

CHAPTER 7 – COMPARATIVE ANALYSIS AND THEORY GENERATION

*‘One only understands a system when one tries to change it’
(Lewin undated cited in Coghlan & Shami, 2008, p. 646)*

Introduction

This chapter investigates the understandings gleaned from engaging in a process of change with Banksia Childcare Centre and Acacia Kindergarten. Here I draw on the lived research journeys documented in Chapters 5 and 6 to explore both the systems and changes with a focus on comparative analysis and theory generation. The initial comparative analysis section considers commonalities and differences between the two cases from three perspectives: physical contexts, sociocultural contexts and transformative journeys. Then, I probe more deeply to identify and compare alignment within early childhood philosophy and pedagogy and education for sustainability across the two cases. The identified elements of alignment offer insights into the potential for transformative journeys. Lastly, I theorise in response to the original research question: What occurs at the interfaces between natural outdoor playspaces and the concepts of sustainability and education for sustainability? The interweaving at these interfaces offers a prelude to later construction of a theoretical framework for understanding the transformative processes. Throughout this chapter I reflect back to the philosophical stance informing this study (Refer Chapter 3) and offer references to the literature as relevant. There is significant literature to draw on around action research methodology (including Kemmis, 2009; Kemmis & McTaggart, 2005; Mills, 2007; Reason & Bradbury, 2008) and children and nature (such as Chawla, 2006; Kahn & Kellert, 2002; Moore & Cooper-Marcus, 2008). However, I wish to reiterate (Refer Chapter 2) that published research specifically about early childhood education for sustainability is meager at this point in time.

Beginning a comparative analysis

As stated in Chapter 4 the intention of the case study approach was instrumental, in that each case might inform generation of theory about an external phenomenon. Theory generation (De Vaus, 2001) is considered in depth in the latter section of this chapter and it is informed by this initial comparative analysis. The selection of one childcare centre and one kindergarten for this study broadly represented Australian early childhood services and also, inherently brought difference to the study. Further as selected representatives, I acknowledged that each centre was unique in its own right. However, irrespective of these parameters, there were commonalities and differences that transcended both service type and the individuality of each centre. These commonalities and differences are explored from the perspectives of physical contexts, sociocultural contexts

and centre transformations; they offer interpretations and compelling insights that inform the identification of alignments and theory generation later in this chapter.

- **Physical contexts**

The physical context refers to both the human-built and natural outdoor environment of each early childhood centre. In common Acacia Kindergarten and Banksia Childcare Centre had large, above regulation size and relatively natural outdoor playspaces that included areas of tanbark, sandpits, mature framing trees and bushes (Refer Figures 6, 7, 9 and 10). The planting density was greater at the Banksia Childcare Centre, but it lacked the grassed areas present at Acacia Kindergarten. These vegetation differences alone created a visual sense of openness and sparseness at the kindergarten when compared to the childcare centre. The kindergarten had fixed outdoor structures comprising a small multi-functional timber fort and a purpose-built cubby house. The childcare centre had a timber-edged vegetable garden and two areas of low wooden bench seating. Banksia Childcare Centre playspace included two small areas of synthetic surfacing, a rubber tricycle track and artificial grass carpet around the sandpit. Interpreting these visual descriptors in light of current early childhood playspace design guides (Victorian DEECD, 2007; Elliott, 2008; Keeler, 2008) discussed in Chapter 2, essentially both centres provided examples of natural outdoor playspaces. In both centres, staff and parents alike valued this naturalness and the large amount of space.

As I addressed at the outset in Chapter 1, here lies the contemporary conundrum that has beckoned my questioning and research. Anecdotally natural playspaces have often been described to me as evidence of education for sustainability, yet in both centres almost no evidence of education for sustainability was initially identified, despite the relative naturalness of the playspaces. This observed physical commonality and lack of education for sustainability suggests the interfaces between education for sustainability and outdoor playspaces lay deeper and involved more than just natural playspaces. But, what could they comprise? I explore this question as the Chapter proceeds.

A further commonality between the centres was that both had experienced recent physical changes in the outdoor playspace, which required some remediation. A focus for both centres was the loss of bushes or trees through age and/or drought with replanting required. Structurally, renewal of the sandpit and storage shed were priorities at Banksia Childcare Centre and replacement of a swing frame at Acacia Kindergarten had been requested through the Council. For both centres these projects required fund-raising and ongoing negotiation with the Council. The negotiation process involved to garner action from Council was clearly identified as problematic.

One difference between the outdoor playspaces, that at first glance appeared somewhat inconsequential, was the positioning of the centre entrance relative to the outdoor playspace. The entrance to Banksia Childcare Centre was positioned in a corner of the 3-5 year olds outdoor

playspace such that all staff and parents could visually and/or physically engage with the outdoors while walking to the main building entrance (Refer Figure 6). At Acacia Kindergarten the main entrance led directly indoors, but the outdoor area could be seen in the distance beyond the windows and verandah (Refer Figure 9). This physical juxtaposition could have contributed to parents' reporting a lack of experience with the outdoor space of the kindergarten. If the kindergarten entrance was via the outdoor playspace, it may have been considered disruptive to the program or unacceptable in terms of safety issues at arrival and departure times. However, it would potentially engage families in outdoor play and playspaces, thus promoting the outdoors as integral to the kindergarten's program and learning environment. Also, it may be a less formal place for more settled arrivals and departures. I suggest that the relative positioning of entrances to centres and buildings is a design consideration worthy of further research.

As described above the physical contexts were not so different, but in this study it was the sociocultural contexts that offered dramatic variance. A comparative analysis of the sociocultural contexts indicates the depths of the interfaces between natural playspaces and education for sustainability.

- **Sociocultural contexts or systems**

Sociocultural context is a broad and inclusive term for the entire human created social and cultural elements and relationships that comprise early childhood communities (Arthur et al., 2008; Rogoff, 2003). While context is the term most commonly applied in early childhood literature, from a systems theory approach I employ the term sociocultural system later in this chapter. In exploring the specific sociocultural commonalities and differences between Banksia Childcare Centre and Acacia Kindergarten, it is appropriate to examine the local demographics, internal and external relationships and staffing.

Local demographics: As outlined in the preface to Chapters 5 and 6 the local community demographics of the centres were significantly different. The Acacia Kindergarten community was more culturally diverse and located in a lower socio-economic area than the Banksia Childcare Centre. These differences may have impacted on the willingness of parents to engage in this study and their understandings of the questions and values explored; however, detailed analysis of this aspect is beyond the scope of this study.

Internal and external relationships: Internal relationships between staff, parents and children are paramount to effective functioning of early childhood communities (Arthur et al., 2008; Fleer & Richardson, 2004). They are also essential to transformative processes and need to be both responsive and collaborative with ongoing effective communication by all participants. Such relationships and skills are instrumental to CPAR as a collective social process (Kemmis & McTaggart, 2005). The two centres differed markedly in this respect, where Banksia Childcare Centre community demonstrated a more powerful engagement between participants. At times the

relationships observed at Acacia Kindergarten indicated a lack of responsiveness and reciprocity between participant groups. For example, key parent communication channels, such as newsletters and program documentation seemed to be used ineffectively. Centre newsletters were brief and infrequent and out-of-date programs were displayed. In contrast, Banksia Childcare Centre demonstrated positive and vibrant internal relationships supported by ongoing and inclusive approaches to communication such as noticeboards, newsletters, children's portfolios and current program plans. Banksia events included a working-bee, social evening and fund-raising fete that further promoted the general camaraderie in the centre. Such events were not evident at Acacia Kindergarten. Further, the notion of critical staff mass may have impeded the collective potential of relationships at Acacia Kindergarten.

External relationships were dominated by dealings with the local Council. Both centres experienced challenges and delays over outdoor playspace matters, which varied from replacement of items to planning permits and construction. This was a source of much angst for the acting director at Banksia Childcare Centre, however the teaching director at Acacia Kindergarten exhibited a more resigned response. Also, during the research period Banksia Childcare Centre staff took initiative to build external professional relationships by becoming members of PRAV and EEEC Vic. Inc. These external relationships were positive and productive throughout in terms of building capacities through seeking information, resources and training.

Staffing: The numbers of staff were different due to the service types which led to a factor of critical mass impacting on the likelihood of centre change. For example, the knock-on effect across rooms which was embraced by Banksia Childcare Centre staff, only seemed apparent once at Acacia kindergarten when the intervention aide contributed ideas from another centre. Beyond this, the key staff engaged in the research were more highly and recently qualified at Banksia Childcare Centre than at Acacia Kindergarten. This is somewhat counter to the usual realities of the Australian early childhood field where degree qualified staff are more common in kindergartens while diploma, certificate or unqualified staff predominate in childcare services. However, levels of qualifications are an Australian Government area of priority for change; and, there is recognition that staff qualifications positively correlate with quality in children's services (Council of Australian Governments, 2008; Elliott, A. 2006; Jalongo et al., 2004; OECD, 2006). The ramifications of the qualification differences in this study were evident in many aspects of the children's program as well as centre philosophy and pedagogy.

The comparative elements above created a picture of Acacia Kindergarten as a demographically diverse community with a smaller and less qualified staff team to respond proactively to change. Also, a sense of collaborative relationships to effect change seemed to be lacking. The picture of Banksia Childcare Centre represented a resourceful and proactive community with enabling collaborative relationships promoted by a team of well-qualified staff. Thus, the readiness and ability to work towards sustainability seemed more evident at Banksia Childcare Centre. Ultimately these

stark contrasts were revealed further in how these respective communities, given their disparate sociocultural contexts, engaged in the transformative process towards improving sustainability.

- **Transformative journeys: Degrees of change**

The transformative process and degree of transformation towards sustainability during the research process was significantly different for the two centres. The process at Acacia Kindergarten was challenging for all concerned and only just beginning. The process raised questions about leadership, relationships and the fundamental importance of a robust and relevant underpinning philosophy and pedagogy. These were key areas in which the two centres differed and reflected underpinning values of the research participants. The degree of transformation was comparatively small at Acacia Kindergarten. Some practices and thinking changed, future plans were espoused and there were signs of conscientisation, but amidst a sense of fragility. The initial transformative steps towards sustainability may well have collapsed over time rather than become embedded, just as pinnate *Acacia* seedlings do not always survive and mature.

The transformation at Banksia Childcare Centre was focused on an embedded cultural change towards sustainability that became evident at many levels over the research period. The committee of management, staff, parents and children gradually began to appear as empowered participants with a vision for a sustainable future. As typified by *Banksia* trees, the sustained robust character demonstrated throughout the study seemed to assure longevity. The narratives of Chapters 5 and 6, the above commonalties and most significantly, the differences provided a rich data resource for interpretation and analysis leading to generation of theory.

Identifying and comparing alignments: Early childhood pedagogy, philosophy and education for sustainability

The links between early childhood pedagogy and philosophy and education for sustainability are encapsulated by the term ‘pedagogical advantage’ (Elliott, 2010a, p. 35). Theoretically there are fundamental alignments between current early childhood philosophy and pedagogy and the principles of education for sustainability such that embedding education for sustainability in early childhood centres does not require radical change, but simply a sustainability overlay or frame. With such a frame, sustainable daily routines and everyday living can become the norm. The two narratives made it clear that this theoretical view of alignment was instrumental for staff in determining the transformative journeys of the case study centres.

With these notions in mind I explored the relative alignments and respective transformative journeys of these two centres more closely. This further exploration revealed five underlying elements of alignment that now appear critical to transformative journeys: philosophy and pedagogy; images of children; children’s programs; centre leadership; and, relationships with families.

- **Philosophy and pedagogy**

The two case studies revealed both the impacts of theorised alignment and a lack of alignment between pedagogy and philosophy and education for sustainability. The Banksia Childcare Centre community embraced education for sustainability readily and made significant changes in practice and thinking. For them sustainability became a frame for envisioning the future of the centre. The philosophy and pedagogy described in the centre handbook ('Banksia' Childcare Centre, 2006) and later observed in practice was current and derived from contemporary sociocultural paradigms about early childhood education. In contrast, the transformation at Acacia Kindergarten was just beginning. They espoused views that sustainability could be part of everyday life in the centre and some different practices and thinking emerged during the study. However, the philosophy and pedagogy at Acacia Kindergarten seemed to be developmentally-based and more akin to the Developmentally Appropriate Practice (DAP) paradigm first promoted in the 1980s (Bredekamp, 1987). The focus of DAP was to match curriculum, teaching strategies and assessment of young children with their respective developmental levels (Bredekamp, 1987; Bredekamp & Copple, 1997; NAEYC, 2009). During the research project there were glimmers of change when the assistant described the potential for children to take ownership; and the director in the final interview reported she was inspired by talking with children when they shared their different ideas and knowledge with her. One cannot imagine that the teaching director would have singled out or described this factor as inspiring if it was already integrated into her existing philosophy and pedagogy. I sensed that it was something new, a different way of viewing children beyond developmental norms and a significant critically self-reflective first step for the teaching director. Notions of sustainability or education for sustainability were absent from both centre philosophy and pedagogy statements with the exception of Banksia Childcare Centre's Safe Clean and Healthy Environments Policy ('Banksia' Childcare Centre, 2006) where some sustainable practices were cited. However, it was the underlying early childhood paradigm that appeared to create differences and for the Acacia teaching director, it was also emerging as a paradigm for change.

- **Children's programs**

Philosophy and pedagogy statements offered in centre handbooks underpin the provision of children's programs. Acacia Kindergarten adopted an individualised developmental focus (Bredekamp, 1987; Bredekamp & Copple, 1997) and although, a balancing of children and adult's interests was purported to inform the program, in practice the adults' interests and routines appeared to prevail. In contrast, Banksia Childcare Centre espoused a socioculturally derived philosophy based on collaborative learning, partnerships with parents and social justice (Arthur et al., 2008; Edwards, 2009; Fler & Richardson, 2004; MacNaughton, 2003). The observed pedagogy (Refer Chapter 6) and the program plans (Refer Appendices 40 and 43) affirmed these key philosophical differences. The structured routines of Acacia as opposed to flexible indoor/outdoor routines at Banksia and the collaborative or not so collaborative relationships demonstrated between staff,

parents and children described in Chapters 5 and 6 added to the picture. The flow on effects from the underlying philosophy and pedagogy to the children's program was clearly evident and the fundamental importance of alignment if children are to be active participants in sustainability.

- **Images of children**

Images derived from the Reggio Emilia approach (Edwards, Gandini & Forman, 1993), sociocultural paradigms (Arthur et al., 2008; Rogoff, 2003) and the *UN Convention on The Rights of the Child* (UNICEF, 1989) all acknowledge children as competent and capable. They have rights to be heard and can be social agents in their own lives. Banksia Childcare Centre staff often reiterated the central role of children as active participants during the study. More particularly the children demonstrated agency for sustainability and were encouraged to question practices. Acacia Kindergarten staff presented images of children that were drawn from a developmental paradigm; such images privileged adults over children. At the kindergarten children were talked to and were invited to observe or do by adults, but they were not expected to be agents in their own right. Note the different sociocultural contexts of the two centres may have further reinforced such images of young children (Refer Chapters 5 &6). Education for sustainability demands social justice for all children and adults now, as well as in successive generations (Davis, 2010; UNESCO, 2005a; WCED, 1987). Children can experience agency and empowerment in the early childhood years, with such experiences possibly promoting their lifelong proactive engagement with sustainability. Thus, I identify strong and positive images of young children as active agents in social change now and for the future as a fundamental principle of early childhood education for sustainability.

- **Centre leadership**

Leadership from at least one impassioned and inspired person is a major factor in organisational change; they can be the 'orchestrators of change' (Rodd, 2006, p. 182). Transformative leadership (Bennis & Nanus 1997; Brown & Prosser 2001) requires a shared vision of change; the leader both inspires and empowers others through collective and interactive processes. In leadership for sustainability 'activist professional leaders' as described by Woodrow and Busch (2008, p. 90) are required. Bush Betty and the 3-5 years room leader particularly demonstrated these characteristics at Banksia Childcare Centre. More than just managing the practicalities of change, they embraced the challenges and empowered others in the process by role modelling sustainable practices, seeking information and openly discussing proposed initiatives. They created a vision for the outdoor playspace and centre as a whole that over time appeared to be transformative for all staff. Notably Bush Betty also exhibited both a critical and self-critical attitude, foundational to transformative organisational change (Dick, 2001) and was best described as an emergent natural leader (Senge, 2000). Further, transformative leadership (Nolan, 2007; Sinclair, 2007) was demonstrated such that leadership could emerge from any participant in the centre community, staff, parents or children.

Gibson (2010), an early childhood centre director, successfully employed the above leadership approaches when engaged in implementing centre change towards sustainability. She also noted collaborative and trusting relationships between staff working together and opportunities for staff to engage in visionary thinking, as well as practical tasks, were important.

In contrast, the teaching director at Acacia Kindergarten appeared to be a manager, not a transformative leader (Rodd, 2006). She willingly discussed ideas and tried to manage practicalities, but was not observed empowering others or pursuing holistic visioning in her plans. There appeared to be no alignment with notions of transformative leadership. A critical factor that may have hindered such leadership was her dual role as both a teacher and director, with responsibility each week for three groups of children across the centre. The practicalities of limited time and a comparatively small number of staff to share leadership responsibilities were quite evident.

While there appeared to be key elements for successful leadership in sustainability demonstrated by Banksia Childcare Centre, Eacott (2010) would argue that a list of leadership attributes or strategies is too narrow. A leader is 'an active participant in a social interaction. There is a reciprocal relationship between leader and follower, and performance is not static Ö success requires an understanding of the logic of the game' (Eacott, 2010, p. 272). Leadership for sustainability occurs within a complex of enmeshed social and biological systems of which humans are a part and the 'logic of the game' may not be readily apparent to all participants. Comparison of the two centre leadership styles suggests that in addition to the key leadership elements, Banksia Childcare Centre staff were 'understanding of the logic of the game'. Understanding dynamic systems and working responsively and collectively with others for change is fundamental to effective leadership for sustainability in early childhood settings.

- **Relationships with families**

Respectful and collaborative relationships with families are central to sociocultural paradigms (Arthur et al., 2008; Edwards, 2009; Flear & Richardson, 2004) in early childhood education. The value of partnerships with families is a key principle stated in *Belonging Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009). Banksia Childcare Centre demonstrated ongoing partnerships with families that were instrumental to their transformative journey. From the centre management level to working-bees and daily contacts, such partnerships can promote opportunities for sharing values, taking action and engaging with a sense of collective ownership. In turn, these have the potential to positively impact on children and their engagement in sustainability, as well as reinforce and inspire ongoing actions by staff. Thus, effecting strong relationships with families are a driving principle for sustainability in early childhood settings.

While the importance of relationships with families is explicitly stated above, relationships also underpin the previously described elements of alignment. Images of children become visible through relationships as evidenced in this study and centre leadership is intimately linked to relationships. The notion of relationships is a recurring theme and I later return to its importance in the application of systems theory to this study.

- **Reflections on historical and international experiences**

Reflection about two professional experiences has aided the identification and comparison of the alignment elements described above. Firstly, my experience in the 1990s as founding convenor of EEEEC Vic. Inc. and more recently, in 2009 as an international professional respondent to drafts of the *North American Association for Environmental Education Guidelines for Early Childhood Environmental Education* (NAAEE, 2010). These experiences, in an autoethnographic manner, add depth to the subsequent generation of theory.

An historical reflection for alignment: When EEEEC Vic. Inc. was established in 1992, early childhood educators ostensibly joined the professional organisation to share information and resources about environmental education; it soon became clear that sharing was much deeper. Beyond environmental values there appeared to be a shared philosophy and pedagogy about young children and early childhood education. This occurred at a time when post-modern, post-structuralist and social constructivist paradigms were filtering through to those working in the field with children (Edwards, Gandini & Forman, 1993; James & Prout, 1990; Rogoff, 1990; Woodhead, 2006). Also, more broadly the ramifications of the United Nations *Convention on the Rights of the Child* (UNICEF, 1989) were impacting. Group members were readily moving from developmental paradigms (Bredenkamp, 1987) to adopt new emerging paradigms, with developmentally-driven notions of children and program planning being critiqued as too narrow (Fleer, 1995; Fleer & Richardson, 2004). There was a keenness for: embracing different ways of working with children, parents and staff; valuing collaborative approaches to learning; fully recognising the rights of the child; and, acknowledging creative and innovative practice. Somewhat analogous to academics driving the reconceptualisation of early childhood, early childhood environmentalists were at the margins calling for a rethink with environmental values at the fore. Ironically some of the environmental values brought to the fore were from a much earlier era in early childhood education; that is the era of Froebel and Rousseau when childhood interactions with nature were considered foundational (Morrison, 1995). Reflecting now, I believe that this historical juncture in the 1990s was the very beginning of an alignment between the principles of education for sustainability and early childhood philosophy and pedagogy. Such alignment is now documented (Elliott & Davis, 2009) and readily visible in exemplary sustainable early childhood centres (Willsher, 2010).

