and children was voluntary. All staff and the parents of the relevant centre children's group were sent a letter of invitation to participate (Refer Appendix 23) accompanied by a plain language statement (Refer Appendix 24) and consent forms (Refer Appendix 25). Letters to parents included their assent form for children (Refer Appendix 26). The return rate numbers are documented in Appendix 27. Informed consent involved description of the proposed research and any potential risks in plain language, as well as advice of the right to withdraw at anytime and assurance of confidentiality and anonymity (Goodwin & Goodwin, 1996). The plain language statement (Refer Appendix 24) was used to convey the intent of the research to participants. Additionally, there were opportunities for participants to directly ask me about the proposed research at a parent information evening, a staff meeting or later by responding to a note on the centre notice board (Refer Appendix 28) and also during my centre visits.

Although parents were invited to provide informed consent for their children's participation, each child had the right of assent at the time of implementing the research (Refer Appendices 16 & 17). Coady (2001, p. 66) described offering children the right of assent as good practice and aligned it with the United Nations Convention of the Rights of the Child (UNICEF, 1989). Yet, there are many tensions inherent in doing so (Dockett, Einarsdottir & Perry, 2010). The challenge for researchers is to explain the research process and potential outcomes in a manner that is both relevant and meaningful to a young child and this was certainly my intent. Children were invited to participate as per the scripts I created (Refer Appendix 17), but if they rejected this their position was accepted without hesitation. This action was based on Brooker's (2001, p. 166) reminder that 'researchers must be scrupulous in offering children the right to opt out if they

choose'. Beyond simply offering the right, researchers must be astute to the decision making time that may be required by children and the possibility of their non-verbal communication of their decision (Dockett, Einarsdottir & Perry, 2010).

In addition to the procedural steps outlined above, acknowledgement of the broader social and moral obligations of qualitative research was essential (Liamputtong & Ezzy, 2005). These are covenantal ethics according to May (1980 cited in Schwandt, 2001, p. 75) and were most pertinent here given the collaborative relationships fundamental to this action research over the extended time spent in each centre. Honesty and trust were tenets of my relationships established with everyone in each centre; these were maintained during the research. As an action researcher I needed to be skilled in such interpersonal relationships, these were essential to this second person inquiry and dialogue (Reason & Bradbury, 2008).

Challenges: Methodological and ethical

The nature of CPAR required a responsive approach. In addition, drawing on my professional practitioner knowledge of the early childhood field I considered potential challenges and issues prior to implementing this study. Also, the initial reconnaissance phase highlighted possible challenges, both methodological and ethical, plus further ones arose during the conduct of the study. The following elaborates such challenges as shifting timelines, gaining informed consent and assent, participating in interviews and focus groups, seeking action priority funds and defining the researcher role.

- **Shifting timelines**

The study timelines were proposed (Refer Appendix 3) with knowledge of Victorian gazetted school term holiday breaks and awareness of the likelihood of other time constraining factors. However, as the study unfolded it became clear that each centre could not be fully engaged over the initially defined four-month period. A range of social, physical and political time constraining factors were evident. Social factors included staff illness or leave, centre events and limited non-teaching times for research meetings. Factors relating to the physical context included the seasons and drought that delayed planting times. Also, as each centre had some outdoor priorities already planned that were beyond the study's designated action priority, a practically logical sequence of implementation was necessary. The local political context and council infrastructure were significant factors for both centres and influenced the timing of council-funded work and grant application dates. Hence, as a responsive researcher, ethically aware of my invited status in each centre, I re-negotiated and extended timelines to fit with each centre.

As previously noted the extended timelines had implications for how many centres could be engaged during a planned yearlong period of research. The study began in February 2008 and by

July 2008, with two centres fully involved in the study; it was decided to not pursue a third case study site. Also, this decision was made in light of Stake's (1995, p. 4) recommendation about case study methodology whereby: 'we do not study a case primarily to understand other cases. Our first obligation is to understand this one'. Hence, there was a greater obligation to create richer and fuller stories of the two centres at hand, rather than begin pursuing a third. Additionally, the numerous contrasts between the current two centres created an additional layer of data that had not been originally anticipated. With agreement from both centres it was decided to extend their timelines to March 2009, just within the University of New England's ethics approval expiry date (Refer Appendix 19) so that I could incorporate a third interview phase early in the new year.

- **Gaining informed consent and assent**

Informed consent was sought from parents and staff at each centre and the return rates are documented in Appendix 27. Initially it appeared somewhat overwhelming that all staff and parents might respond positively, however only a small and manageable number volunteered to engage with the research study. The participating staff numbers reflected the numbers of staff in the different settings, only three staff were employed in the kindergarten and all participated, but eleven were employed in the childcare centre with eight participating. Every effort was made to be inclusive of all regular staff irrespective of their employment status. From initial discussions at each centre it was evident that key staff needed to participate, otherwise the study could not proceed; however, it would have been both unethical and unproductive for the research if I had coerced any key staff. In both centres, with support from the management committees and co-ordinators, most staff were sufficiently interested to participate. If a significant number of staff, including key people had declined permission or the co-ordinator had not been supportive, then another site would have been sought.