An international reflection for alignment: The North American Association for Environmental Education (NAAEE) published environmental education guidelines for primary and secondary

schools in 2004; and in 2007, an NAAEE Conference meeting was called to instigate the development of early childhood guidelines. I attended that initial meeting as a conference participant, being eager to network and share internationally (Elliott, 2007). First and second draft guidelines were released for comment in March and October 2009 respectively and DAP was identified as the underpinning philosophy and pedagogy. DAP was originally framed in 1987 by Bredekamp and continues to be promoted by the peak American early childhood organisation, the National Association for the Education of Young Children (NAEYC, 2009). The focus of DAP was to match curriculum, teaching strategies and assessment of young children with their respective developmental levels (Bredekamp, 1987; Bredekamp & Copple, 1997; NAEYC, 2009). DAP was challenged internationally (Arthur et al., 2006; Fler, 1995; Mallory & New, 1994; Woodhead, 2006) and described as a paradigm divorced from the diversity of sociocultural settings and events that impact on children's lives. When followed dogmatically many early childhood educators also viewed DAP as setting expected benchmarks for children, rather than recognising and promoting the unique capabilities and competencies of each child. DAP combined with the 'green slice of EE' focus on nature and outdoor experiences was evident in American environmental education (Elliott, 2007, p. 13; NAAEE, 2010). This represented a very different context to Australia and New Zealand where a more holistic approach to education for sustainability has been implemented (Commonwealth DEWHA, 2009; Davis, 2010).

Therefore, it is perhaps not surprising that the final NAAEE (2010) early childhood guidelines did not reflect early childhood education for sustainability as promoted or practised in Australia and New Zealand (Davis, 2005; Tilbury, Coleman & Garlick, 2005; Vaealiki & Mackey, 2008). For example, the NAAEE guidelines referred to a developmental paradigm, instructional goals and methods used for activities outdoors in nature. The overall intention appears to be that children are helped to become environmentally literate and responsive adults, so they may take action later in life. Yet locally and derived from a different pedagogy and philosophy, Davis (2007, online) portrayed children as active participants, 'problem seekers, problem solvers and action takers in their own environments'.

In Australia, teachers are recognised to be co-learners and co-constructors for sustainability with children. In line with this thinking children are perceived as already being advocates and active agents for sustainability (Davis, 2010; Elliott & Davis, 2009; Vaealiki & Mackey, 2008). Rivkin (2010) confirmed this significant difference in her review of Davis (2010). In particular, she noted that the focus on young children as active agents for sustainability in the Australian publication was not recognised in the United States of America. These professional reflections add weight not only to the approaches advocated in Australia, but the critical importance of an alignment between philosophy and pedagogy and the principles of education for sustainability such that early childhood educators might readily embrace sustainability.

The elements and professional reflections considered above affirm the importance of alignment between understandings of early childhood pedagogy and philosophy and education for sustainability, plus offering a basis for moving forward to generate theory. This alignment also offers a rationale for the different degrees of change observed in this research into two centres' transformative journeys. It raises further questions: Can a culture of sustainability become embedded in a centre where pedagogical advantage is limited or absent? Can a few simple sustainable practices be provocations for beginning to think and act differently about sustainability, as well as early childhood pedagogy and philosophy? I return to these questions at the end of this chapter to speculate what might be possible.

- **Transformative journeys: Influential factors**

While the alignment noted above is at the core, the two centres' transformative journeys were subject to a number of influential factors, namely congruency of values, individual nature connections and change readiness. My interpretations of these influences are noted below.

Congruency of values: A congruency of values around sustainability between all participants, staff, parents and researcher was more strongly evident at Banksia Childcare Centre. This appeared to contribute to the committee of management also adopting a vision for sustainability as the study evolved. Changing individuals' values and visions can be a source of resistance (Rodd, 2006), but in this instance shared values and visions prevailed and promoted organisational change. Such congruency was evident at Acacia Kindergarten, but not as strongly and more significantly, did not readily translate into actions for sustainability.

Individual nature connections: A number of individual parents and staff from both centres described an affective knowing of nature from their own childhood and how this was passed on as part of family culture (Nabhan & Trimble, 1994; Pyle, 2002). Participants identified play affordances, opportunities to get dirty and/or wet and the manipulation of an engaging diverse array of sensory materials as values of natural settings. A shared desire for connections with nature and valuing of nature contributed to change in both centres. Given the demographic differences between the centre communities one might question the motivations of such desires, do they arise from positions of privileged indulgence or survival in somewhat meagre circumstances?

Change readiness: Change readiness or permeability was also a factor; an openness or willingness to engage in a transformative journey involving critical self-reflection (Chawla & Kellaway, 2004; Dick, 2001). The journeys in this study were accompanied by a growing awareness that cultural change was required to better reflect the local community and shifting paradigms in the early childhood field. Such readiness was described by Bush Betty, 'it's time for a change of culture' (PJ 31-08-08, p. 35).

In summary, there were more positively influential factors at Banksia Childcare Centre than at Acacia Kindergarten to promote transformative processes. Further, when overlaid by previously noted staffing, centre leadership and sociocultural differences, it is perhaps predictable that the transformative journeys would differ markedly. The factors briefly outlined and explored here are not conclusive, but may prove informative for other early childhood centres embarking on transformative journeys towards sustainability.

Generating theory

In qualitative research the term theory appears in many guises (Anfara & Mertz, 2006; Glesne, 1999) and can be variously linked with theoretical frameworks, paradigms, perspectives or stances (Lambert, 2003). The focus here is not to unravel these complexities, but convey a definition of theory that resonates with this study. Lambert (2003, p. 12) described research ‘as something to play with intellectually’ and for me this research study was most playfully engaging when I attempted to make sense of the data by linking the various elements to construct a theory or cohesive whole. Such a cohesive whole, potentially would provide a ‘systematic and rigorous account that both explains and predicts’ (Lambert, 2003, p. 17). Also, a theory that offers practical applicability beyond this study and most importantly resonates with others was sought (Lambert, 2003; Schwandt, 2001). ‘A useful theory is one that tells an enlightening story about some phenomenon. It is a story that gives you new insights and broadens your understanding of the phenomenon’ (Anfara & Mertz, 2006, p. xvii). In essence the meanings of this whole story lie in the theory constructed and the potential of this theory to inspire further research questions, theorising and practical application in the field.

The remaining task is to theorise about the interfaces between sustainability, education for sustainability and outdoor playspaces. In this study staff and parent perceptions about these topics were investigated and change was facilitated through CPAR. The data thus created offered the possibility of reaching deep within the interfaces. Such reaching has led to exploration of the alignments of early childhood pedagogy, philosophy and education for sustainability and the transformative processes towards sustainability in this chapter so far. The focus now is the construction of a cohesive whole; a theory about early childhood education for sustainability in outdoor playspaces.

- **Interweaving at the interfaces: A prelude to theorising**

The question remains: Is there more to education for sustainability outdoors than rocks and logs? This is a fundamental question derived from my professional experience over many years. Practitioners often cite natural physical elements as evidence of education for sustainability; but, as the discussions in this chapter suggest, meaningfully embedding education for sustainability requires more than mere physical elements. It is the nesting of the physical within socially

constructed concepts of sustainability and early childhood education for sustainability that creates the real potential (Refer Figure 13). Both centres in this study had essentially natural playspaces, but the potential of these was not fully realised. A sociocultural systemic shift was needed in the centres both to capitalise on what the outdoor playspaces afforded and to envision further physical and sociocultural changes. The following two descriptive examples, one from each case study, highlight the interweaving of the physical and sociocultural in praxis (Carr & Kemmis, 1986). In turn these prompt three further broad reflections about the interfaces.

The Banksia Childcare Centre case study demonstrated the interweaving of the physical context and sociocultural systems such that practices changed and greater affordances were realised in the outdoor playspace. For example, the dead or dying non-native plants were physically evident in the outdoor playspace when the study began. Their removal and/or pruning back became a priority for the centre working-bee. Parents at the working-bee undertook this action and invited assistance from some children present to measure the bushy playspaces against their heights. Following the working-bee the new bushy playspaces were creatively used by staff and children for play experiences. In recognition of the physical changes and to support enhanced play affordances, limits previously in place about not playing in the garden bed were removed. Such was the positive impact for both staff and children that this revision of play limits was extended through formal staff discussion to all outdoor playspaces in the centre. On reflection the physical changes could have occurred as simple practical tasks, but in this instance I propose that the shared engagement and relationships between staff, parents and children informed by clearer emerging understandings of education for sustainability prompted a different socially constructed outcome. Principles of education for sustainability were enacted in this scenario, thus demonstrating an interweaving of the physical and sociocultural at the praxis interface.

This can be contrasted with an example of physical change implemented at Acacia Kindergarten. The staff placed a water bucket in the sandpit to limit water usage for play by the children; the limit set by staff was one bucket per day. Staff varied in how they experienced this change; the teaching director described how water conservation was discussed with the children. She acknowledged the children were now using it more wisely and doing different things with the water. The intervention aide indicated there was no discussion occurring with children and her own lack of awareness suggested there had been no staff communication about why the physical change occurred or how it might create learning opportunities for children about sustainability. Fewer reminders from staff about flushing the toilets reinforced water conservation, but further water conservation practices typical in early childhood centres could have been implemented. It appeared that this physical change had occurred as an adult-directed practical task, but with limited collaboration or discussion with other staff, children or families. Further, the potential for other reinforcing water conservation opportunities seemed unrealised. From a sociocultural perspective there was some different thinking by the teaching director about water conservation practices and it became an everyday practice in the sandpit. This action could potentially have become more with effective relationships promoting a stronger sociocultural shift towards sustainability.

The above examples illustrate the interweaving, or otherwise, of the physical and sociocultural factors in praxis; broader reflections can also be drawn from the case studies to reinforce such interweaving. In the following paragraphs I explore three reflections: expanding perceptions of pedagogy; creating a frame of sustainability; and, moving beyond the physical outdoor playspace.

Expanding perceptions of pedagogy: Initial perceptions expressed by research participants about what education for sustainability pedagogy was or could be, were not as expansive or theoretically informed as anticipated. It was typical for staff and parent participants to cite discrete strategies such as explaining, talking, modelling, telling stories, hands-on doing, demonstrating and encouraging (Chapter 5, p. 77; Chapter 6, p. 111), as pedagogical approaches to education for sustainability. Later perceptions indicated movement towards more encompassing education for sustainability principles, such as staff promoting awareness through leadership and children working together (Chapter 5, p. 91) and thinking differently about daily practices (Chapter 6, p. 122). I initially accepted that change per se was more important than theoretically driven articulations of education for sustainability pedagogy (Chapter 5, p. 100). This is a topic that requires more in depth exploration and elaboration with early childhood educators. My understandings gleaned from the published case studies that prompted this research (Elliott, 2008) and more recent observations at Banksia Childcare Centre suggested that pedagogy was practised, but not well articulated. If the interweaving of the sociocultural and physical is to reach full potential then clearer articulation and deeper understandings of relevant pedagogy are required. One might anticipate that the *Belonging Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009) will contribute to improved articulation and understandings over coming years.

Creating a frame of sustainability: A frame of sustainability is derived from Bush Betty's statement about moving from a 'whirling dervish of ideas' to a 'frame of sustainability' (Chapter 5, p. 93) and inspired the following reflection about the outdoor playspace. Through the interviews, focus groups and external relationships that developed there were many suggested changes for the outdoor space beyond the worm farm action priority. As project leader, Bush Betty grappled to make sense of all the ideas. She found that sustainability and education for sustainability provided a theoretical frame for organising these ideas about the playspace and a clear direction for the centre. The socioculturally constructed concepts (Figure 13, Triangles 1 & 2) became the organising frames for the discrete and disparate physical elements (Figure 13, Triangle 3) that were whirling in Bush Betty's head and frequently discussed with other staff. This framing took natural outdoor playspaces beyond the tangible rocks and logs with potential to afford many more opportunities for education for sustainability.

Moving beyond the physical outdoor playspace: Although this study was designed with a focus on physical outdoor playspaces, it soon became clear that the playspace fences were not a boundary to the systemic sociocultural changes towards sustainability occurring in the centres. The outdoor

playspace is physically only one aspect of an early childhood setting and it may provide a starting point for education for sustainability. However, once the sociocultural concepts (Figure 13, Triangles 1 & 2) are realised, then there is significant potential for systemic change in all aspects of an early childhood setting. Change may be realised indoors and outdoors with staff, children and families, plus the local neighbourhood. At Banksia Childcare Centre changes permeated through to the level of centre philosophy and an overarching policy was endorsed by the whole centre community. In Bonnett's (2002) terms, education for sustainability as a 'frame of mind' had become embedded and transformation on a systemic scale was evident.

The practices occurring at the interfaces between a natural outdoor playspace and education for sustainability represent the interweaving between the physical context and sociocultural systems and point to underlying values. I cannot envisage one without the other in an early childhood centre that purports to provide an exemplary education program for sustainability. Certainly much more than rocks and logs are required to demonstrate education for sustainability in practice. Further, the three overlapping realms of sustainability [economic, social and environmental discussed in Chapter 2], reinforce the notion that sustainability is about complex and dynamic interdependencies or systems. Thus, the promulgated belief that a natural physical playspace alone could somehow convey sustainability now appears indefensible.

- **Constructing theory about transformative processes**

In the comparative analysis so far, I have offered a rationale as to why the transformative journeys of Banksia Childcare Centre and Acacia Kindergarten may have been so different; here, I focus on representing how the journeys were different. I juxtapose documented system changes in perceptions about sustainability, early childhood education for sustainability and the outdoor playspace context with the relative research engagement roles of each centre's community and myself. These ideas are illustrated as a framework in Figures 12 to 14 with accompanying explanatory text. However, prior to elaborating the Figures in detail, I refer back to Chapter 3, specifically to systems theory (Bateson, 1979; Capra, 1999; Maturana & Varela, 1987) and the notion of nested systems (Koestler, 1976; Sterling, 2001).

Systems theory prioritises relationships over static entities or objects (Capra, 1999; 2002) and these complexities of relationships are interconnected with the dynamic contexts in which they are enacted (Maturana & Varela, 1987; Morgan, 2006). The various themes and principles drawn from the data throughout this study highlight that irrespective of the entities involved (Council, children, staff, parents) proactive, responsive and collaborative relationships were vitally important in understanding and promoting change for sustainability within the dynamic context of the outdoor playspace. Such congruencies with systems theory invite the interpretation of multiple nested interactive systems in the outdoor context. Precedence for this interpretation was found in Koestler's (1976) notion of holarchy as the nesting of holons or systems in a hierarchical

manner that evolves and changes with the dynamics of the environment. While each holon or system is a self-regulating whole, its location in a nested hierarchy requires ongoing interaction and integration such that a suprasystem ‘shapes, limits and gives meaning to’ a smaller system (Sterling, 2001, p. 31). In applying Koestler’s notion, Sterling (2001, p. 32) located educational change for sustainability within multiple hierarchical systems to call for ‘continuous co-evolution where both education and society are engaged in a relationship of mutual transformation – one which can explore, develop and manifest sustainability values’.

Possibly more familiar to early childhood educators is the application of nested systems in Bronfenbrenner’s (1979) ecological systems theory which described child development in terms of multiple nested systems of relationships evolving over time. More recently, Ferreira and Davis (2010) and Littledyke and McCrea (2009) have documented the potential of systems theory to explain early childhood education for sustainability. These various applications of systems theory reinforce the importance of relationships and offer a sound basis from which to investigate the transformative processes documented in this study as nested systems.

I envisage the hierarchical nesting of two social systems and the physical context depicted by three seriated over-lapping Triangles, 1, 2 and 3 respectively. Triangle 1 (the largest) represents the socially constructed system of sustainability, Triangle 2 represents the socially constructed

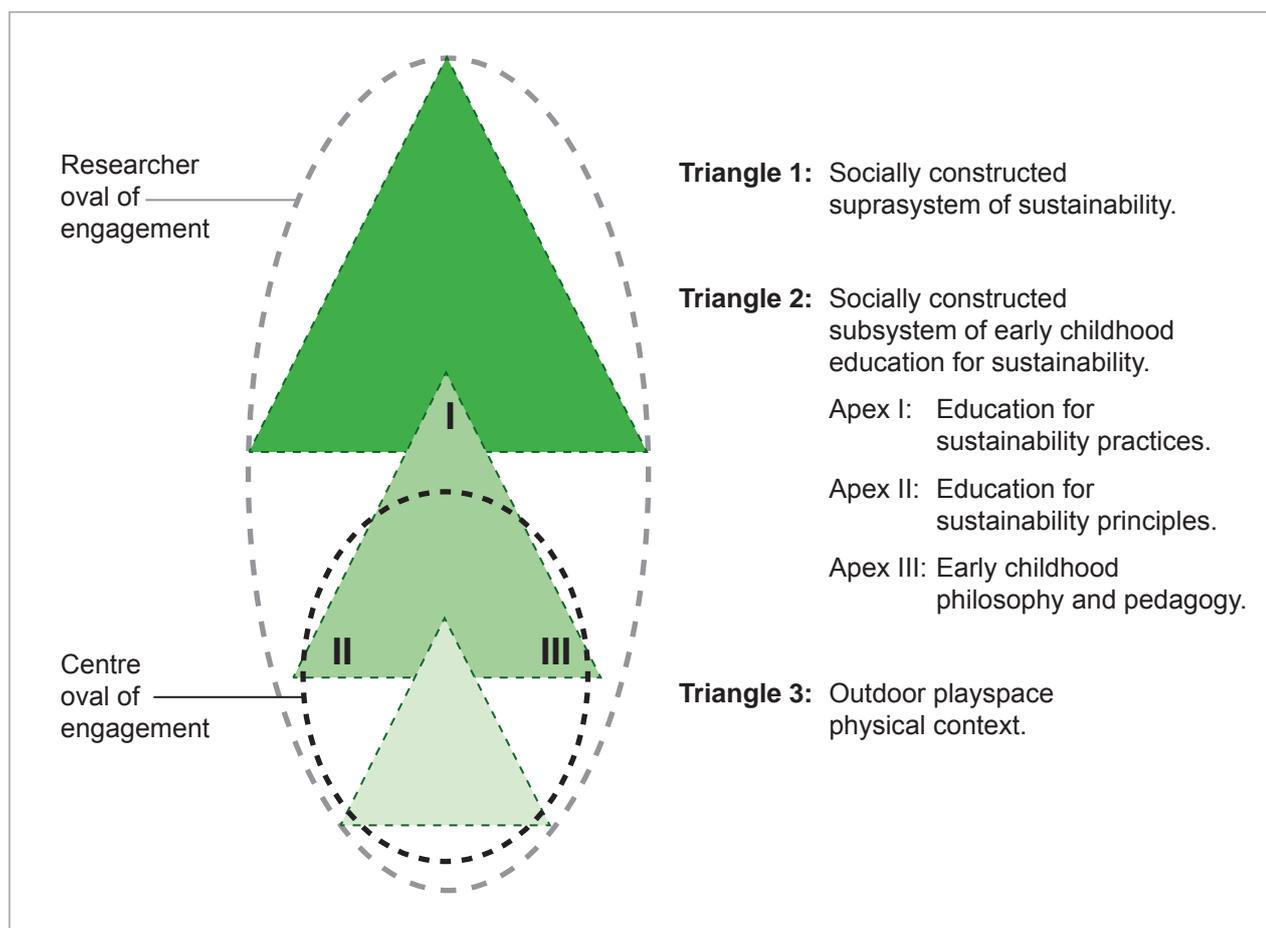


Figure 12 – The study starting point for Banksia Childcare Centre and Acacia Kindergarten

system of early childhood education for sustainability and Triangle 3 (the smallest) represents the outdoor playspace context.

These are depicted in Figure 12 as the starting point for both Banksia Childcare Centre and Acacia Kindergarten in this study.

Shades of green have been employed to be topical, but also to convey a sense of difference, yet cohesiveness of the whole. The selection of dotted outlines illustrates the potential for fluid interactions between the three levels of systems and context. The triangles are superimposed with dashed lines depicting ovals of engagement that describe the relative and shifting intensities of engagement of each centre community (black dashed lines) and myself as researcher (grey dashed lines). The chosen shapes are metaphors (Cortazzi & Jin, 1999) in that a triangle is multi-faceted and in engineering terms the strongest shape, with each apex being integral to the strength of the whole system. The ovals are organic shapes with inherent flexibility and the potential for ebb and flow in intensity over time. Differences between the centres and their temporal changes are illustrated by visualising and comparing the initial figure for both centres at commencement of the study (Refer Figure 12) with the figures that illustrate the different endpoints (Refer Figures 13 & 14). In the following paragraphs, I further elaborate on the triangles, the transformative process and address the shifting ovals of engagement.

Triangle 1 (large): This system was exemplified by the research participants' perceptions of sustainability that included big picture notions of environmental stewardship, resource conservation and intergenerational equity; hence, sustainability as a concept is denoted here by the largest triangle (1). At times these big picture notions were elusive and supplanted with illustrative practices, but they were a topic of collective discussion. The documented perceptions reflected multiple meanings of sustainability as debated in the literature (Refer Chapter 2). For the research participants, their significant personal experiences with others or lack of these was instrumental to their perceptions. The multi-faceted triangle image promotes the notion of multiple meanings and for any individual or collective there may be several mutually supportive meanings that informed perceptions. In turn, sustainability perceptions inform people's construction of an overarching individual or collective 'frame of mind' (Bonnett, 2002, p. 14) of education for sustainability in early childhood, denoted by the second triangle.

Triangle 2 (medium): This triangle is described as the subsystem of early childhood education for sustainability and is informed by the suprasystem identified as Triangle 1 above. The three components, education for sustainability practices, education for sustainability principles and early childhood philosophy and pedagogy are assigned to the apices of Triangle 2. Relationships between these apices are essential to the strength of the whole early childhood education for sustainability triangle (2) or 'frame of mind'. The first apex, education for sustainability practices, reflects practices frequently cited by the research participants and provides a point of apical overlap or commonality between the two triangles representations of sustainability (1) and early

childhood education for sustainability (2). Also, located within the first apex is the negotiated action priority in each centre that provided one education for sustainability practice around and through which data was created.

At the second apex, the principles of education for sustainability are highlighted as articulated by the research participants in terms of the roles of adults. Adults were viewed as aware individuals: explaining or modelling sustainability; employing holistic, systemic or interdisciplinary approaches; engaging children in hands-on doing; educating for change; thinking and reflecting differently; working collectively (children, adults and community); and, normalising the everydayness of education for sustainability within each centre. There was support for education for sustainability as part of broader societal change and it was perceived as essentially beginning in early childhood. Lastly, contemporary early childhood philosophy and pedagogy was located at the third apex. Such an alignment of education for sustainability principles with current philosophy and pedagogy of early childhood education is vital. The relationships operating within this apex were significantly different for the two settings, weaker for Acacia Kindergarten, but stronger for Banksia Childcare Centre. Ultimately, this element was the critical point that appeared to determine the degree of transformation towards sustainability.

Triangle 3 (small): In contrast to the two socially constructed triangles, the third and smallest triangle (3) represented the physical context of the two outdoor playspaces. Comprising both built and natural elements, the physical context would be expected to provide the venue for early childhood education for sustainability to be enacted. The affordances of each physical context may have impacted on the extent of enactment in this study. However, my interpretation is that given both centres' physical contexts comprised natural elements, it was the socially constructed second triangle (2) of early childhood education for sustainability that most significantly determined the levels of enactment during this study. Participants perceived the venues as offering various play opportunities (physical, dramatic, sensory, imaginative and social) and places for connecting with nature in affective ways. The latter was causally linked to fostering children's values and passions for stewardship of the natural environment in the longer term. Through a more pragmatic lens, for both centres the outdoor playspaces were a source of ongoing challenges, predominantly structural remediations that were contingent upon the timeframes and finances of external agencies.

Outcomes of the transformative processes: The three triangles described above and depicted in Figure 12 provide a basis for further elaboration about the transformative process during this research. As enactment of the negotiated action priority occurred in each outdoor playspace, other changes became apparent. The practices that had illustrated participants' perceptions about sustainability and education for sustainability were still present, but more effectively supported by principles. For both centres the principle of employing holistic, systemic or interdisciplinary educational approaches surfaced within their programs; it seemed that the potential for education for sustainability could now be seen in many aspects of the early childhood programs. Ultimately,

this was fully enacted at Banksia Childcare Centre and the pedagogical roles of adults as aware individuals were significantly enhanced over time. This included discussing and modelling sustainability practices with children; working collectively with children, adults and the wider community; inviting children's hands-on participation; and, simply normalising the everydayness of education for sustainability. By the conclusion of the project at Acacia Kindergarten different ways of thinking and reflecting were paramount and this was potentially the beginning of staff generally rethinking early childhood pedagogy and philosophy to engage in sustainability.

Simultaneously as the centres' principles changed or strengthened, ripples of action emanated (Vaealiki & Mackey, 2008) that were observed as changes in practices beyond the original negotiated action priority. At Banksia Childcare Centre changes were readily observed in situ or described enthusiastically by research participants. Changes were diverse, ranging from aspects of program planning for the outdoor playspace, to water conservation practices and establishing a vegetable garden. These changes were supported with staff training, centre policy review and resources from external organisations. Furthermore, sustainability was described as a vision informing redesign of the outdoor playspace and the centre's future. At Acacia Kindergarten, while many potential changes were discussed only a few came to fruition during the study period: water conservation in the sandpit; energy conservation; and, an Indigenous mural outdoors. However, these beginnings from a very different starting point were changes that had significant qualitative merit.

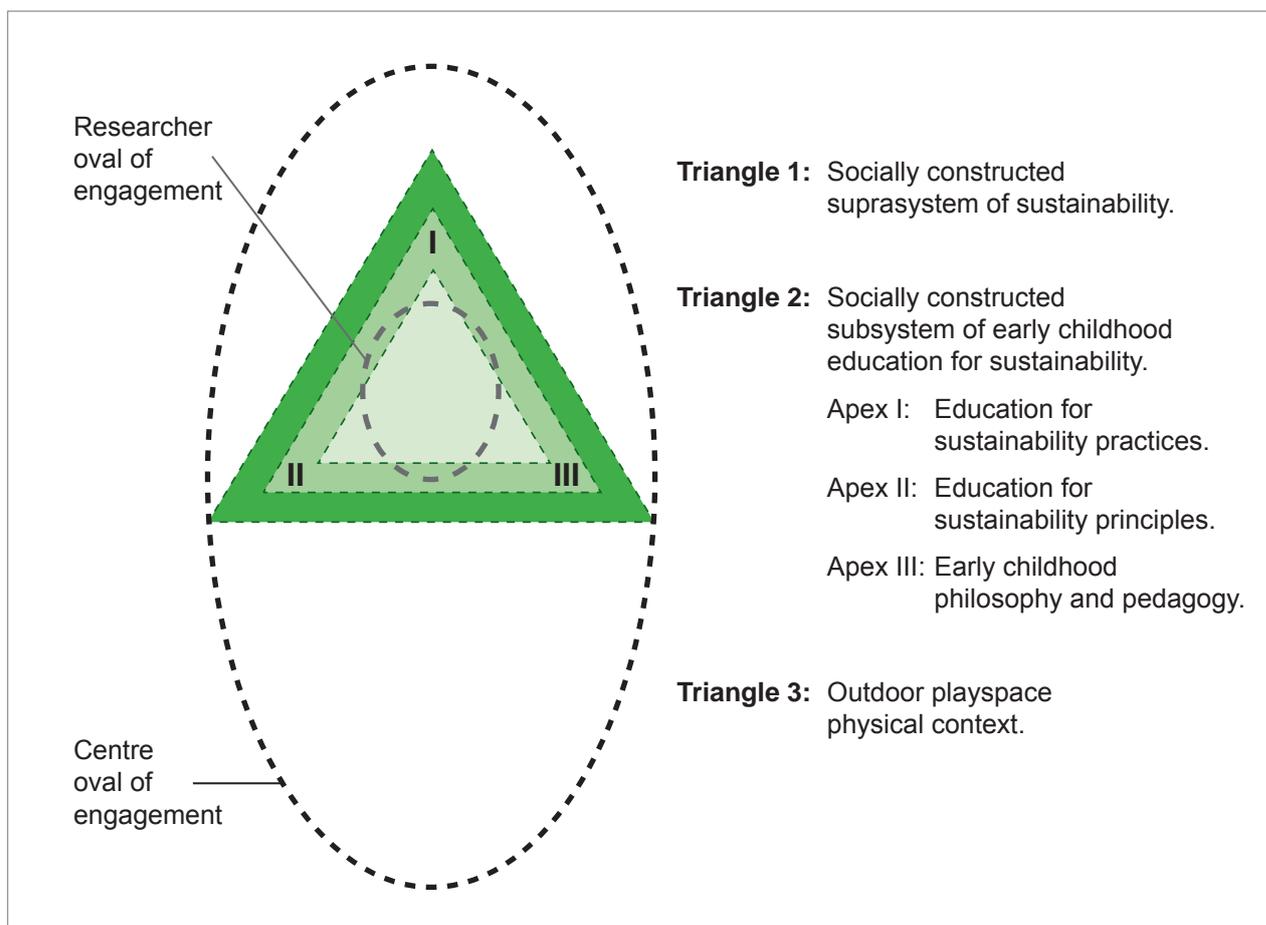


Figure 13 – The study end point for Banksia Childcare Centre – nested systems

Based on this synthesis of the centres' transformative processes, the triangles depicting Banksia Childcare Centre at the end-point of the study were fully nested. Figure 13 illustrates an embedded culture of sustainability. Davis et al. (2005) initially described this concept in their extended early childhood centre case study. At Banksia Childcare Centre the big picture of the sustainability suprasystem (Triangle 1) appeared to be informing education for sustainability principles and practices, as well as the educational elements being firmly supported by their contemporary early childhood philosophy and pedagogy. The physical context afforded these possibilities and plans for redevelopment would enable further possibilities. In contrast at Acacia Kindergarten, as depicted in Figure 14, some changes to thinking and practices occurred leading to a degree of overlap between the three triangles, but they were not yet fully nested.

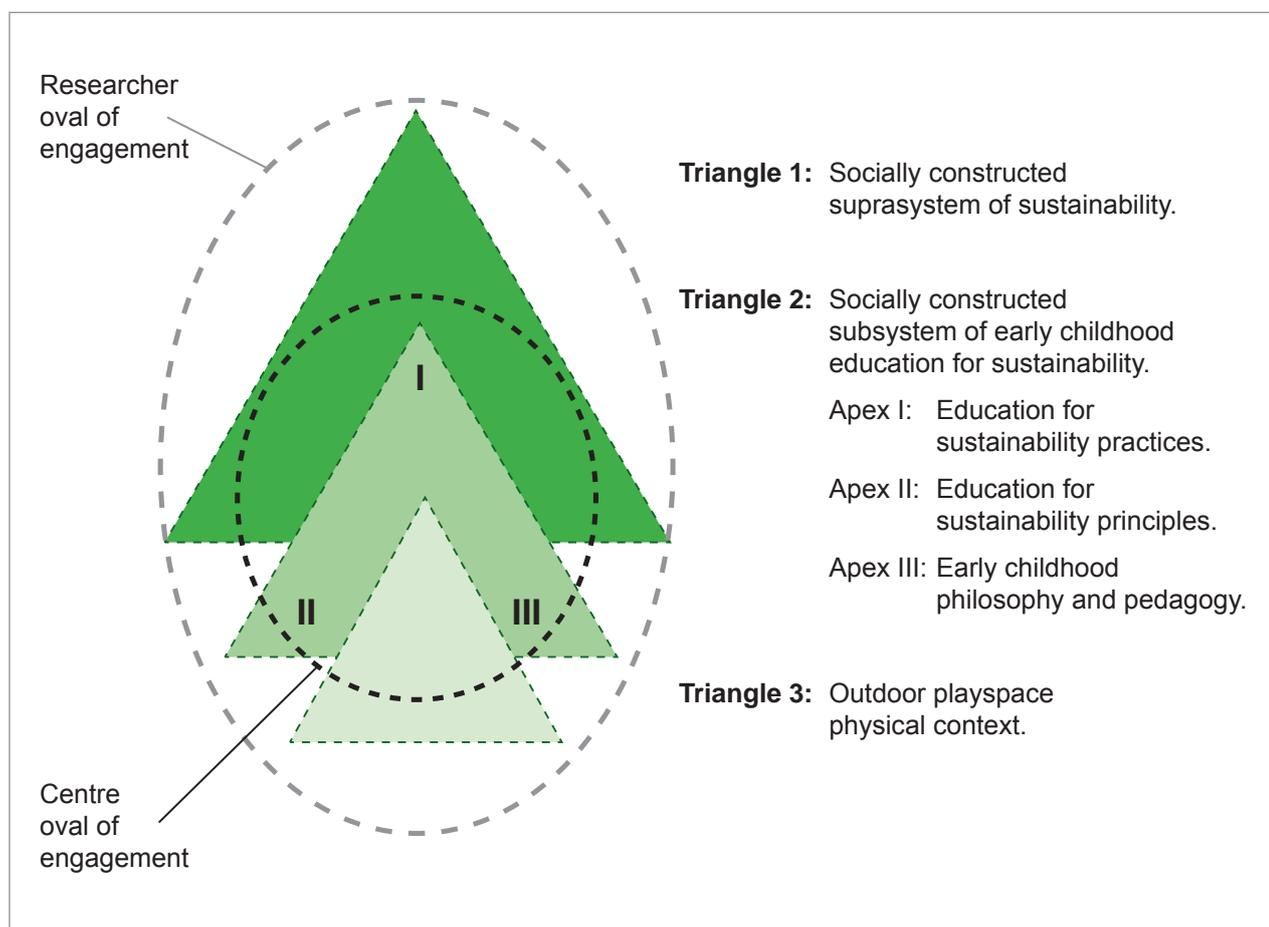


Figure 14 – The study end point for Acacia Kindergarten – not yet fully nested systems

Ovals of engagement: Parallel to the transformations described above and as a significant aspect of CPAR, the intensity of engagement shifted during the research. I have previously reflected on this shifting intensity in terms of a balancing of power inequities (Refer Chapter 5). Greenwood and Levin (2007, p. 95) assert a mandate of action research is that 'the outsider gradually lets go of control so that the insiders can learn how to control and guide their own developmental processes'. This shift is depicted as super-imposed outlined ovals of engagement in Figures 12-14. For both centres, the starting point was their identification of and engagement with an action

priority (smaller oval with black dashed lines). As a researcher my oversight of the research totality (larger oval with grey dashed lines), juxtaposing the triangles to initiate this study was a period of intense engagement. Over time as the action priorities were enacted and ripples of change emanated, the intensity of engagement by the centres increased and also rippled outwards. For Banksia Childcare Centre, the intensity of the ripples outwards was such that the centre fully embraced transformation and as the researcher I adjusted to a less intense support role within the centre. Hence, the ovals of engagement were reversed between Figures 12 and 13. The intensity of engagement by Banksia Childcare Centre research participants suggested that the transformative process would further deepen and strengthen beyond the research period as they were now able ‘to control and guide their own developmental processes’ (Greenwood & Levin, 2007, p. 95).

The ovals of engagement for Acacia Kindergarten ebbed and flowed in intensity, as did our research relationship (Refer Chapter 6). Ultimately, some engagement was evident as depicted by the smaller oval (black dashed lines) enlarging somewhat in Figure 14. However, there was still a significant role for the researcher juxtaposing the triangles (larger oval grey dashed lines). It seemed that for the centre to engage more intensely during the study I had to provide ongoing promotion and follow-up. As the project ended I had limited confidence that their engagement would continue to intensify and grow without further support (Refer Figures 12 & 14). In future, such support could be forthcoming from local government children’s services management or environmental teams as described in a study of partnerships for sustainability that included early childhood centres (Gough & Fien, 2009).

Creating change

When a centre’s transformative journey involves both taking on sustainability concepts and rethinking pedagogy and philosophy then change is feasible. However, as illustrated by Acacia Kindergarten, the journey can be longer and more challenging. Such a journey may be prone to more detours and distractions and demands in-depth critical reflection by all concerned. Also, this extended journey requires strong transformative leadership and particularly, ongoing mentoring and support for centre communities. When a sustainability journey is so extended and difficult for centres to navigate a further question arises: Can such change be envisaged when the current reality across the Australian early childhood field is that half the workforce is unqualified (OECD, 2006, p. 270)? In response, internationally early childhood philosophy and pedagogy is described as complex, dynamic and disparate (Woodhead, 2006). Plus, in Australia there continue to be many variations and gaps in educators’ understandings of early childhood pedagogy and philosophy across the field.

The first-ever national early childhood curriculum, *Belonging Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009), is now prompting educators to begin navigating these variations and gaps. However, the framework is simply a guide; and,

while many educators appreciate the inherent flexibility, others require professional support to begin engagement with and interpretation of such an open document. In parallel, advocacy and actions for early childhood education for sustainability are increasingly happening nationally and internationally; so, perhaps there are synergies of change to be realised for some practitioners. For example, reconceptualising images of children as potential leaders and active participants may see staff more positively responding to children's ideas about sustainable practices. The change towards sustainability described by Davis et al. (2005, p. 587) in their early childhood centre study was neither rapid nor systemic, but 'slow, small-scale and imperfect' akin to Acacia Kindergarten. Such gradual change is somewhat predictable given the underpinning personal values that must also shift. I predict that change for early childhood education for sustainability will continue to permeate slowly at local, national and international levels. Ultimately, a slower pace of change may lead to a higher degree of embeddedness and thus, sustainability becoming fully integrated into each centre's culture.

In this study conceptualising the interfaces as three nested triangles offers a useful theoretical tool for practitioners engaging in critical self-reflection and attempting to create change towards sustainability. Further, this is a framework that invites ongoing refinement through sharing in the early childhood field and various applications by others engaging in systemic change for the future. In the following and final chapter, I propose key challenges and possibilities for the future, cognisant of the mantra 'mainstream not marginal' (Davis, 1999) which has driven Australian advocacy for education for sustainability in early childhood education for over a decade.

CHAPTER 8 – CHALLENGES AND POSSIBILITIES FOR THE FUTURE

*‘Our continued survival, and therefore the survival of the planet we’re now dominating beyond all doubt, depends on our thinking past Nature’
(Morton, 2010, p. 5).*

The above quote encapsulates the key message of this final chapter. While the importance of play in nature is not denied, we must think beyond this and reflect on the complexities of early childhood playspaces. In particular, how thinking, acting and relating for sustainability might evolve in such settings (Kemmis, 2009). In this chapter, key challenges and possibilities for the future in early childhood education for sustainability are broadly drawn from the research project. This study has been located at a critical juncture, when change is omnipresent in early childhood education in Australia and sustainability is a global issue ignored at our peril. Building from the research findings, this study has produced a theory to enable others to create pathways for transformative change in early childhood centres. Urgent action is required if early childhood education for sustainability is to become embedded in early childhood education praxis. Options for achieving this goal are variously outlined below.

Challenges

This study has offered insights into some key areas of challenge that must be addressed if the early childhood field is to fully embrace sustainability. The four primary challenges considered below are perceptions about sustainability and education for sustainability, relationships, leadership and staff qualifications.