More parents offered informed consent for their children than for themselves; however, not all children attending in a particular session/group on the days that I visited and engaged with children were part of the study. At each visit I checked with staff as to which children with parent consent were present. Additionally, some parents consented to their children's participation, but declined consent for photographing them. Diligent care was required to ensure that I did not inadvertently engage children whose parents had declined permission. In situ this was challenging when the children were moving freely outdoors and the child research instruments naturally evoked their interest. This was handled ethically by allowing any children to draw if they wished, but not engaging them in any discussion or collecting their artwork.

- **Participating in interviews and focus groups**

Participation by parents and staff in interviews and focus groups was envisaged as a potential issue. For parents, time constraints due to working hours or the needs of children were relevant. For staff, their limited time away from children, the possible need for relief staff and the imposition of after-hours participation were considered. To ameliorate this potential issue I offered

each staff member and parent a choice as to whether they would prefer to engage in the study by interview or focus group participation. Care was also taken to schedule individual interviews at convenient locations and times in negotiation with the centre co-ordinators or individual parents. With the exception of one interview, all parent interviews were conducted in parent homes, often with children nearby and staff interviews were conducted at the centres. At Banksia Childcare Centre a relief staff member was employed to allow staff to participate. At Acacia Kindergarten it was possible to fit interviews into lunch breaks and planning times, although the lunch breaks did create a sense of expediency. Finding a place for interviews was an issue at Banksia Childcare Centre, due to lack of free space and the daily busyness of the office and staffroom, so outside was the elected place for interviews while children and other staff were inside.

The focus groups were scheduled as advised by the centre co-ordinator taking into account other regular centre meetings and were conducted in the evening at the centres. However, at one point a Banksia Childcare Centre focus group had to be moved due to after hours cleaning staff and at Acacia Kindergarten young children were present with their parents. Despite these challenges it was possible to conduct the planned interviews and focus groups, however they did highlight that research in early childhood contexts presents unique parameters to work within.

- **Seeking action priority funds**

Engagement in the research process may have required some financial outlay by the centres, depending on the action priority identified by the focus groups. The action priorities actually identified, a worm farm and a bird nesting box, involved minimal cost and this was important given the limited budgets of the early childhood centres. Also, volunteer labour, donations, collected natural or reusable materials and local government support were pursued to facilitate the initial action priority and later playspace redevelopment. Where necessary, expenditure was approved by the centre's management body.

- **Defining the researcher role**

Lastly, in taking on the role of research facilitator and being an instrument in the research, I was aware that due to my previous work, some participants might have had an expectation of my role as including an expert, possibly someone who would fix their outdoor playspace. Several participants did acknowledge awareness of my work in the early childhood field and during the research period several staff coincidentally participated in professional development sessions that I conducted. However, clearly defining my role as a co-participant at the outset and listening effectively, rather than preempting discussion or being the expert in residence, promoted productive research relationships. At times during active participant observation or interviews it was possible for me to be responsive in dialogical ways and draw on my professional expertise. Balancing this role required ongoing first person attention to how I was engaging as a researcher and continuous self-reflection (Reason & Bradbury, 2008).

The ethical and methodological challenges outlined above were surmountable in this study. They also added colour and depth to the study and reaffirmed that CPAR is very much part of the real living world, not research in an educational vacuum.

A synthesis of the methodology

In action research 'a key dimension of quality is to be aware of one's choices, and to make those choices clear, transparent, articulate, to yourselves, to your inquiry partners, and, when you start writing and presenting, to the wider world' (Reason & Bradbury, 2008, p. 7). This was my aim here. CPAR methodology was chosen in response to the groundswell of concerns highlighted about sustainability and children's outdoor play in Chapter 2. My intention in writing and presenting this thesis was to raise consciousness of these concerns in early childhood contexts such that ways of thinking, acting and relating (Kemmis, 2009) are questioned and different meanings reflected upon. These transformative approaches supported the creation of new and enlightened stories of how things were; I have elucidated these stories in Chapters 5 and 6. As Sterling (2001) maintained more of the same does not create change towards sustainability, the old stories will not do, we need new stories. CPAR also strongly reflects the philosophical stance outlined in Chapter 3. I described an ethical commitment to collaborative and participatory research methods with the potential to facilitate change. Such methods are noted to be well suited to early childhood settings and have broader relevance and meaning for others wanting to create new stories about human relationships with the Earth. A range of instruments, as described in this chapter, was employed to create the data for this thesis. Analysis of the data informed not only the stories of transformation described in Chapters 5 and 6, but also the theorising in Chapter 7 about the interfaces between outdoor playspaces, sustainability and education for sustainability. The clear intention is that such stories and theorising impact beyond the local knowledge in these two centres, as third person inquiry in action research demands engagement in broader social movements of the wider world as public knowledge (Ospina et al., 2008; Reason & Bradbury, 2008). This methodology was implemented with professional attention to ethical requirements and consideration of potential challenges when researching the topical issue of sustainability in dynamic early childhood contexts.