- **Perceptions about sustainability and education for sustainability**

The articulation of perceptions about sustainability and education for sustainability seemed challenging for a number of research participants. This may have been linked to the qualification issues raised above or possibly the research context itself. Multiple meanings were located in the data, reflecting the much debated academic meanings (Bonnett, 2002; Huckle, 2006; McKeown & Hopkins, 2003; Stibbe, 2009). The seemingly troublesome nature of multiple meanings opened up the potential for ‘locally grounded but globally connected ways’ (UNESCO, 2009, p. 7) of viewing sustainability and education for sustainability. The collective articulation and reconciliation of different perceptions is best-described epistemologically as social constructionism (Crotty, 1998). This was the epistemology that informed the philosophical stance of this study (Refer Chapter 3). Social constructionism that entails collaborative processes of determination was essential to the transformative journeys of all research participants, particularly as they represented diverse starting points. Exploring perceptions in a collaborative manner is

envisaged as a worthwhile process for all early childhood educators and families to engage with the concepts of sustainability and education for sustainability. Such exploration includes professional reflective practice and partnerships with families as advocated by *Belonging Being and Becoming: Early Years Learning Framework for Australia* (Commonwealth DEEWR, 2009). Emerging research also offers further stimulus for in-depth exploration and reflection (Davis, 2009; Duhn with Bachmann & Harris, 2010; Elliott & Davis, 2009; Phillips, 2010; Ritchie, 2010; Vaealiki & Mackey, 2008; Young, 2009). The challenge now is to respond to the demands of global sustainability by actively constructing meanings in partnership with colleagues and families.

- **Relationships**

The term relationship is employed here in the most comprehensive manner possible and perhaps not surprisingly, it has been a recurring theme throughout this study. Relationships, not entities, are also at the core of systems theory (Bateson, 1979; Capra, 2002) and driving forces when engaging in sustainability. The theory of nested systems and ovals of ownership (Refer Figure 13) offers a way of thinking about the multiple and dynamic relationships involved in transformative change for sustainability. Early childhood educators need to recognise and respond to not only the multiplicities and dynamics of human social relationships, but also the fragile relationships within their local and global physical contexts. The impact of relationships between staff and also with children, families, external agencies and the physical context are noted below as specific focal points for action.

Relationships between staff engaged in sustainability requires open and inclusive spaces where respectful, responsive and reciprocal relationships can be nurtured (Barrera & Corso, 2002). In this study new discursive spaces developed where staff could openly explore values and understandings about sustainability, both formally and informally. Contexts need to be created where all can feel comfortable to share values, reflections and innovative possibilities. Any staff member can be an active participant and/or demonstrate leadership for change. Such spaces need to be readily available in all early childhood centres and with transformative leadership roles staff can feel empowered and relationships can be fostered for collaborative and sustainable changes.

Staff relationships with children were central to the challenge of transformative change and positive images of them as active and engaged learners were needed for early childhood educators to see the transformative potential. As Davis (2010) noted, in the past we hesitated to engage children for fear we are lumbering them with the environmental issues we have created or think that the issues of sustainability are beyond their comprehension. However, from a rights-based perspective children have the most to gain in the longer term and a right to participate in decision-making that impacts on their future (UNICEF, 1989). Children can be active participants and agents for sustainability and a number of case studies have demonstrated this as a possibility (Davis, 2005; Duhn with Bachmann & Harris, 2010; Vaealiki & Mackey, 2008; Young 2009). The challenge for all educators is to shift their perceptions and accepted pedagogies so that

they fully engage with children in the enactment of sustainability. The range of quality agenda initiatives (Council of Australian Governments, 2008) in Australia and growing advocacy for early childhood education for sustainability locally and internationally (Davis, 2010; UNESCO, 2008a; Victorian DEECD, 2009a) have potential to promote this shift.

Staff relationships with families are a cornerstone of early childhood education (Arthur et al., 2008; Commonwealth DEEWR, 2009). In this study the importance of responsive communication with parents and opportunities for parents to engage with the outdoor playspace program generally were underlined. Further, family sustainability practices at home and staff recognition of community sustainability values were relevant. Early childhood educators have a professional responsibility to collaborate and communicate effectively with families. Parents are encouraged to be partners in their children's learning and to contribute to centre program development. Also, it is a tenet of early childhood education that in addition to partnerships with parents, centres reflect the values of their local community (Arthur et al., 2008; Commonwealth DEEWR, 2009). The catchphrase, making children and their learning visible (Edwards, Gandini & Foreman, 1998) seems apt here. Similarly, early childhood educators can make their positive values and practices in relation to outdoor playspaces and sustainability visible to their centre communities. With visibility and effective relationships, parents may be advocates and active participants in transformative change.

Staff relationships with external agencies brought both positive and negative outcomes for the researched centres. The staff were positive about the staff training and support from membership of professional organisations, such as EEEC Vic Inc. There are challenges in maintaining these supportive networks, but like the 'hubs' described by Davis (2010, p. 284) they are critical to broad scale systemic change. Also, critical is the need for educators to recognise their role 'to be reformers in their own educational settings and activists in the infrastructure surrounding them' (Davis, 2010, p. 285). In this instance, centre membership of EEEC Vic. Inc. was perhaps the beginning of activism for one centre. Local and national networks for early childhood education for sustainability are unique to Australia, however recognition and support for such professional networks, specifically from governments, is only just beginning. The current groundswell of interest in early childhood education for sustainability will place more demand on these networks; the challenge is for government at all levels to respond both swiftly and supportively.

As an example of negative relationships with external agencies, each centre faced challenges with local government in relation to their outdoor playspace. There seemed to be consensus that the particular Council's approach to managing outdoor playspaces in early childhood services required review to improve both processes and outcomes for children, staff and committees of management. There is also an onus on staff involved in direct relationships with Council to be strong advocates for the importance of outdoor playspaces and to be activists, professionally sharing their knowledge of children's outdoor play. Also, they might extend their sphere of action

by enlisting internal support from a Council Children's Services Manager to work through specific playspace challenges. A Council instigated review of systems could be timely as increasing numbers of educators appear to be shifting their perceptions of outdoor playspaces in response to new regulations (Victorian DEECD, 2009b) and frameworks (Commonwealth DEEWR, 2009).

Staff relationships with physical contexts during this study tended to be instrumental and pragmatically focussed on discrete elements and their functionality. A deeper understanding of relationships with the physical context more aligned with systems theory emerged when sustainability was identified as a frame of reference for the outdoor playspace at Banksia Childcare Centre. From that defining moment the term 'autopoiesis' (Maturana & Varela, 1987) effectively described how the interactive relationships between the human system and the physical context or environment fostered change. Morgan (2006, p. 251) outlines this notion thus:

Human systems, like organisations, have a special character in that they are able to reflect on their identities and on processes and practices that sustain them. In doing so they can often initiate meaningful patterns of change. By learning to "see themselves" and the way they enact their relations with the broader "environment" they create new potentials for transformation.

Early childhood educators might initiate such patterns of change through critical reflection prompted by analysis of children's outdoor play, collegial mentoring, professional development or broader community values. In particular, transformative leaders in centres may share their visions and facilitate change with others. Ultimately, patterns of change may evolve over time as each centre community enacts their transformative journey. As the human systems (*Triangles 1 and 2*) change, the physical context (*Triangle 3*) can change through productive interactive relationships. Such processes invite educators to implement a vision of an open-ended interactive evolution of the outdoor playspace over time that moves away from reductionist and pragmatic thinking about outdoor playspaces.

- **Leadership**

Leadership has been highlighted as a challenging and developing area in the early childhood field (Refer Chapter 2). This can be juxtaposed with the current literature around transformative leadership for sustainability that offers alternatives such as Nichols & Shorb (2007), Senge (2006) and Sinclair (2007). There are readily identifiable elements in common between the leadership approaches in early childhood and sustainability including notions of collaborative relationships, collective actions, critical reflection, shared visions and firm ethical underpinnings. Making explicit such common elements in professional development and publications for practitioners could potentially facilitate transformative journeys for sustainability in early childhood settings. Transformation promoted by emerging repositioned early childhood leadership models such as the 'activist professional leaders' (Woodrow & Busch, 2008, p. 90) offer this possibility. Further, reflective self-examination of visions

and ethics around sustainability is necessary for transformative leadership. New theorising about leadership and changing images of leadership on the ground are fertile avenues for research initiatives aimed at embedding sustainability in early childhood education.

- **Staff qualifications**

It has been well documented internationally that highly qualified early childhood staff are essential to high quality early childhood programs (Jalongo et al., 2004; OECD, 2006). Locally, the Council of Australian Governments (2008) is now addressing the relatively low level of staff qualifications to improve the quality of early childhood education. The diverse transformative journeys of the individuals engaged in this study revealed the important role that highly qualified early childhood professionals with current understandings of early childhood philosophy and pedagogy can play. Through an awareness of the potential of aligning early childhood philosophy and pedagogy with the principles of education for sustainability, educators can more effectively understand and lead transformative processes for sustainability. Such alignments were highlighted by Rivkin (2010) as critical to acting for the environment and further reconceptualised images of children as agents and decision makers in their own lives, now and for the future. These are essential understandings for all early childhood educators (Davis, 2010; UNICEF, 1989; Woodhead, 2006). As Vaealiki and Mackey (2008) indicate, children can be effective initiators of ripples of action, but it is early childhood educators and families who must facilitate and be responsive to such possibilities. In particular, qualified and professionally engaged early childhood educators have a pivotal role to play in the uptake of early childhood education for sustainability. Such educators with early childhood bachelor degrees currently comprise less than half of the early childhood workforce in Australia (COAG, 2008). The challenge, along with increasing qualifications, is to ensure all staff have at least a Certificate III in Children's Services in order to achieve broader professional engagement with education for sustainability across the field.

The challenges outlined here are diverse, but also offer possibilities. They signal areas for specific action and further research if the potential to critically reflect and learn through engagement with early childhood education for sustainability is to be fully realised. Many questions remain such as: What are possibilities for the future? What factors will best facilitate progress now that we appear to have reached critical mass?

Possibilities for the future

The study findings inform how early childhood education for sustainability might be further promoted in coming years given the recent groundswell of interest. Here four themes are outlined for consideration in positively moving forward: research approaches; government support; resources and initiatives; and, tertiary education and training.

Firstly, *research* needs to inform practice and offer a sound basis for moving forward (Refer Chapter 2); early childhood education research, specifically with a sustainability focus, is a compelling theme for this decade. The significance of research as a professional ethical value for early childhood educators was enshrined in the ECA Code of Ethics (ECA, 2006) and now, with increasing numbers of qualified staff, a greater understanding of research is possible. Early childhood education for sustainability is a field ripe for multiple research approaches. To investigate fully the diverse journeys of change, multiple and mixed research methods and trans-disciplinary approaches are required (Davis, 2009; Scott, 2009). CPAR produced fruitful results from this study and action research in general is well linked to sustainability research as a vehicle for fostering change (Reason & Bradbury, 2006; Davis, 2010; Kemmis & McTaggart, 2005; Young, 2009). Action research methodology has significant value as a research approach for early childhood settings (Refer Chapter 4) offering methodological flexibility and promoting critically reflective practice as discussed below.

Action research as a methodology invites flexible responsive implementation and the researcher's role is to self-monitor and self-evaluate with co-participants within each action research cycle and adjust the methodology accordingly (Reason & Bradbury, 2008). It also literally demands the active participant researcher to seek and recognise others' cues within and beyond the research context that call for methodological adjustment. The significant adjustments made in this study were described in Chapter 4. In particular, the practical and ethical challenges of engaging in research with young children in outdoor playspaces were outlined in detail and invite further study. Methodological flexibility was also central to Harwood's (2010) study with young children and she encourages doctoral researchers to be similarly responsive to the research context. Being responsive to participants and varying research methodology accordingly will ultimately lead to a more effective research process. The flexibility of action research methodology, where the intricacies of the research evolve to fit the research context, was particularly valuable here.

Action research can also be viewed as a vehicle for promoting a more critically reflective professional workforce. Over a decade ago MacNaughton (1996, p. 32) argued that action research had 'transformative potential' to improve quality in the early childhood field; yet, at the time, few such studies had been conducted. Goff (2007, p. 112) suggests action research offers the potential for practitioners to see themselves as 'participatory practitioners' engaged in social change with the researcher. Further, Rodd (2006, p. 213) viewed action research as 'a tool for bridging the gap between research and practice that enhances professional learning and fosters reflective practice'. In this study, the extended research time period and action research as a provocation for change facilitated a bridging of such gaps. Participation in the research provoked multiple small changes for the centres, particularly Banksia Childcare Centre. Most importantly for participants engaged in the evolving action research cycles, there were opportunities to observe, interpret and critically reflect on the action or inaction of others for sustainability and question, if and how they might participate. CPAR can be both a reflective and empowering process over time

and this was integral to each participant's research journey here. There is a unique opportunity for broader uptake and implementation of action research by both practitioners as teacher researchers and academic researchers in early childhood education. This may well be an effective and engaging route through the waves of change in early childhood education in Australia.

Secondly, *governments* at all levels have recognised in published documents, that early childhood is an appropriate starting point for education for sustainability (Commonwealth DEWHA, 2009; Hobson's Bay Council, 2009; Victorian DEECD, 2009a). Some on-the-ground action has replaced the rhetoric that typified earlier decades (J. Gaul, personal communication, December 13, 2010; J. Leifman, personal communication, October 21, 2010; D. Moore, personal communication, December 20, 2010). The current government documentation offers leverage for advocates working in various professional capacities and organisations (Commonwealth DEEWR, 2009; Commonwealth DEWHA, 2009; Victorian DEECD, 2009a).

A major advocacy priority in 2011 was the inclusion of sustainability in the *Australian National Quality Standard* (NQS) (ACECQA, 2011). The NQS is organised around seven quality areas with subsidiary standards and elements. In the initial draft trialled across Australia, sustainability was noted once as an element, however the later revised final document sustainability was elevated to standard status 'Standard 3.3 The service takes an active role in caring for its environment and contributes to a sustainable future' (ACECQA, 2011, p. 104). This was further expanded by the inclusion of two elements that promote children becoming environmentally responsible and operationally embedding sustainable practice. The new standard falls under 'Quality Area 3: Physical environment' (ACECQA, 2011, p. 83) which is a significant relocation from the initial draft where the relevant element was located under 'Quality Area 6: Collaborative partnerships with families and communities' (ACECQA, 2011, p. 145). This relocation suggests a grappling between sustainability being about physical contexts and about sociocultural systems. It was apparent from the outcomes of this study that both are part of transformative change for sustainability in early childhood.

Many early childhood advocates have argued that sustainability could be elevated to one of the seven quality areas. Further recognition is also needed to embed sustainability both holistically and systemically in the field. An alternative approach in train by key advocates in New South Wales is a sustainability guide to the NQS (D. Watson, personal communication, October 10, 2011) funded by their state government. The proposed guide, as a lens to sustainability across all NQS quality areas, will potentially facilitate greater systemic uptake and offers much promise. Government engagement in early childhood education for sustainability is now beginning to support systemic change on the ground.

Thirdly, *resources and funded initiatives* need to be prioritised, ranging from publications to professional development, centre environmental audits and system focussed programs (Davis & Elliott, 2003; NSW EPA, 2003; Tilbury, Coleman & Garlick, 2005; UNESCO, 2009; Victorian DEECD, 2009a). In particular, the Australian Sustainable Schools Initiative (AuSSI) program which

is implemented nationally to build capacity and action for sustainability in schools has over several years been mooted for adoption in the early childhood field. This process will begin in earnest in Victoria with a pilot Early Childhood AuSSI program from July 2012 (J. Leifman, personal communication, October 13, 2011). Relevant organisations and individuals must continue to be proactive and responsive to ensure that the current interest levels will generate such possibilities.

When planning for the future, each individual and each centre is at a different starting point and will vary in how and over what time their transformative journeys are created. Therefore, resources and initiatives developed over the next decade must be broad ranging to meet the inherent diversity of these evolving change processes. Long established sustainable early childhood services, such as St Kilda and Balaclava Kindergarten in Victoria (Willsher, 2010) and Campus Kindergarten in Queensland (Davis et al., 2005; Gibson, 2010; Pratt, 2010) can provide hubs to scaffold change (Davis, 2010). Also, centres more recently engaged in change through localised professional development programs such as the NSW ECEEN Eco-centres Project (NSW DECCW & NSW ECEEN, 2010) or partnerships with local government (Hobson's Bay Council, 2009; Gosford City Council & Wyong Shire Council, 2007) offer viable models for expansion. There is potential for such centres or hubs to be widely recognised as exemplary and for their positive impact on the uptake of early childhood education for sustainability to be realised well beyond state or national boundaries for years to come.

Fourthly, *teacher education* is recognised internationally as a key driver of sustainability in the *Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability* (UNESCO, 2005b). Early childhood teacher education was well represented at the *UNESCO International Symposium of the International Network for Reorienting Teacher Toward Sustainability* in May 2010 in Paris (G. Mackey, personal communication, August 16, 2010). Such recognition of the role of early childhood teacher education may facilitate change amongst the bricolage (Denzin & Lincoln, 2005) of programs offered at Australian institutions. Inclusion of sustainability in early childhood teacher training is currently very much dependent on the individual commitment of lecturers. However, teacher education research studies advocating for the place of sustainability in tertiary programs (Ferreria, Ryan, Davis, Cavanagh & Thomas, 2009; Hardy, Quinn & Smith, 2011; Steele, 2010) and sustainability priorities in university wide policy and strategic planning may offer stimuli for greater engagement. Also, there may be future opportunities for the development of nationally agreed early childhood teacher training guidelines or programs such that sustainability is mandated as a requirement for all programs.

In contrast, the Australian Vocational Education and Training (VET) sector has already taken steps to facilitate change by incorporating a sustainability elective into the reaccredited Certificate III and Diploma of Children's Services (TAFE NSW Training & Education Support Industry Skills Unit, 2010). In particular, Swinburne University (Melbourne, Victoria) established in 2006 a study program that offers a dual diploma option, so students may concurrently undertake a Diploma of

Sustainability and Diploma of Children's Services. As the number of graduates with such training increases over time, there is potential that they will facilitate change across the profession. In future, educators could be offered incentives to complete a Diploma of Sustainability as an additional qualification relevant to their work in the early childhood field. Both the university and VET sectors will be particularly active in coming years as the drive to increase qualified staff numbers continues, this seems an opportune time to be strongly advocating for sustainability across all training programs.

A researcher's journey

In this final reflection the role of the researcher is considered and a vision for early childhood education for sustainability is created. The vision offers insight into what might be achieved for all early childhood centres in the future.

- **Reflections on the researcher's role as lived**

The role of the researcher in action research must be lived to be fully understood. As the philosophical stance attests (Refer Chapter 3), this research study began with a clear commitment to ethically driven involvement. In Chapters 5 and 6, I reflected on my role as it unfolded in each centre and now offer three further overarching thoughts about the lived researcher's role.

Firstly, in hindsight I sometimes struggled with melding an ethical stance, professional experience and an active role in the study. This was documented in the first, second and third researcher reflections described in Chapters 5 and 6. Retrospectively viewed, these were autoethnographic vignettes and reflexivity within these vignettes inspired my transformation as a researcher. Autoethnography (Anderson, 2006; Ellis, Adams & Bochner, 2011; McIlveen, 2008) as an approach to critically analysing and documenting one's experience of the research journey, brings together theory and practice. It required acknowledgment of the roles that an ethical stance, professional experience and active participation played in the study (Ellis, Adams & Bochner, 2011) and an openness throughout to discussing changes in researcher values and perceptions (Anderson, 2006). Autoethnographic approaches can facilitate deeper understandings of the phenomenon under investigation for the research reader (McIlveen, 2008) and this was the clear intent here.

Secondly, whatever I might have originally imagined an active participant observer to be, the reality was likely to be different in the research context. The role might have begun with clearly defined research-orientated tasks, but it became a unique lived experience and evolved as opportunities arose throughout the research period. Attending a parent evening, digging in the vegetable garden or simply sitting in the staff room were all part of the active participant observer role; but, these were not envisaged at the outset. At times the process was both personally and professionally challenging, particularly in terms of how people had responded and I questioned,

where did my feelings fit in? This necessitated deeper reflection about who I was as a researcher and my lens of sustainability. Part of this self-reflective process was expressing disappointment and changing expectations about how education for sustainability was articulated by participants (RJ 21-04-08, p. 5; Refer Chapter 5, p. 89). Also, the palpable tensions felt around evaluating versus observing (RJ 07-04-08, p. 21; Refer Chapter 5, p. 75), as an experienced teacher educator demanded attention. This role also challenged my thinking beyond researcher goals to the possible tentative goals of the participants and more importantly to be flexible as to how they might achieve them. The inherent flexibility of action research methodology permitted refinement of the study goals and responsiveness rather than a dogmatic approach.

Thirdly, over time the transformative process became a personal journey as well as a journey for the two case study centres. Vaartjes and Goff (2008, p. 54) in their meta-reflection of experiences as action researchers suggest that being an action researcher 'may lead to the possibility of embodied learning and deeper ontological shifts'. This possibility became a reality and being reflexive about personal transformation was critical as the following examples illustrate. As each research tool was enacted with successful outcomes my confidence as a researcher increased, but when a research tool seemed ineffective that was a time and opportunity for different reflecting and learning. This particularly applied to the researcher engagement with children described in Chapter 4.

While I initially described a sense of disempowerment as Banksia Childcare Centre took ownership of their research (Refer Chapter 5, p. 100), on reflection this was a balancing of power inequities. Grant, Nelson and Mitchell (2008) acknowledge that relinquishing power is a challenge for participatory action researchers, but one that must be addressed if power is to be fully and productively shared. Such balancing was essential to the shared transformative process. Just as I anticipate the case study centres may continue their transformative journeys without the researcher, I will continue my personal and professional journey of transformation as an action researcher.

- **A researcher's vision**

The research journey has now come full circle and I return to the starting point of troubling around the interfaces between natural playspaces, sustainability and education for sustainability. The published outdoor playspace case studies (Elliott, 2008) were the original inspiration for this research. My attempts to define natural playspaces (Elliott & Davis, 2008) and later efforts to link education for sustainability and children in nature (Elliott, 2010c) were challenging. Now, in the light of this transformative research journey, I reflect again on the characteristics of exemplary sustainable early childhood outdoor playspaces. What would one expect to see/feel/hear in such a playspace? Suzuki (2010) invites his readers to imagine a sustainable future as a navigational tool. When professionally exploring such imagining with early childhood educators, I invite them to imagine their sustainable early childhood centre of the future. In the following passages I describe how a pathway for imagining is created as a navigation tool and applied to create a visionary image of an exemplary sustainable early childhood outdoor playspace ...

Pathway

Imagine you are on a pathway, a narrow winding bushy pathway or track, walking along, ... your highly perceptive early childhood ears can hear children playing, but you are not sure where the sound is coming from, then suddenly you come to a dense hedge, there is no way around the hedge, so you prise your way through.

On the other side of the hedge there are children playing in the sustainable early childhood outdoor playspace of the future, ten years into the future. Imagine yourself wandering about the space, what do you see ... how does the space appear aesthetically ... imagine the sounds, textures, colours, shapes, smells ... think about the built and natural elements ...

Visionary image

The overriding aesthetic is natural; there will be rocks, trees, sand, soil, shrubs and flowers offering a rich and diverse sensory palette for exploration. A tangled wildness of spaces, rather than linear orderliness and a sense that things can spontaneously happen, change and evolve as systems do.

Pathway

How many children can you see ... what are the children doing ... are they playing, creating, constructing, talking, resting, running ... do they appear engaged or disengaged ... do they appear empowered or disempowered ... what do you think they are learning in this space ...

Visionary image

Initially it is difficult to count the children, as there are so many bushy refuges affording seclusion, matching the evolutionary drive of young children. I am aware the children, their families, educators and communities are acknowledged co-constructors of the space. Through ongoing co-construction they have built multiple meanings about nature, sustainability and the unique role of humans on the Earth. Also, their affective relationships with nature and sense of wonder are being nurtured in this space. The children are engaged and empowered as they create and manage their own play scenarios with authentic and personally meaningful resources. They are learning about their agency in the world, working collectively, creating change and responding to change. They are learning what living sustainably might mean.

Pathway

What are the early childhood educators doing ... are they sitting with children, talking, playing, gardening, watchful ... how do they appear relaxed, involved or possibly stressed ...

Visionary image

An ethic of sustainability informs the early childhood educators' daily thinking and actions. They have a vision of a sustainable future concomitant with transformative leadership. The early childhood educators view children as capable and competent and they are open and responsive

to children's ideas and directions about sustainability. As they interact with children, they facilitate trusting and positive relationships with natural systems and promote understandings of sustainability. The early childhood educators engage parents and the wider community in enacting sustainability, they work collectively and collaboratively for change. Also, they acknowledge their foundational role in early childhood education for sustainability and through advocacy, networking and research make visible their commitment.

Pathway

How do you feel about being in this centre of the future ... is it a comfortable place for you, a place that connects with you at various levels ... reflects your ethics and aspirations?

Visionary image

This is a place that reflects my personal ethic of sustainability, but also understandings gleaned from this study about sustainability, education for sustainability, natural playspaces and transformative journeys. It is a place in which I would feel more than comfortable to leave my child or to be an early childhood educator.

Pathway

It's time to leave the centre now and return to the present, but as you turn to go a young child pulls at your leg, you bend over instinctively in response and the child whispers in your ear. The child whispers a message for you to take back to the present ... you reflect on that precious message as you push your way through the hedge and walk along the bushy pathway, what was the child trying to tell you ... you keep walking ... till you reach the present.

Visionary image

My message from the child was one of urgency: 'Are we there yet?' If not, why aren't we? We need to act urgently for the young children that we teach today and tomorrow to have any chance of a sustainable future.

Pathway

You are now back, but you still carry in your mind that vision and the message from the child.

Visionary image

I envisage a sustainable future.

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Appendix 1 – Banksia Childcare Centre action research process as implemented and documented

Dates	Action	Data type	Action Research Cycle Phase
14-02-08 to 18-03-08	Initial meeting with co-ordinator and letter seeking centre committee approval Later meeting with Assistant Co-ordinator and 3-5y group staff <ul style="list-style-type: none"> • Take photographs • Collect documentation • Obtain staff and parent lists • Place introduction notice on staff notice board 	PO PO DOC PH	Reconnaissance
19-03-08 to 15-04-08	Prepare, collate consent forms and PLS for parents and staff Attend staff meeting 15-04-08 and parent evening 08-04-08 to introduce research project Written reflections 02-04-08 and 07-04-08 to support planning Plan and organise interviews and focus groups	RT PO PJ RT	Plan
16-04-08 to 06-05-08	Four staff interviews 21-04-08 Four parent interviews 21-04-08, 24-04-08, 28-04-08 and 06-05-08 Focus Group with 5 staff and 2 parents 06-05-08	PO INT SFG PJ	Act
07-05-08 to 04-08-08	Phone call 26-05-08 to monitor progress and visit 11-06-08 to evaluate Written reflections 11-06-08 Provide resources: worm book, worm farm info and worm puppet 13-06-08 Further phone calls to monitor progress 26-06-08 and 22-07-08 and visit 27-07-08 to evaluate. Written reflections 27-07-08 Provide resources: sustainability policies Attend working bee on 03-08-08 Written reflections 27-07-08	PO PH PJ RES PO PH PJ RES PO PJ PH	Monitor and evaluate
05-08-08 to 18-08-08	Prepare second interviews Organise dates with centre and participants	RT	Plan

Dates	Action	Data type	Action Research Cycle Phase
19-08-08 to 29-08-08	Three staff second interviews 19-08-08 Four parent second interviews 28-08-08 and 29-08-08	IN PO	Act
30-08-08 to 03-09-08	Written reflections 31-08-08	PJ	Monitor and evaluate
04-09-08 to 16-09-08	Prepare second focus group plans	RT	Plan
17-09-08 to 23-09-08	Second focus group with 4 staff and 1 parent 17-09-08	FG PO	Act
18-09-08 to 06-10-08	Written reflections 18-09-08	PJ	Monitor and evaluate
07-10-08 to 21-10-08	Phone call 07-10-08 Prepare materials for work with children: assent, questions, pens/paper, camera	RT	Plan
22-10-08 to 29-10-08	Visits to work with children 22-10-08, 24-10-08 and 29-10-08	PJ PH DR	Act
30-10-08 to 02-12-08	Written reflections 30-08-08 Deliver copies of drawings and photographs for each child participant on 11-11-08 Provide verbal report and invite comment at staff meeting 18-11-08 Contribute note of thanks to centre newsletter 01-12-08	PJ PO	Monitor and evaluate
03-12-08 to 28-02-09	Prepare third interview and arrange time to implement and visit	RT	Plan
01-03-09 to 15-03-09	<ul style="list-style-type: none"> • Co-ordinator interviews • Take photographs • Collect documentation 	IN PJ PH DOC PO	Act
16-03-09 to 31-03-09	Written reflections	PJ	Monitor and evaluate

KEY

DOC	Documentation from centre	PJ	Professional journal entry
DR	Children's drawings	PO	Participant observation
IN	Interview	RES	Resources
PH	Photographs	RT	Research tools
PLS	Plain language statement	SFG	Synergetic focus group

Appendix 2 – Acacia Kindergarten action research process as implemented and documented

Dates	Action	Data type	Action Research Cycle Phase
07-03-08 to 28-05-08	<p>Initial meeting with co-ordinator and letter seeking centre committee approval</p> <p>Later meeting with co-ordinator</p> <ul style="list-style-type: none"> • Take photographs • Collect documentation • Obtain staff and parent lists • Place introduction notice on centre notice board 	<p>PO</p> <p>PO DOC PH</p>	Reconnaissance
30-05-08 to 23-06-08	<p>Prepare, collate consent forms and PLS for parents and staff</p> <p>Written reflections 20-06-08 to support planning</p> <p>Plan and organise interviews and focus groups</p>	<p>RT</p> <p>PJ</p> <p>RT</p>	Plan
24-06-08 to 31-06-08	<p>Three staff interviews 26-06-08</p> <p>Two parent interviews 24-06-08 and 31-06-08</p> <p>Focus Group with 2 staff and 3 parents 25-06-08</p>	<p>PO INT SFG PJ</p>	Act
01-07-08 to 22-10-08	<p>Phone call 23-07-08 to monitor progress and visit 05-08-08 to evaluate</p> <p>Written reflections 01-07-08 and 05-08-08</p> <p>Provide resources: worm farm info and bird feeder info 22-07-08</p> <p>Further phone call to monitor progress 25-08-08 and visit 21-10-08 (deferred 3 times prior) to evaluate</p> <p>Written reflections 07-10-08 and 21-10-08</p>	<p>PO PH</p> <p>PJ</p> <p>RES</p> <p>PO PH</p> <p>PJ</p>	Monitor and evaluate
23-10-08 to 01-12-08	<p>Prepare second interviews and focus group plans</p> <p>Organise dates with centre and participants via phone calls 05-11-08 and 20-11-08</p> <p>Prepare work with children</p>	RT	Plan

Dates	Action	Data type	Action Research Cycle Phase
02-12-08 to 22-12-08	<p>Three staff second interviews 02-12-08</p> <p>Second focus Group with 1 staff and 2 parents 03-12-08</p> <p>Visits to work with children 04-12-08 and 09-12-08</p> <p>Written reflections 02-12-08, 04-08-08 and 09-12-08</p> <p>Provide note of thanks for centre noticeboard 09-12-08</p> <p>Deliver copies of drawings and photographs for each child participant on 11-12-08</p> <p>Two parent second interviews 17-12-08 and 22-12-08</p>	IN FG PO PH DR PJ	Act Monitor and Evaluate (brief time span at end of year due to centre delays)
23-12-08 to 28-02-09	Prepare third interview and arrange time to implement and visit	RT	Plan
01-03-09 to 15-03-09	<ul style="list-style-type: none"> • Co-ordinator interviews • Take photographs • Collect documentation 	IN PJ PH DOC PO	Act
16-03-09 to 31-03-09	Written reflections	PJ	Monitor and evaluate

KEY

DOC	Documentation from centre	PJ	Professional journal entry
DR	Children's drawings	PO	Participant observation
IN	Interview	RES	Resources
PH	Photographs	RT	Research tools
PLS	Plain language statement	SFG	Synergetic focus group

Appendix 3 – Original timeline for three case studies

Action or task	Date	Estimated time
Select case studies and seek required permissions	March 2008	1 month
Case Study A Reconnaissance followed by four action research cycles	April-July 2008	4 months
Case Study B Reconnaissance followed by four action research cycles	June-September 2008	4 months
Case Study C Reconnaissance followed by four action research cycles	August-November 2008	4 months
Revisit Case Study A Fifth action research cycle	October 2008	2 weeks
Revisit Case Study B Fifth action research cycle	December 2008	2 weeks
Revisit Case Study C Fifth action research cycle	February 2009	2 weeks

Appendix 4 – Lists of collated centre documentation

Banksia Childcare Centre

- Centre brochure (undated)
- Learning program plans for outdoors dated 1 February- 28 March 2008, 24 October-7th November 2008 and 19 March 2009
- Centre newsletters dated February 2008 and September 2008
- Committee of Management Meeting Minutes dated 21 October, 2008, 18 November 2008, 17 February 2009 and 18 March 2009
- Redraft of centre philosophy dated February 2009
- Banksia Childcare Centre (2006). *Banksia Policy Handbook*. Melbourne: Banksia Management Committee
- Map of outdoor playspace (Refer Figure 6, Chapter 5)

Acacia Kindergarten

- Learning program outdoor plans dated 23 May 2008 and 2 December 2008
- Centre newsletters dated July 2008 and August 2008
- Acacia Kindergarten (2009). *Acacia Kindergarten Parent Information Book*. Melbourne: Joint Management Committee
- Map of outdoor playspace (Refer Figure 9, Chapter 6)

Appendix 5 – First interview proforma Banksia Childcare Centre and Acacia Kindergarten staff and parents

Organisation

- Space: Staff room with door closed for staff interviews and for parents venues negotiated individually
- Time: Staff interviews on the afternoon of April 22nd 2008 when reliever present, parent interview times late April TBA, limit one hour, date and time to be re confirmed on the day before interview with each interviewee
- People: Researcher and interviewee (4 parents and 4 staff members to be interviewed)
- Materials: Refreshments, voice recorder (operational and checked, spare batteries), two chairs at table corner, notebook/pen, interview plan

Procedures

Welcome and settling in:

Thanks for agreeing to participate in this study and coming for an interview today. Would you like a drink ... how has your day been so far... which seat would you like ... are you comfortable?

You may recall in the information sent to you about the study that I would need to record the interview, can I turn on the voice recorder now? I might also jot down some notes as we go to remind myself of your comments. This interview will take up about half an hour to an hour, is that OK?

Focussing the interview and valuing the interviewee:

I am very interested in your thoughts and ideas about education for sustainability and relating these to the outdoor playspace for the Big Room. I would also like to explore with you what you might see as a priority for change in the outdoor playspace and how you think this might happen in the centre.

Clarifying the format:

This interview is loosely structured, I have a list of questions to use as a guide, but please feel free to explore whatever is relevant to you about this topic, I am keen to hear as many of your thoughts and ideas as possible. (S-staff, P-parent)

Question	Commentary
<p>1. <i>So I can get to know you a little better can you please describe your role in the centre ...</i></p> <ul style="list-style-type: none"> • <i>How long have you been involved in the centre? SP</i> • <i>Which room do you work in? S</i> • <i>What is your professional/ work background? SP</i> • <i>What age is your child? Do you have other children at the centre? P</i> 	
<p>2. <i>Thanks for sharing that background information, I'd like to focus on sustainability to begin with, it can be a challenging concept to define. I wonder what it means to you, what does being sustainable mean to you?</i></p> <ul style="list-style-type: none"> • <i>What examples from your personal or work life can you give to illustrate sustainability?</i> • <i>What priority does being sustainable have in your everyday life? Is it important or not so important to you?</i> 	
<p>3. <i>What do you think education for sustainability means?</i></p> <ul style="list-style-type: none"> • <i>What are some examples?</i> • <i>What are children doing and what are adults doing when engaged in education for sustainability?</i> 	
<p>4. <i>What is it you value about the outdoor playspace?</i></p> <ul style="list-style-type: none"> • <i>Why do you value this aspect(s)?</i> • <i>Can you prioritise, what do you value most?</i> 	
<p>5. <i>What do you think the children value most?</i></p> <ul style="list-style-type: none"> • <i>Why do you think they value this aspect?</i> 	
<p>6. <i>Where do you think 'nature' fits in this discussion about outdoor playspaces and sustainability?</i></p> <ul style="list-style-type: none"> • <i>How would you describe your relationship with nature?</i> • <i>How would you describe the children's/your child's relationship with nature?</i> • <i>How important an element is nature in the outdoor playspace for you?</i> 	
<p>7. <i>How do you see education for sustainability happening in an early childhood outdoor playspaces?</i></p> <ul style="list-style-type: none"> • <i>What are some examples?</i> • <i>Do you think it is happening in this outdoor playspace, why or why not?</i> 	

Question	Commentary
<p>8. <i>Looking at the Big Room outdoor playspace, can you identify any priorities for change?</i></p> <ul style="list-style-type: none"> • <i>What would they be?</i> • <i>Which do you think is most important and why?</i> • <i>What potential benefits would there be from the change suggested?</i> • <i>Do you think the suggested change reflects education for sustainability, if so in what way?</i> 	
<p>9. <i>How do you think your suggested change could best be carried out?</i></p> <ul style="list-style-type: none"> • <i>Who should be involved?</i> • <i>What process would be followed?</i> • <i>How long do you think it would take?</i> 	
<p>10. <i>Is there anything further you would like to comment on in relation to the topic?</i></p>	

Conclusion

Thanks very much for your time today, I have appreciated hearing your thoughts on the topic. Once I have completed all the parent and staff interviews and the focus group, I will work with the centre on a plan to implement a change in the outdoor playspace during May and June. Do you wish to be part of the action implementing the change? Also, I would like to interview you again in July to revisit some of these ideas and reflect on the change in the playspace. Can I contact you again for another interview? Is there anything you wish to ask about the research study? Thanks again.

Appendix 6 – Second interview proforma Banksia Childcare Centre staff and parents

Organisation

- Space: Staff room with door closed for staff interviews and for parents venues negotiated individually
- Time: Staff interviews on the afternoon of August 19th 2008 from 2pm when reliever present, parent interview times late August TBA, limit one hour, date and time to be re confirmed on the day before interview with each interviewee
- People: Researcher and interviewee (4 parents and 3 staff members to be interviewed)
- Materials: Refreshments, voice recorder (operational and checked, spare batteries), two chairs at table corner, notebook/pen, interview plan

Procedures

Welcome and settling in:

Thanks for agreeing to participate in a second interview for this study today. Would you like a drink ... how has your day been so far ... which seat would you like ... are you comfortable?

You may recall in the information sent to you about the study that I would need to record the interview, can I turn on the voice recorder now? I might also jot down some notes as we go to remind myself of your comments. This interview will take up about half an hour, is that OK?

Focussing the interview and valuing the interviewee:

Since the last interview a worm farm has been set up in the Big Room playspace and I would like to invite your reflection on this and more broadly on education for sustainability. I would also like to explore with you what you might see as further possible changes in the outdoor playspace.

Clarifying the format:

This interview is loosely structured, I have a list of questions to use as a guide, but please feel free to explore whatever is relevant to you about this topic, I am keen to hear as many of your thoughts and ideas as possible.

Question	Commentary
<p>1. How do you think setting up the worm farm might have impacted on the centre? Describe how it may have impacted on ...</p> <ul style="list-style-type: none"> • Staff • Parents • Children • Yourself • Outdoor playspace • Anything else? 	
<p>2. What would you see as the most significant outcome of setting up the worm farm?</p>	
<p>3. What links, if any, can you identify between the worm farm and education for sustainability?</p>	
<p>4. What do you think education for sustainability means?</p> <ul style="list-style-type: none"> • What are children doing and what are adults doing when engaged in education for sustainability in the outdoor playspace? • Do you think it is happening in this outdoor playspace, why or why not? 	
<p>5. I'd like to return to a focus on sustainability only, drawing particularly on your recent experiences what does being sustainable mean to you?</p> <ul style="list-style-type: none"> • What priority does being sustainable have in your everyday life? Is it important or not so important to you? 	
<p>6. Reflecting on your own participation in this study what, if any, changes can you identify in your own thinking and actions?</p>	
<p>7. Are there further initiatives you would like to see implemented in the outdoor playspace?</p> <ul style="list-style-type: none"> • Which ones would you see as the most important? • Why would these be the most important? 	
<p>8. Is there anything further you would like to comment on or ask in relation to the study?</p>	

Conclusion

Thanks very much for your time today, I have appreciated hearing your thoughts on the worm farm and education for sustainability. Once I have completed all the interviews, the second focus group and discussed the worm farm with some children, I will be focussing on collating the research information and writing about the research study. Thanks again.

Appendix 7 – Second interview proforma Acacia Kindergarten staff and parents

Organisation

Space: During planning time in kindergarten room for staff interviews and for parents venue negotiated individually

Time: Staff interviews on the afternoon of 2nd December 2008, parent interview times late December TBA, limit one hour, date and time to be re confirmed on the day before interview with each interviewee

People: Researcher and interviewee (2 parents and 3 staff members to be interviewed)

Materials: Refreshments, voice recorder (operational and checked, spare batteries), two chairs at table corner, notebook/pen, interview plan

Procedures

Welcome and settling in:

Thanks for agreeing to participate in a second interview for this study today. Would you like a drink ... how has your day been so far ... which seat would you like ... are you comfortable?

You may recall in the information sent to you about the study that I would need to record the interview, can I turn on the voice recorder now? I might also jot down some notes as we go to remind myself of your comments. This interview will take up about half an hour, is that OK?

Focussing the interview and valuing the interviewee:

Since the last interview a bird feeder has been set up in the outdoor playspace and I would like to invite your reflection on this and more broadly on education for sustainability. I would also like to explore with you what you might see as further possible changes in the outdoor playspace.

Clarifying the format:

This interview is loosely structured, I have a list of questions to use as a guide, but please feel free to explore whatever is relevant to you about this topic, I am keen to hear as many of your thoughts and ideas as possible.

Question	Commentary
<p>1. <i>How do you think setting up the bird feeder might have impacted on the centre? Describe how it may have impacted on ...</i></p> <ul style="list-style-type: none"> • <i>Staff</i> • <i>Parents</i> • <i>Children</i> • <i>Yourself</i> • <i>Outdoor playspace</i> • <i>Anything else?</i> 	
<p>2. <i>What would you see as the most significant outcome of setting up the bird feeder?</i></p>	
<p>3. <i>What links, if any, can you identify between the bird feeder and education for sustainability?</i></p>	
<p>4. <i>What do you think education for sustainability means?</i></p> <ul style="list-style-type: none"> • <i>What are children doing and what are adults doing when engaged in education for sustainability in the outdoor playspace?</i> • <i>Do you think it is happening in this outdoor playspace, why or why not?</i> 	
<p>5. <i>I'd like to return to a focus on sustainability only, drawing particularly on your recent experiences what does being sustainable mean to you?</i></p> <ul style="list-style-type: none"> • <i>What priority does being sustainable have in your everyday life? Is it important or not so important to you?</i> 	
<p>6. <i>Reflecting on your own participation in this study what, if any, changes can you identify in your own thinking and actions?</i></p>	
<p>7. <i>Are there further initiatives you would like to see implemented in the outdoor playspace?</i></p> <ul style="list-style-type: none"> • <i>Which ones would you see as the most important?</i> • <i>Why would these be the most important?</i> 	
<p>8. <i>Is there anything further you would like to comment on or ask in relation to the study?</i></p>	

Conclusion

Thanks very much for your time today, I have appreciated hearing your thoughts on the bird feeder and education for sustainability. Once I have completed all the interviews, the second focus group and discussed the bird feeder with some children, I will be focussing on collating the research information and writing about the research study. Thanks again.

Appendix 8 – Third interview proforma Banksia Childcare Centre co-ordinating staff

Organisation

Space: Staff room with door closed for staff interviews

Time: Staff interviews on the afternoon of March 24th 2009 from 2pm when reliever present, limit one hour, date and time to be re confirmed on the day before interview with interviewees

People: Researcher and interviewees (2 staff members to be interviewed together)

Materials: Refreshments, voice recorder (operational and checked, spare batteries), three chairs at table corner, notebook/pen, interview plan

Procedures

Welcome and settling in:

Thanks for agreeing to participate in a third and final interview for this study today.

This interview will take up about half an hour, is that OK?

You may recall in the information sent to you about the study that I would need to record the interview, can I turn on the voice recorder now? I might also jot down some notes as we go to remind myself of your comments.

Focussing the interview and valuing the interviewee:

When I visited the centre late last year a worm farm and some bushy playspaces had been established, a number of experiences had been implemented with the children such as the landfill experiment, there was a fund-raising event for the outdoor playspace and there was some discussion about a centre sustainability policy. Today's interview is mainly about an update on what is happening now and if there are any further plans in relation to education for sustainability and the Big Room outdoor playspace. I realise that you have a new group of children now and it is early in the year, but I am very interested to hear your thoughts on how things are going at this point.

Clarifying the format:

This interview is loosely structured, I have a list of questions to use as a guide, but please feel free to explore whatever is relevant to you about this topic, I am keen to hear as many of your reflections as possible.

Question	Commentary
<p>1. Describe what is happening now in relation to the initiatives begun last year?</p> <ul style="list-style-type: none"> • Worm farm • Bushy play spaces • Children's experiences • Policy • Fund raising • Any others? 	
<p>2. On reflection, describe any particular challenges associated with the initiatives undertaken so far?</p> <ul style="list-style-type: none"> • What particular sources of influence can you identify in relation to these challenges? eg parents, staff, council, management 	
<p>3. Thinking more broadly, identify any longer term impacts on the centre from the initiatives undertaken? Describe how it may have impacted on ...</p> <ul style="list-style-type: none"> • Staff • Parents • Children • Yourself • Outdoor playspace • Anything else? 	
<p>4. Do you have any further plans, or initiatives, you would like to see implemented in the centre and/or outdoor playspace in the coming year?</p>	
<p>5. I'd like to return to a focus on sustainability drawing particularly on your recent experiences what does being sustainable mean to you?</p>	
<p>6. And also education for sustainability, drawing on your recent experiences what does education for sustainability mean for you in this early childhood centre?</p>	
<p>7. Reflecting on your participation in this study and the centre as whole, suggest some key words that describe participation in the changes implemented in the centre over the last year? eg challenging, disheartening, overwhelming, inspiring, difficult, time consuming, reaffirming ...</p> <ul style="list-style-type: none"> • Why did you choose those key words? • How has your participation in this study reflected your beliefs and values about early childhood education and sustainability? 	

<i>Question</i>	Commentary
8. <i>Is there anything further you would like to comment on or ask in relation to the study?</i>	

Conclusion

Thanks very much for your time again today, I have appreciated hearing your thoughts on the initiatives undertaken and education for sustainability. Over the coming year I will be focussing on collating the research information and writing about the research study. I will send you any publications from the research at a later date and if you would like me to present any of the research to your centre community, staff and/or parents please let me know. Thanks again.

Appendix 9 – Third interview proforma Acacia Kindergarten co-ordinating staff

Organisation

Space: Kindergarten room for staff interview

Time: Staff interview on the afternoon of March 18th 2009 from 2pm during planning time, limit one hour, date and time to be re confirmed on the day before interview with interviewees

People: Researcher and interviewee (1 staff member to be interviewed)

Materials: Refreshments, voice recorder (operational and checked, spare batteries), two chairs at table corner, notebook/pen, interview plan

Procedures

Welcome and settling in:

Thanks for agreeing to participate in a third and final interview for this study today.

This interview will take up about half an hour, is that OK?

You may recall in the information sent to you about the study that I would need to record the interview, can I turn on the voice recorder now? I might also jot down some notes as we go to remind myself of your comments.

Focussing the interview and valuing the interviewee:

When I visited the centre late last year there had been garden pots and a bird box set up with the children and a water container installed in the sandpit to monitor water use. The garden pots and bird box were temporary and removed after a few weeks to allow for the shade sails to be installed in December. Also, council funding had just been granted for planting some mature trees, a wall of indigenous artwork and a planter box.

Today's interview is mainly about an update on what is happening now and if there are any further plans in relation to education for sustainability and the kindergarten outdoor playspace. I realise that you have a new group of children now and it is early in the year, but I am very interested to hear your thoughts on how things are going at this point.

Clarifying the format:

This interview is loosely structured, I have a list of questions to use as a guide, but please feel free to explore whatever is relevant to you about this topic, I am keen to hear as many of your reflections as possible.

Question	Commentary
<p>1. Describe what is happening now in relation to the initiatives begun last year?</p> <ul style="list-style-type: none"> • Garden pots • Bird box • Water container in sand pit • Grant for trees/planter box/artwork • Any others? 	
<p>2. On reflection, describe any particular challenges associated with the initiatives undertaken so far?</p> <ul style="list-style-type: none"> • What particular sources of influence can you identify in relation to these challenges? eg parents, staff, council, management. 	
<p>3. Thinking more broadly, identify any longer term impacts on the centre from the initiatives undertaken so far? Describe how it may have impacted on ...</p> <ul style="list-style-type: none"> • Staff • Parents • Children • Yourself • Outdoor playspace • Anything else? 	
<p>4. Do you have any further plans, or initiatives, you would like to see implemented in the centre and/or outdoor playspace in the coming year?</p>	
<p>5. I'd like to return to a focus on sustainability drawing particularly on your recent experiences what does being sustainable mean to you?</p>	
<p>6. And also education for sustainability, drawing on your recent experiences what does education for sustainability mean for you in this early childhood centre?</p>	
<p>7. Reflecting on your participation in this study and the kindergarten as a whole, suggest some key words that describe participation in the changes implemented in the centre over the last year? eg challenging, disheartening, overwhelming, inspiring, difficult, time consuming, reaffirming</p> <ul style="list-style-type: none"> • Why did you choose those key words? • How has your participation in this study reflected your beliefs and values about early childhood education and sustainability? 	

Question	Commentary
8. <i>Is there anything further you would like to comment on or ask in relation to the study?</i>	

Conclusion

Thanks very much for your time again today, I have appreciated hearing your thoughts on the initiatives undertaken and education for sustainability. Over the coming year I will be focussing on collating the research information and writing about the research study. I will send you any publications from the research at a later date and if you would like me to present any of the research to your kindergarten community, staff and/or parents please let me know. Thanks again.

Appendix 10 – Transcripts of teachable moments

Transcript A

Can you give me any examples, what are adults doing and what are children doing when engaged in education for sustainability?

I couldn't answer you.

What about something like a compost bin, do you think that might be about education because sustainability?

Oh yeah, actually I think we could do with a water tank or something along those lines for the big yards for the children to recycle water I think that's important.

How would the children interact with the water tank?

They can water the plants and do water play (XS4 22-04-08, p. 2).

Transcript B

What links, if any can you identify between the worm farm and education for sustainability?

Yes, saving the food scraps. Like I'm not sure how to describe it, but XS4 was telling me that I don't know what it is maybe their poo, but you can put it out onto the garden or something like that. Am I right?

Yes

I don't know how to word it.

Yes, it is the worm poo, or some people refer to it as worm wee, it depends whether you are talking about the solids or the liquids. That's why there is the little tap thing down the bottom of the worm farm.

Yes, the little tap thing and she did explain how you can put it on the garden and it helps our plants.

Yes, it has a lot of nutrients in it to help the plants grow and people put it on as fertiliser. I actually saw one centre where they were selling it in little bottles for people to put on their home gardens.

Oh, wow!

So there you go, bottles of worm wee (XS4 19-08-08, p. 2).

Appendix 11 – Summary of conducted interviews and focus groups for Banksia Childcare Centre and Acacia Kindergarten

Banksia Childcare Centre

<i>Staff interviewees</i>	<i>First Interview Dates</i>	<i>Second Interview Dates</i>	<i>Third Interview Dates</i>
XS1	22-04-08	19-08-08	
XS2	22-04-08	19-08-08	24-03-09
XS3	22-04-08		24-03-09
XS4	22-04-08	19-08-08	
<i>Parent interviewees</i>	<i>First Interview Dates</i>	<i>Second Interview Dates</i>	
XP1	22-04-08	29-08-08	
XP2	06-05-08	28-08-08	
XP3	28-04-08	29-08-08	
XP7	24-04-08	29-08-08	

<i>Focus group participants</i>	<i>Focus group dates</i>
5 staff XS2 XS5 XS7 XS8 XS9 & 2 parents XP4 XP6	06-05-08
5 staff XS2 XS3 XS7 XS8 XS9 & 1 parent XP4	17-09-08

Acacia Kindergarten

<i>Staff interviewees</i>	<i>First Interview Dates</i>	<i>Second Interview Dates</i>	<i>Third Interview Dates</i>
YS1	24-06-08	2-12-08	18-03-09
YS2	24-06-08	2-12-08	
YS3	24-06-08	2-12-08	
<i>Parent interviewees</i>	<i>First Interview Dates</i>	<i>Second Interview Dates</i>	
YP2	24-06-08	17-12-08	
XP5	31-07-08	22-12-08	

<i>Focus group participants</i>	<i>Focus group dates</i>
2 staff YS1 YS2 & 3 parents YP1 YP4 YP6	25-06-08
1 staff YS1 & 2 parents YP1 YP4	03-12-08

Appendix 12 – First synergetic focus group proforma Banksia Childcare Centre

Organisation

Space: Centre X

Time: 7-8.30pm Tuesday 29th April 2008

People: Researcher and participants (4 parents and 4 staff members) to be confirmed

Materials: Refreshments, voice recorder (operational and checked, spare batteries),
9 chairs in a circle, notebook/pen, focus group plan, 10 copies of monologue,
butcher's paper and pens

Procedures

Welcome and settling in:

Thanks for agreeing to participate in this study and coming to the focus group discussion this evening. I know this is at the end of a long work-day for most of you, so I am very appreciative of your time and effort. There are some drinks and food on the table, so please help yourself at anytime.

I hope you will find the discussion this evening interesting and that it will lead to some useful outcomes for the centre. You may recall in the information sent to you about the study that I would need to sound record the focus group, I would like to turn on the voice recorder now, also I will jot down some notes as we go to remind myself of your comments. This group discussion will take up to an hour and a half, is that OK with everyone? Also, please remember to respect the confidentiality of everyone participating in this discussion, it is acceptable to speak generally about the discussion with others, but please do not use the names of people involved.

Focussing the group and valuing the participants:

I am very interested in your thoughts and ideas about education for sustainability and relating these to the outdoor playspace for the Big Room. I would also like to hear your ideas about possible changes in the outdoor playspace and anticipate that as a group you could reach agreement this evening about implementing a particular change and a plan for doing it.

Clarifying the format:

To begin this focus group discussion I have prepared a statement that includes some information and asks some questions to stimulate discussion. After reading the statement to you, I invite you to take ownership of the discussion and address the questions raised in the statement as you wish. I will sit back from the group to take notes, please see this as your discussion about education for sustainability and your centre playspace.

Oral Monologue:

In recent times 'sustainability' has become a commonly used word in a variety of situations. For example, we hear about sustainability in terms of sustainable investments, sustainable living, sustainable development and sustainable farming. But, what does it actually mean? How do we describe something that is sustainable? Does it mean something that lasts forever or is there

more to describing sustainability? Each of us has different life experiences and different values that may contribute to how we see sustainability. What view of sustainability is most relevant and meaningful to each of you? Is there any overlap or commonality in your views or are they all different? Also, opinions vary about the importance of sustainability, some people have suggested that a high level of concern about sustainability is a Western-world luxury. How important is sustainability in your professional or personal life?

If sustainability is important, how do we educate the next generation about sustainability? The notion of education for 'sustainability' has been established in schools over a number of years, but it is only just now developing in the early childhood sector. How do we translate ideas about sustainability into education for sustainability in childcare centres and kindergartens? What would a centre doing education for sustainability look like? How would the staff, parents and children be engaged in education for sustainability? Would it be about compost bins and recycling or is there more to it than these daily practices?

In early childhood centres that are practising education for sustainability, it seems that natural playspaces as opposed to synthetic ones of rubber and plastic dominate. What is it about a natural playspace that links to education for sustainability? It might be the opportunities to explore natural materials for play and connect with nature, but is that the whole story? What else might be happening in a natural outdoor playspace to promote education for sustainability?

Outdoor playspaces are often an on-going project in early childhood centres as there is always maintenance to do, plants grow and die and the use of space changes with staff and families. Someone once said there is no such thing as a finished outdoor playspace! This discussion group is an opportunity to brainstorm ideas about what might be possible or desirable as a change in the Big Room outdoor playspace. It is anticipated that an outcome of this evening's discussion will be identification of a prioritised list of changes in the centre's Big Room outdoor playspace. The change selected for action now needs to be something that could be implemented over the next two months. If agreement is reached it would also be useful to explore in discussion how the change might happen including who would be involved, what resources might be needed and how things would happen? (Butchers paper and pens are available to help with this). It's about creating a vision for a change and making it happen.

Researcher to withdraw and document discussion, only intervening once an action priority for change and plan have been documented and discussion has reached a natural conclusion.

Conclusion:

Thanks for sharing your ideas this evening; we now have a clear idea of the change to be implemented and an outline of how it will happen. The proposal for change now needs to be shared with all the centre staff and families and a collaborative working group formed. There are several people from those interviewed who may be interested in actively working on the project. Are there any of you here tonight who are interested in following this project through over the next two months?

I look forward to working with you as an active participant and observer on this centre project during May and June. Also, I would like to conduct another focus group discussion in July to revisit some of these ideas about sustainability and reflect on the change in the playspace. Can I contact you again for another focus group? Is there anything you wish to ask about the research study? Thanks again.

Appendix 13 – First synergetic focus group proforma Acacia Kindergarten

Organisation

Space: Centre Y

Time: 7-8.30pm Wednesday 25th June 2008

People: Researcher and participants (2 parents and 2 staff members) to be confirmed

Materials: Refreshments, voice recorder (operational and checked, spare batteries), 5 chairs in a circle, notebook/pen, focus group plan, 6 copies of monologue, butcher's paper and pens

Procedures

Welcome and settling in:

Thanks for agreeing to participate in this study and coming to the focus group discussion this evening. I know this is at the end of a long work-day for most of you, so I am very appreciative of your time and effort. There are some drinks and food on the table, so please help yourself at anytime.

I hope you will find the discussion this evening interesting and that it will lead to some useful outcomes for the centre. You may recall in the information sent to you about the study that I would need to sound record the focus group, I would like to turn on the voice recorder now, also I will jot down some notes as we go to remind myself of your comments. This group discussion will take up to an hour and a half, is that OK with everyone? Also, please remember to respect the confidentiality of everyone participating in this discussion, it is acceptable to speak generally about the discussion with others, but please do not use the names of people involved.

Focussing the group and valuing the participants:

I am very interested in your thoughts and ideas about education for sustainability and relating these to the outdoor playspace for the kindergarten. I would also like to hear your ideas about possible changes in the outdoor playspace and anticipate that as a group you could reach agreement this evening about implementing a particular change and a plan for doing it.

Clarifying the format:

To begin this focus group discussion I have prepared a statement that includes some information and asks some questions to stimulate discussion. After reading the statement to you, I invite you to take ownership of the discussion and address the questions raised in the statement as you wish. I will sit back from the group to take notes, please see this as your discussion about education for sustainability and your centre playspace.

Oral Monologue:

In recent times 'sustainability' has become a commonly used word in a variety of situations. For example, we hear about sustainability in terms of sustainable investments, sustainable living, sustainable development and sustainable farming. But, what does it actually mean? How do we describe something that is sustainable? Does it mean something that lasts forever or is there more

to describing sustainability? Each of us has different life experiences and different values that may contribute to how we see sustainability. What view of sustainability is most relevant and meaningful to each of you? Is there any overlap or commonality in your views or are they all different? Also, opinions vary about the importance of sustainability, some people have suggested that a high level of concern about sustainability is a Western-world luxury. How important is sustainability in your professional or personal life?

If sustainability is important, how do we educate the next generation about sustainability? The notion of education for 'sustainability' has been established in schools over a number of years, but it is only just now developing in the early childhood sector. How do we translate ideas about sustainability into education for sustainability in childcare centres and kindergartens? What would a centre doing education for sustainability look like? How would the staff, parents and children be engaged in education for sustainability? Would it be about compost bins and recycling or is there more to it than these daily practices?

In early childhood centres that are practising education for sustainability, it seems that natural playspaces as opposed to synthetic ones of rubber and plastic dominate. What is it about a natural playspace that links to education for sustainability? It might be the opportunities to explore natural materials for play and connect with nature, but is that the whole story? What else might be happening in a natural outdoor playspace to promote education for sustainability?

Outdoor playspaces are often an on-going project in early childhood centres as there is always maintenance to do, plants grow and die and the use of space changes with staff and families. Someone once said there is no such thing as a finished outdoor playspace! This discussion group is an opportunity to brainstorm ideas about what might be possible or desirable as a change in the outdoor playspace. It is anticipated that an outcome of this evening's discussion will be identification of a prioritised list of changes in the centre's outdoor playspace. The change selected for action now needs to be something that could be implemented over the next two months. If agreement is reached it would also be useful to explore in discussion how the change might happen including who would be involved, what resources might be needed and how things would happen? (Butchers paper and pens are available to help with this). It's about creating a vision for a change and making it happen.

Researcher to withdraw and document discussion, only intervening once an action priority for change and plan have been documented and discussion has reached a natural conclusion.

Conclusion:

Thanks for sharing your ideas this evening; we now have a clear idea of the change to be implemented and an outline of how it will happen. The proposal for change now needs to be shared with all the centre staff and families and a collaborative working group formed. There are several people from those interviewed who may be interested in actively working on the project. Are there any of you here tonight who are interested in following this project through over the next two months?

I look forward to working with you as an active participant and observer on this centre project during July and August. Also, I would like to conduct another focus group discussion later in the year to revisit some of these ideas about sustainability and reflect on the change in the playspace. Can I contact you again for another focus group? Is there anything you wish to ask about the research study? Thanks again.

Appendix 14 – Second synergetic focus group proforma Banksia Childcare Centre

Organisation

Space: Centre X

Time: 7-8.30pm Wednesday 17th September 2008

People: Researcher and participants (2 parents and 4 staff members) to be confirmed

Materials: Refreshments, voice recorder (operational and checked, spare batteries), 6 chairs in a circle, notebook/pen, focus group plan, 6 copies of monologue, butcher's paper and pens

Procedures

Welcome and settling in:

Thanks for agreeing to participate in this second focus group discussion this evening in relation to the research study. I know this is at the end of a long work-day for most of you, so I am very appreciative of your time and effort. There are some drinks and food on the table, so please help yourself at anytime.

I hope you will find the discussion this evening interesting and that it will lead to some further outcomes for the centre. You may recall in the information sent to you about the study that I would need to sound record the focus group, I would like to turn on the voice recorder now, also I will jot down some notes as we go to remind myself of your comments. This group discussion will take up to an hour and a half, is that OK with everyone? Also, please remember to respect the confidentiality of everyone participating in this discussion, it is acceptable to speak generally about the discussion with others, but please do not use the names of people involved.

Focussing the group and valuing the participants:

I am very interested in revisiting your thoughts and ideas about sustainability and education for sustainability and relating these to the outdoor playspace for the centre. I would like to hear your reflections about the worm farm set up and any other changes at the centre since the last focus group in April. Also, this focus group is a time to look forward and identify a vision for the future.

Clarifying the format:

To begin this focus group discussion as last time, I have prepared a statement that includes some information and asks some reflective questions to stimulate discussion. After reading the statement to you, I invite you to take ownership of the discussion and address the questions raised in the statement as you wish. I will sit back from the group to take notes, please see this as your discussion about education for sustainability and your centre.

Oral Monologue:

In the last focus group there was an opportunity to define 'sustainability'. I wonder how this second focus group would define this challenging term given the experiences of the last few months at the centre. Can you arrive at a consensus about what is sustainability? Also, what, if anything, has changed for you and what level of priority does sustainability have in your personal and/or professional life?

How has establishing the worm farm and engaging in other Big Room experiences contributed to the centre and particularly to education for sustainability? How would you describe the contribution to the centre and now, how would you define education for sustainability. How have the staff, parents and children been engaged in education for sustainability? What have you observed and or reflected upon since the last focus group? Reflect and explore beyond the actual experiences, what do you see as some key elements of education for sustainability?

What is the role of the natural playspace in education for sustainability? Are these two ideas connected and if so how? What might be happening in a natural outdoor playspace to promote education for sustainability?

Beyond the worm farm in the big outdoor playspace it has been evident through the parent and staff interviews that other changes are happening in the centre community.

What do you see happening or not happening? How do these other changes relate to education for sustainability?

Are there further changes or initiatives this focus group would like to see implemented? In other words, let's conclude with a brainstorm about where to from here and how are we going to get there? (Butchers paper and pens are available to help with this). Can you create a vision for the future of the centre, is it a vision that encompasses education for sustainability or not and how will the centre work towards the vision?

Researcher to withdraw and document discussion, only intervening once discussion naturally concludes and a vision has been documented.

Conclusion:

Thanks for sharing your ideas this evening, we now have some definitions, reflections on the centre changes and a proposed vision for the centre community to move forward.

Now that I have now completed all the staff and parent interviews and the two focus group discussions, I will be spending some time at the centre collating children's responses to the worm farm and others experiences related to education for sustainability. I plan to finish the research phase at the centre by the end of October and then to focus on writing up the research study for the following year.

Is there anything you wish to ask about the research study? Thanks again.

Appendix 15 – Second synergetic focus group proforma Acacia Kindergarten

Organisation

Space: Centre Y

Time: 7-8.30pm Wednesday 3rd December 2008

People: Researcher and participants (3 parents and 2 staff members) to be confirmed

Materials: Refreshments, voice recorder (operational and checked, spare batteries), 6 chairs in a circle, notebook/pen, focus group plan, 6 copies of monologue, butchers paper and pens

Procedures

Welcome and settling in:

Thanks for agreeing to participate in this second focus group discussion this evening in relation to the research study. I know this is at the end of a long work-day for most of you, so I am very appreciative of your time and effort. There are some drinks and food on the table, so please help yourself at anytime.

I hope you will find the discussion this evening interesting and that it will lead to some further outcomes for the centre. You may recall in the information sent to you about the study that I would need to sound record the focus group, I would like to turn on the voice recorder now, also I will jot down some notes as we go to remind myself of your comments. This group discussion will take up to an hour and a half, is that OK with everyone? Also, please remember to respect the confidentiality of everyone participating in this discussion, it is acceptable to speak generally about the discussion with others, but please do not use the names of people involved.

Focussing the group and valuing the participants:

I am very interested in revisiting your thoughts and ideas about sustainability and education for sustainability and relating these to the outdoor playspace for the centre. I would like to hear your reflections about the bird box set up and any other changes at the centre since the last focus group in June. Also, this focus group is a time to look forward and identify a vision for the future.

Clarifying the format:

To begin this focus group discussion as last time, I have prepared a statement that includes some information and asks some reflective questions to stimulate discussion. After reading the statement to you, I invite you to take ownership of the discussion and address the questions raised in the statement as you wish. I will sit back from the group to take notes, please see this as your discussion about education for sustainability and your centre.

Oral Monologue:

In the last focus group there was an opportunity to define 'sustainability'. I wonder how this second focus group would define this challenging term given the experiences of the last few months at the centre. Can you arrive at a consensus about what is sustainability? Also, what, if anything, has changed for you and what level of priority does sustainability have in your personal and/or professional life?

How has installing the bird box and engaging in other outdoor experiences contributed to the centre and particularly to education for sustainability? How would you describe the contribution to the centre and now, how would you define education for sustainability. How have the staff, parents and children been engaged in education for sustainability? What have you observed and or reflected upon since the last focus group? Reflect and explore beyond the actual experiences, what do you see as some key elements of education for sustainability?

What is the role of the natural playspace in education for sustainability? Are these two ideas connected and if so how? What might be happening in a natural outdoor playspace to promote education for sustainability?

Beyond the bird box in the outdoor playspace it has been evident through the parent and staff interviews that other changes are happening in the centre community.

What do you see happening or not happening? How do these other changes relate to education for sustainability?

Are there further changes or initiatives this focus group would like to see implemented? In other words, let's conclude with a brainstorm about where to from here and how are we going to get there? (Butchers paper and pens are available to help with this). Can you create a vision for the future of the centre, is it a vision that encompasses education for sustainability or not and how will the centre work towards the vision?

Researcher to withdraw and document discussion, only intervening once discussion naturally concludes and a vision has been documented.

Conclusion:

Thanks for sharing your ideas this evening, we now have some definitions, reflections on the centre changes and a proposed vision for the centre community to move forward.

Now that I have now completed all the staff and parent interviews and the two focus group discussions, I will be spending some time at the centre collating children's responses to the bird box and others experiences related to education for sustainability. I plan to finish the research phase at the centre by the end of November and then to focus on writing up the research study for the following year.

Is there anything you wish to ask about the research study? Thanks again.

Appendix 16 – Initial scripts for researching with children

Script 1: Artwork documentation

‘I am writing a book about your new playspace. This will be shared with other people. Would you like to make a picture about your new playspace? I would put it in the book for other people to see’.

NO If child declines assent, state ‘thank-you’ and move away.

YES If child assents then ask: ‘Would you like to draw, paint or do a pasting? Tell me about what’s happening in the picture. This will help me to understand it better. Can I have this picture to keep?’

Script 2: Verbal documentation

‘I am writing a book about your new playspace. This will be shared with other people. Would you like to tell me about your new playspace? I plan to write it in a book for other people to read’.

NO If child declines assent, state ‘thank-you’ and move away.

YES If child assents then ask: ‘What would you like to tell me about the playspace? What do you like most about it? What things don’t you like about the playspace? How do you play there? Show me what happens in the playspace?’

Appendix 17 – Revised scripts for researching with children

Script 1: Artwork documentation

‘I am writing a book about play to share with other people. Would you like to make a drawing about where you like to play? I would put it in the book for other people to see’.

NO If child declines, state ‘thank-you’ and move away.

YES If child assents, then direct child to drawing table stating ‘I have some paper and pens on the table’. Once drawing state, ‘tell me what’s happening in the picture, it will help me understand it better’. On completion of drawing state ‘can I have this picture to copy for my book?’

NO That’s fine

YES Thank-you, I will bring it back next week.

Script 2: Photo documentation

‘I am writing a book about play to share with other people. I’d like to take some pictures of where you like to play outside. Would you show me where you like to play so I can take a picture? I would put it in a book for other people to see’.

NO If child declines state ‘thank-you’ and move away

YES If child assents then invite child stating ‘show me where you like to play then’? Follow child, take photo as directed, then state ‘please check my picture to make sure it is right’.

If child picture is not right, ask: ‘How can I make it better?’ Follow child’s direction, retake photo.

If child picture is right, ask ‘What do you like to do here?’ ‘Why do you like to play here?’ then ‘Is there anything else you would like to tell me about this place?’

Conclude ‘Thank-you for showing me where you like to play, I will make a print and bring it back next week’.

Appendix 18 – Audit trail exemplar

1. Pre study: Conceptual map of case study developed Figure 4 based on a Venn diagram.
2. First interviews with staff at Banksia Childcare Centre on 22-04-08 highlighted the sandpit as a problematic children's play area and perspectives were offered about the causes.
3. Such perspectives prompted my Professional Journal reflections on 18-07-08 about the shortcomings of the initial conceptual map, in particular the notions of internal and external, human and non-human were questioned. The lived experiences of staff around the sandpit seemed not to fit such groupings and there was significant blurring of the boundaries.
4. Second interviews with staff at Banksia Childcare Centre on 19-08-08 highlighted relationships issues with external council agencies with respect to other outdoor projects.
5. Post study: Reconceptualisation of map drawing on systems theory focussing on interactive relationships and using the sandpit as an example.

Appendix 19 – UNE Ethics approval



RESEARCH SERVICES

Armidale NSW 2351 Australia
Telephone (02) 6773 2070, Fax (02) 6773 3543

HUMAN RESEARCH ETHICS COMMITTEE

MEMORANDUM TO: A/Prof N McCrea, Dr H Edwards & Ms S Elliott
School of Education

This is to advise you that the Human Research Ethics Committee has approved the following:

PROJECT TITLE: Investigating sustainable outdoor play spaces in Early Childhood Centres.

COMMENCEMENT DATE: 01/04/2008

COMMITTEE APPROVAL No.: HE08/009

APPROVAL VALID TO: 01/04/2009

COMMENTS: Nil. Conditions met in full.

The Human Research Ethics Committee may grant approval for up to a maximum of three years. For approval periods greater than 12 months, researchers are required to submit an application for renewal at each twelve-month period. All researchers are required to submit a Final Report at the completion of their project. The Progress/Final Report Form is available at the following web address: <http://www.une.edu.au/research-services/forms/hrecfinalreport.doc>

The *NHMRC National Statement on Ethical Conduct in Research Involving Humans* requires that researchers must report immediately to the Human Research Ethics Committee anything that might affect ethical acceptance of the protocol. This includes adverse reactions of participants, proposed changes in the protocol, and any other unforeseen events that might affect the continued ethical acceptability of the project.

In issuing this approval number, it is required that all data and consent forms are stored in a secure location for a minimum period of five years. These documents may be required for compliance audit processes during that time. If the location at which data and documentation are retained is changed within that five year period, the Research Ethics Officer should be advised of the new location.



22/02/2008

Jo-Ann Sozou
Secretary

Appendix 20 – Request to local government for approval

Manager Children's Services

City of X

5th March 2008

Dear Manager,

I (Sue Elliott) am currently studying a Doctorate of Education at the University of New England, Armidale NSW. As part of my study I will be undertaking a research project entitled 'Investigating Sustainable Outdoor Playspaces in Early Childhood Centres' during 2008. I originally trained as a kindergarten teacher and have a current Working with Children Check. After many years experience as a teacher with young children and as a lecturer training early childhood educators I have now chosen to focus on research in the early childhood sector.

The proposed research project has arisen from my interest in exploring perceptions about natural playspaces and Education for Sustainability (EfS) in early childhood centres. Natural playspaces including plants, rocks and logs provide many opportunities for children's play and direct contact with nature. This project will consider broadly the links between natural playspaces and EfS. Children, parents and early childhood educators are often involved in the development of natural outdoor playspaces in early childhood centres. In so doing they may also be promoting EfS. I question how does the process of developing a natural playspace reflect the principles of EfS? Ultimately, the research aims to generate a theory about what is a sustainable outdoor playspace in an early childhood centre context. This research is important due to growing government and community awareness of sustainability issues and the lack of research about EfS in early childhood centres.

Three centres will be involved as case studies in the research. The planned approach to the research project is both collaborative and participatory with the intention of practical and positive outcomes for the centres involved. A major part of the project is that each centre will be invited to select an aspect of the outdoor playspace as a focus for change. The intention is that the early childhood educators, parents, children and the research facilitator work together to create change. Depending on the aspect for change chosen by the centre, some financial outlay by the centre may be required to cover material or labour costs.

Parents and early childhood educators will be invited to participate in two interviews (up to one-hour each). There will also be two focus group discussions (up to two hours each). Both interviews and focus groups will be sound recorded to ensure discussion can be accurately documented. Information will also be gathered via photographs, children's artwork and children's verbal responses to the playspace. I will also observe and read relevant centre policies, programs and philosophy over the period of the project. All information will be collected at the centre during usual operating hours, when staff are present. The information collected during the research will be stored in a locked filing cabinet in the researcher's office and destroyed after five years.

The research study will involve contact with each centre's community approximately fortnightly

over a four-month period. There will be one post project week, two months after implementation. Contact visits will be arranged at mutually convenient times. It is intended that the information gathering stage will be completed by March 2009 and the written work completed by March 2010.

The information gathered during the research project would be later reported at relevant conferences and published in research journals. Personal or centre names will not be used in reporting the research. Anonymity and confidentiality is assured by use of a coding system and pseudonyms. Also, any photographs publicly presented will be cropped/resized to eliminate any identifiable details or persons and maintain confidentiality. Copies of published research reports will be provided to each centre and the local government.

Permission to conduct this research is initially sought from the centre's managing body and coordinator. If the centre management body and coordinator are willing to participate, consent will also be requested from individual parents and staff at the centre. Also, parents will be invited to consent to their child's involvement. Centres or participants may withdraw permission at anytime during the research project. In addition, children will be offered the right of assent during the research.

This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No. HE08/009 Valid to 01 /04 /2009). Should you have any complaints concerning the manner in which the research is conducted, please contact the Research Ethics Officer at the following address:

Research Services
University of New England
Armidale, NSW 2351
Telephone: 02 67733449 fax 02 67733543
Email: ethics@une.edu.au

Further, if you have any queries or concerns about this research please do not hesitate to contact my supervisors or myself by email/phone or discuss the project in person with me at the centre.

Contact Details:

Investigator
Sue Elliott
RMIT University
PO Box 71 Bundoora VIC 3083
susan.elliott@rmit.edu.au
03 99257804

Supervisors
Associate Professor Nadine McCrea
University of New England
Armidale NSW 2351
nmccrea@une.edu.au
02 67732039

Dr Helen Edwards
University of New England
Armidale NSW 2351
helen.edwards@une.edu.au
02 67732078

Yours sincerely,

Sue Elliott

Appendix 21 – Invitation to participate for centre management body

Date

Dear..... Committee of Management,

I am currently studying for a Doctorate of Education at the University of New England, Armidale NSW. As part of my study I will be undertaking a research project entitled 'Investigating Sustainable Outdoor Playspaces in Early Childhood Centres.'

I will be undertaking this project in three early childhood centres. I am writing to seek permission for the involvement of your centre in the project. In the attached Participant Information Sheet I have provided details regarding how the centre staff, parents and children would participate in the project if permission is granted.

If you have any queries regarding the information supplied I can be contacted as indicated and am happy to support this request with a verbal presentation to your Committee of Management.

A written reply to this request at your earliest convenience would be appreciated.

Yours sincerely,

Sue Elliott

This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No. HE08/009 Valid to 01 /04 /2009).

Should you have any complaints concerning the manner in which this research is conducted, please contact the Research Ethics Officer at the following address:

Research Services
University of New England
Armidale 2351
Telephone: 02 6773 3449
Facsimile: 02 6773 3543
Email: ethics@une.edu.au

Appendix 22 – Coding of participants

Banksia Childcare Centre (X)

8 staff - XS1, XS2, XS3, XS4, XS5, XS7, XS8, XS9

6 parents - XP1, XP2, XP3, XP4, XP6, XP7

Acacia Kindergarten (Y)

3 staff - YS1, YS2, YS3

5 parents - YP1, YP2, YP4, YP5, YP6

Appendix 23 – Invitation to participate for adults

March 31st, 2008

Dear

I am currently studying a Doctorate of Education at the University of New England, Armidale NSW. As part of my study I will be undertaking a research project entitled 'Investigating Sustainable Outdoor Playspaces in Early Childhood Centres' during 2008.

I will be conducting the project in your centre. The Committee of Management has approved that Banksia Childcare Centre participate in the project from April to July 2008 and briefly in October 2008. I am now writing to invite individual staff and parents at the centre to participate in the project. If you are interested in participating please read the attached Participant Information Sheet. It provides details about the project and how participants will be involved. Feel free to sign the individual consent form attached and return if you wish to participate.

If you require further information about the project please contact me as indicated or make contact with me at the next centre staff meeting on April 15th.

Yours sincerely,

Sue Elliott

Appendix 24 – Plain language statement

Date

Dear.....

I (Sue Elliott) am currently studying a Doctorate of Education at the University of New England, Armidale NSW. As part of my study I will be undertaking a research project entitled 'Investigating Sustainable Outdoor Playspaces in Early Childhood Centres' during 2008. After many years experience as a kindergarten teacher and as a lecturer training early childhood educators I have chosen to now focus on research in early childhood.

This project will consider the links between natural playspaces that provide opportunities for children's play and direct contact with nature and Education for Sustainability. Children, parents and early childhood educators are often involved in the development of natural outdoor playspaces in early childhood centres. By doing this they may also be promoting Education for Sustainability. The research aims to generate a theory about what is a sustainable outdoor playspace in an early childhood centre. This research is important due to growing awareness of sustainability issues and the lack of research in this area in early childhood centres.

Three centres will be involved as case studies in the research. The approach to the project is collaborative and participatory with the aim of practical and positive outcomes for the centres involved. A major part of the project is that each centre will be invited to select an aspect of the outdoor playspace as a focus for change. In each centre the early childhood educators, parents, children and the researcher will work together to create a change.

Parents and staff will be invited to participate in two interviews (up to one hour each). There will also be two small focus group discussions (up to two hours each). Both interviews and focus groups will be sound recorded so comments can be accurately documented. Information will also be gathered via photographs, children's artwork and children's verbal responses to the playspace. I will also observe in the playspace and read relevant written centre information. All information will be collected at the centre during usual operating hours, when staff are present. The information collected during the research will be stored in a locked filing cabinet in the researcher's office and destroyed after five years.

The project will involve contact with each centre approximately fortnightly over a four-month period. There will be one post project week, two months after developing the playspace change. Contact visits will be arranged at mutually convenient times. It is intended that the whole research project will be completed by March 2009 and the written up by March 2010.

The information gathered during the research project will be reported at conferences and published in journals. Personal or centre names will not be used in reporting the research. Anonymity and confidentiality is assured by use of a coding system. Also, any photographs publicly presented will be cropped/resized to eliminate identifiable details or persons and maintain confidentiality. Copies of published research reports will be provided to each centre.

Permission to conduct this research has been given by the centre's Committee of Management. Consent is requested from individual parents and staff at the centre. Also, parents are invited to consent to their child's involvement. Centres or participants may withdraw permission at anytime during the research project. In addition, children will be offered the right of assent prior to any participation in the research.

This project has been approved by the Human Research Ethics Committee of the University of New England (Approval No. HE08/009 Valid to 01 /04 /2009). Should you have any complaints concerning the manner in which the research is conducted, please contact the Research Ethics Officer at the following address:

Research Services
University of New England
Armidale, NSW 2351
Telephone: 02 67733449 fax 02 67733543
Email: ethics@une.edu.au

Further, if you have any queries or concerns about this research please do not hesitate to contact my supervisors or myself by email/phone or discuss the project in person with me at the centre.

Contact Details:

Investigator
Sue Elliott
RMIT University
PO Box 71 Bundoora VIC 3083
susan.elliott@rmit.edu.au
03 99257804

Supervisors

Associate Professor Nadine McCrea
University of New England
Armidale NSW 2351
nmccrea@une.edu.au
02 67732039

Dr Helen Edwards
University of New England
Armidale NSW 2351
helen.edwards@une.edu.au
02 67732078

Yours sincerely,

Sue Elliott

Appendix 26 – Consent form for children

Research project title: ‘Investigating Sustainable Outdoor Playspaces in Early Childhood Centres.’

Persons responsible for project:

Investigator

Sue Elliott RMIT University

PO Box 71 Bundoora VIC 3083

susan.elliott@rmit.edu.au

03 99257804

Supervisors

Associate Professor Nadine McCrea

University of New England

Armidale NSW 2351

nmccrea@une.edu.au

02 67732039

Dr Helen Edwards

University of New England

Armidale NSW 2351

helen.edwards@une.edu.au

02 67732078

I.....have read the information contained in the Information Sheet for Participants. Any questions I have asked have been answered to my satisfaction. I agree for my child to participate in this activity. I realise that I may withdraw my child at any time. My child can withdraw by declining assent when asked by the investigator. I agree that research data gathered for the study may be published, provided my name or my child’s name is not used.

Please circle your response to the following questions:

1. Do you understand the nature of the research sufficiently well to make a free informed decision on behalf of your child?

YES NO

2. Are you satisfied that the circumstances in which the research is being conducted provide for the physical, emotional and psychological safety of the child on whose behalf you are giving consent?

YES NO

3. Are you willing for your child to be photographed during participation in the project?

YES NO

4. Are you willing for your child's conversations recorded during participation in the project?
YES NO

5. Are you willing for your child's artwork to be collected and kept by the investigator during participation in the project?
YES NO

.....
Participant Date

.....
Investigator Date

Investigator coding: Centre X Y Z Child 1 2 3 4 5 6 7 8 9 10

Appendix 27 – Summary of numbers of consent forms sent and returned

<i>Banksia Childcare Centre</i>	<i>Acacia Kindergarten</i>
11 staff consent forms sent	3 staff consent forms sent
8 staff consent forms returned	3 staff consent forms returned
73% return rate	100% return rate
50 parent consent forms sent	20 parent consent forms sent
6 parent consent forms returned	5 parent consent forms returned
12% return rate	25% return rate

Appendix 28 – Note placed on centre notice board

Dear Acacia Kindergarten Staff and Parents,

My name is Sue Elliott and I will be engaged in a research project with your kindergarten over the next few months focussing on the outdoor playspace. The Kindergarten Committee of Management has consented to the kindergarten's involvement in the project. Please find further information about the project in the letters sent to staff and four-year old group parents. I hope to receive some replies soon and look forward to working with you all.

Many Thanks

Sue Elliott



Appendix 29 – Banksia Childcare Centre traditional garden bed of non-native plants at the commencement of the study



Appendix 30 – Banksia Childcare Centre non-native plants dying at the commencement of the study



Appendix 31 – Banksia Childcare Centre disused vegetable garden at the commencement of the study



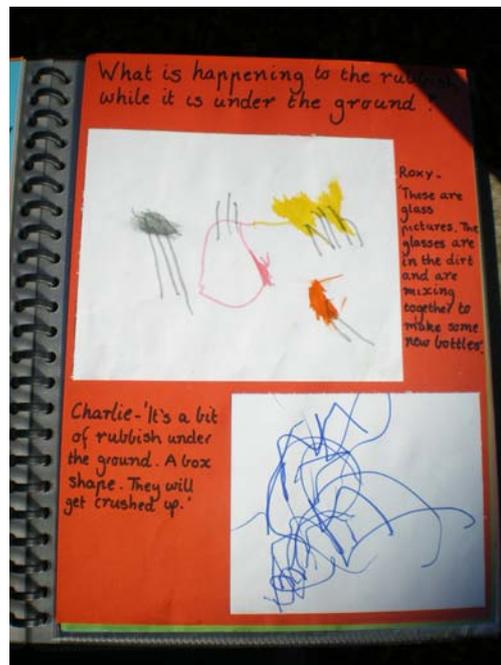
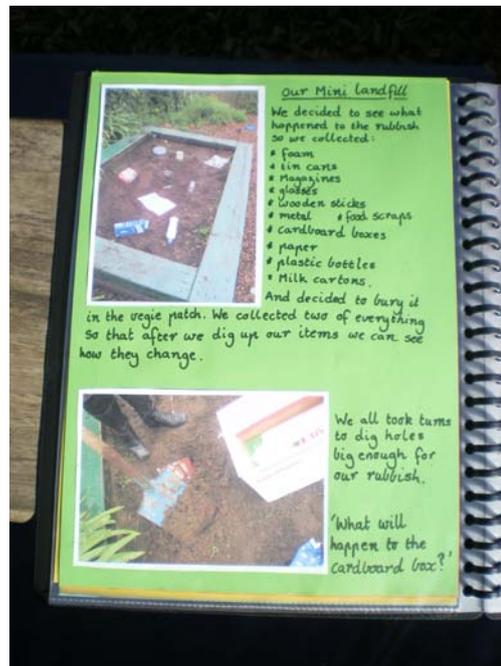
Appendix 32 – Banksia Childcare Centre sandpit at the commencement of the study



Appendix 33 – Banksia Childcare Centre children’s drawings about rubbish displayed in the centre foyer following initial environmental explorations with staff to identify a centre action priority



Appendix 34 – Banksia Childcare Centre children’s reflections and photographs recorded in their environment portfolio following initial environmental explorations with staff to identify a centre action priority



Appendix 35 – Banksia Childcare Centre children’s experiences included a mini worm farm and worm puppet play as part of initial environmental explorations with staff to identify a centre action priority



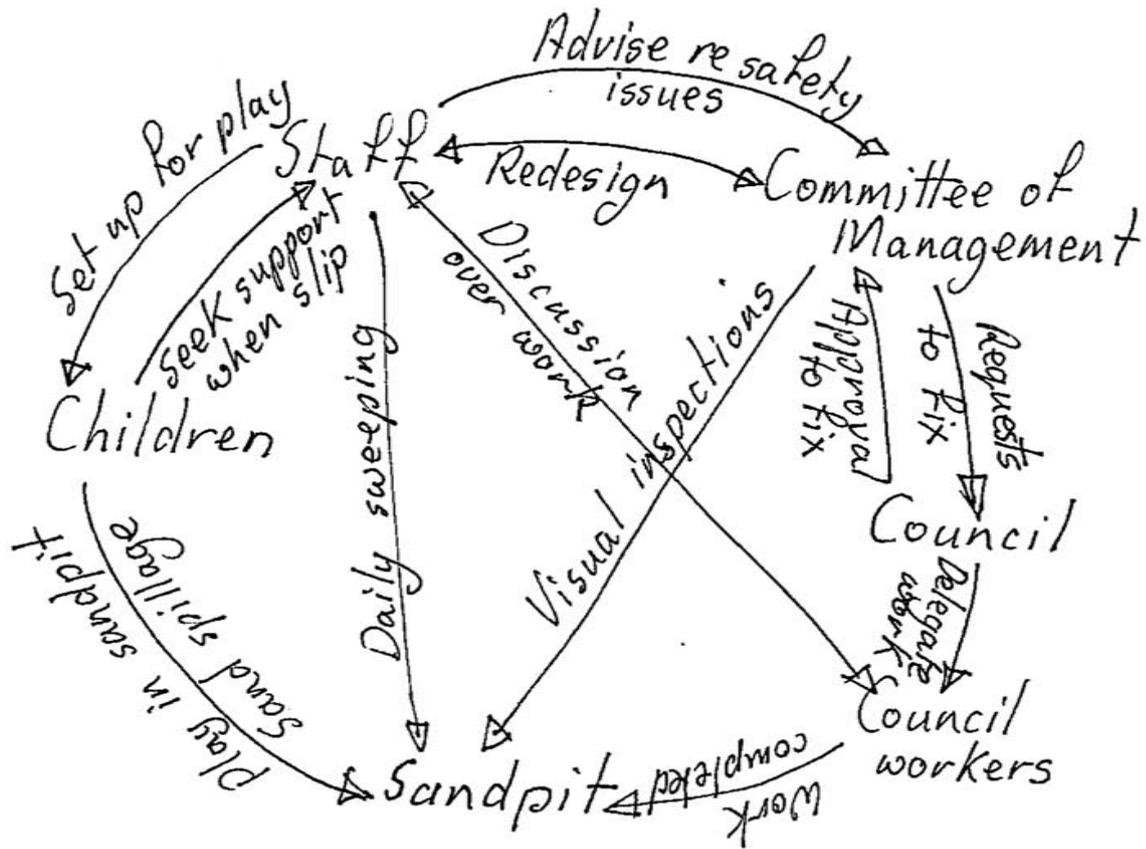
Appendix 36 – Banksia Childcare Centre children’s experiences included a mini-landfill in the disused vegetable garden as part of initial environmental explorations with staff to identify a centre action priority



Appendix 37 – Banksia Childcare Centre worm farm as set up by children, staff and parents at the centre working-bee



Appendix 38 – Reconceptualising the concept map with a systems approach to the Banksia Childcare Centre sandpit



Appendix 39 – Acacia Kindergarten action priority bird box



Appendix 40 – Acacia Kindergarten program plan example

wk ending 23/5/08.	
1	2
<p>Green Group - Mon + wed 8:45 - 1:45 pm</p> <p>Red Group - Tues 8:45 - 12:15 am. Thurs 1:30 - 4:30 pm Fri - 8:45 - 12:15 am.</p>	<p>→ obstacle course</p> <p>- sandpit - trucks - plants of wood + blocks to make ramps</p> <p>* dramatic play - add food to cubby + extra table / chairs</p> <p>- basket ball ring -</p> <p>- add small sand tray with horses / car set</p> <p>- coloured chalk - for beards</p> <p>- hoops on grass.</p> <p>- trampoline.</p> <p>* - duck, duck, goose</p> <p>- fishing game.</p>
3	<p>- Ariana to be supported through ob course</p> <p>- Irene - ob course.</p> <p>→ dramatic play - more scenarios.</p>

Appendix 41 – Acacia Kindergarten Indigenous wall mural at the conclusion of the study



Appendix 42 – Acacia Kindergarten bird feeder at the conclusion of the study



Appendix 43 – Banksia Childcare Centre program plan example

No. 21 FN/E – 24 th October 2008 Group Objective/s: see indoor plan	Learning Experience	Materials	Learning area	Modification
<p>Sand play with a variety of sand equipment – Further encourage the chn’s investigative skills by providing them with opportunities to explore the cylinders and volume concepts by providing them with a range of cylinders of different lengths. Encourage chn to work in small groups to use a variety of sand tools to sculpt and build in the sandpit.</p>	<p>Learning Experience Further encourage the chn’s investigative skills by providing them with opportunities to explore the cylinders and volume concepts by providing them with a range of cylinders of different lengths. Encourage chn to work in small groups to use a variety of sand tools to sculpt and build in the sandpit.</p>	<p>Materials Sandpit, Large shovels, trucks, diggers, planks and variety of sized cylinders...</p>	<p>Learning area Cognitive Language social</p>	<p>Modification</p>
<p>Climbing Equipment – Redesign and implement a new climbing course to encourage the children’s climbing skills further. Encourage the chn to take calculated risks to further their own skills and therefore enhancing their self awareness and esteem.</p>	<p>Learning Experience Redesign and implement a new climbing course to encourage the children’s climbing skills further. Encourage the chn to take calculated risks to further their own skills and therefore enhancing their self awareness and esteem.</p>	<p>Materials 2 large s-frames, safety mats, ladder, 3 beams, balance</p>	<p>Learning area Gross motor Language social</p>	<p>Modification</p>
<p>Bikes – Encourage chn to take turns of the bikes, and to encourage listening skills by adding the traffic lights to the bike track. Encourage chn to use the peddles.</p>	<p>Learning Experience Encourage chn to take turns of the bikes, and to encourage listening skills by adding the traffic lights to the bike track. Encourage chn to use the peddles.</p>	<p>Materials Bike, traffic lights</p>	<p>Learning area G.motor Social Cognitive</p>	<p>Modification</p>
<p>Veggie Patch planting: Discuss with the chn the veggie patch and what veggies we can grow for us to eat and use in the centre cooking. Provide the chn with opportunities to engage in “real work” as they plant and take daily care of the veggies. Track progress in various ways to allow the chn, e.g. drawing, comments, etc.</p>	<p>Learning Experience Discuss with the chn the veggie patch and what veggies we can grow for us to eat and use in the centre cooking. Provide the chn with opportunities to engage in “real work” as they plant and take daily care of the veggies. Track progress in various ways to allow the chn, e.g. drawing, comments, etc.</p>	<p>Materials drawing materials, seeds, etc.</p>	<p>Learning area Creative Social cog, lang fine motor</p>	<p>Modification</p>
<p>Bush Cubby area: Introduce the chn to the new hide out area, and provide them with opportunities to engage in play using a variety of open ended materials. Add the cheese crates to the area to provide them a table area or seating within their play. As the program evolves, add more materials to follow on from the direction of the chn’s play.</p>	<p>Learning Experience Introduce the chn to the new hide out area, and provide them with opportunities to engage in play using a variety of open ended materials. Add the cheese crates to the area to provide them a table area or seating within their play. As the program evolves, add more materials to follow on from the direction of the chn’s play.</p>	<p>Materials Material, cheese crates, pine cones, tea set.</p>	<p>Learning area Social language, creative Fine motor</p>	<p>Modification</p>
<p>Education for Sustainability – Mini Landfill: Following on from children’s previous work and discussions about recycling, demonstrate how rubbish breaks down in tips. Bury a variety of materials and water on a daily basis, using left over water from lunch. Discuss regularly what they think is happening to each of the items under the ground.</p>	<p>Learning Experience Following on from children’s previous work and discussions about recycling, demonstrate how rubbish breaks down in tips. Bury a variety of materials and water on a daily basis, using left over water from lunch. Discuss regularly what they think is happening to each of the items under the ground.</p>	<p>Materials Plastic, paper, cardboard, , etc.</p>	<p>Learning area Cognition, environmental science, Lang. social.</p>	<p>Modification</p>
<p>Books – Follow on from the chn’s interest in listening to stories, by providing them with opportunities to engage with books and listen to stories in the outdoor relaxing environment.</p>	<p>Learning Experience Follow on from the chn’s interest in listening to stories, by providing them with opportunities to engage with books and listen to stories in the outdoor relaxing environment.</p>	<p>Materials Books, cushions.</p>	<p>Learning area language, social, cognitive.</p>	<p>Modification</p>
<p>House, rope people, and blocks – Provide the chn with opportunities to explore the house play in the outdoor environment. Encourage the chn to incorporate a variety of materials gathered in the yard within their play, e.g. flowers, leaves. Encourage the chn to develop story lines with their play.</p>	<p>Learning Experience Provide the chn with opportunities to explore the house play in the outdoor environment. Encourage the chn to incorporate a variety of materials gathered in the yard within their play, e.g. flowers, leaves. Encourage the chn to develop story lines with their play.</p>	<p>Materials Blocks, ppl, cars, etc. Material</p>	<p>Learning area Social, gross/fine motor, cog.</p>	<p>Modification</p>
<p>Weaving – Follow on from the indoor sewing, encourage chn to assist in making a large weaving frame from large sticks. Then encourage the chn to weave different materials onto the weaving frame in their own ways.</p>	<p>Learning Experience Follow on from the indoor sewing, encourage chn to assist in making a large weaving frame from large sticks. Then encourage the chn to weave different materials onto the weaving frame in their own ways.</p>	<p>Materials Sticks, range of materials. Etc.</p>	<p>Learning area Fine and gross, cognitive, social.</p>	<p>Modification</p>
<p>Lego – Provide the chn with opportunities to design and construct with the lego. Encourage the chn to then role play with their designs independently or in small groups.</p>	<p>Learning Experience Provide the chn with opportunities to design and construct with the lego. Encourage the chn to then role play with their designs independently or in small groups.</p>	<p>Materials lego</p>	<p>Learning area Cognitive social language</p>	<p>Modification</p>
<p>Mud and Home play – Extend chn’s emerging play by providing the chn with opportunities to explore the changes to the dirt as they add water to their play. Encourage the chn to find the water around the yard, and to role play with the mud in their home play.</p>	<p>Learning Experience Extend chn’s emerging play by providing the chn with opportunities to explore the changes to the dirt as they add water to their play. Encourage the chn to find the water around the yard, and to role play with the mud in their home play.</p>	<p>Materials Home corner experience.</p>	<p>Learning area Language, social Gross</p>	<p>Modification</p>
<p>Finger Painting – Following on from chn’s interest in shaving cream, encourage chn to finger paint and create with the finger paint. Provide the chn with opportunities to take a print of their work using large brown paper. Encourage chn to explore their creative processes while working on the table.</p>	<p>Learning Experience Following on from chn’s interest in shaving cream, encourage chn to finger paint and create with the finger paint. Provide the chn with opportunities to take a print of their work using large brown paper. Encourage chn to explore their creative processes while working on the table.</p>	<p>Materials Finger paint, large paper, brush</p>	<p>Learning area Language, social Gross</p>	<p>Modification</p>
<p>Bird feeder project – Follow on from the bird feeder made during the last plan, and encourage the chn to observe changes to seed levels, record in appropriate ways any birds seen using the feeders, etc. Make a variety of feeders, as the design of the previous feeders are not as adequate for the birds to use.</p>	<p>Learning Experience Follow on from the bird feeder made during the last plan, and encourage the chn to observe changes to seed levels, record in appropriate ways any birds seen using the feeders, etc. Make a variety of feeders, as the design of the previous feeders are not as adequate for the birds to use.</p>	<p>Materials Home corner experience.</p>	<p>Learning area Language, social Gross</p>	<p>Modification</p>
<p>Steering Wheel – Encourage the chn take turns with the steering wheel, and take on different roles within their play. Encourage the chn to role play and develop storylines using the steering wheel, tying their play into other areas of the program. E.g. using it as a car for the home area play, etc.</p>	<p>Learning Experience Encourage the chn take turns with the steering wheel, and take on different roles within their play. Encourage the chn to role play and develop storylines using the steering wheel, tying their play into other areas of the program. E.g. using it as a car for the home area play, etc.</p>	<p>Materials Steering wheel.</p>	<p>Learning area Language, social Gross</p>	<p>Modification</p>