



NSW ECEEN
NSW Early Childhood Environmental Education Network

‘Sustainability as a different way of thinking everyday’

**Examining environmental education in NSW early childhood
education services:**

A literature review with findings from the field

June 2016

Sue Elliott & Nadine McCrea

with support from Lucie Newsome & Julie Gaul



Contents

List of Acronyms3

List of Tables and Figures5

EXECUTIVE SUMMARY.....6

DEFINITIONS OF KEY TERMS.....8

SECTION 1: INTRODUCTION 13

 Statement of intent 13

 Definitions: EfS, EE, ESD 13

 Initial overview of the ECEfS field..... 14

 Key enabling factors 17

 Key constraining factors 23

 The international ECEfS landscape 25

 Early childhood scope and context 27

SECTION 2: LITERATURE REVIEW..... 28

 Key principles underpinning ECEfS 28

 Theoretical Models..... 35

 Model 1 (Stanger, 2011)..... 35

 Model 2 (NSW Government Education and Training, 2009)..... 36

 Model 3 (Monroe, Andrews & Biedenweg, 2007) 38

 The Trust Frames and the literature 39

 Frame 1. Children’s knowledge and learning about sustainability 39

 Frame 2. Exemplary sustainable early childhood service role models 42

 Frame 3. Early childhood services as community hubs for sustainability..... 45

SECTION 3: FRAMING PROFESSIONAL LEARNING 48

 Broad characteristics of professional learning 50

 Forms of professional learning 51

 Professional Learning Models 56

SECTION 4: DEMOGRAPHICS OF THE NSW EARLY CHILDHOOD EDUCATION FIELD..... 60

SECTION 5: FIELD CONSULTATION 66

 Methodological approach 66

Data findings: Themes and clusters	69
Cluster 1: How to engage the early childhood education field?	70
Cluster 2: How to move beyond engagement to facilitate change?	74
Cluster 3: Who is involved?	77
Cluster 4: Why and how change occurs at a deeper level?	79
Cluster 5: What elements might enable or constrain change?	81
<i>SECTION 6: A SYNTHESIS OF FINDINGS FROM THE LITERATURE AND FIELD</i>	85
Frame 1. Children’s knowledge and learning about sustainability	85
Frame 2. Exemplary sustainable early childhood service role models	87
Frame 3. Early childhood services as community hubs for sustainability	90
<i>SECTION 7: BRINGING IT ALL TOGETHER</i>	92
Limitations	92
Possible actions for moving ECEfS forward across NSW	92
<i>SECTION 8: REFERENCES</i>	95
<i>SECTION 9: APPENDICES</i>	112
Appendix 1.1 Principles as stated in Living Sustainably: National Action Plan	112
Appendix 1.2 Australian Research Institute for Education for Sustainability principles of EfS	112
Appendix 1.3 Principles about education for sustainability for Early Childhood Australia Sue Elliott and Tracy Young (February 2012)	113
Appendix 1.4 Invitation to participate in study (Example)	114
Appendix 1.5 Interview/Focus Group Questions (Example)	116

LIST OF ACRONYMS

AAEE EC SIG: Australian Association for Environmental Education’s Early Childhood Special Interest Group

ACECQA: Australian Children’s Education and Care Quality Authority

ARIES: Australian Research Institute for Education for Sustainability

AuSSI: Australian Sustainable Schools Initiative

DCCEE: Commonwealth of Australia Department of Climate Change and Energy Efficiency

DESD: UN Decade of Education for Sustainable Development

EC: Early Childhood

ECA: Early Childhood Australia

ECCE: Early Childhood Care and Education

ECEfS: Early Childhood Education for Sustainability

EE: Environmental Education

EEEC: Environmental Education in Early Childhood Vic. Inc.

EESSA: Early Education for Sustainability South Australia Incorporated

EfS: Education for Sustainability

ESD: Education for Sustainable Development

ET: NSW Environmental Trust

EYLF: Early Years Learning Framework for Australia

LGS: Little Green Steps

NSW ECEEN: New South Wales Early Childhood Environmental Education Network

NSW EPA: New South Wales Environment Protection Authority

NQF: National Quality Framework

NQS: National Quality Standard

OMEP: World Organisation for Early Childhood Education

QA: Quality Area

QECEEN: Queensland Early Childhood Environmental Education Network

QECSN: Queensland Early Childhood Sustainability Network

TAFE: Technical and Further Education

UN: United Nations

UNCRC: United Nations Convention on the Rights of the Child

UNEP: United Nations Environment Program

UNESCO: United Nations Education Scientific and Cultural Organisation

LIST OF TABLES AND FIGURES

Table 1: Peak Australian EC and ECEfS Organisations – page 17

Table 2: Geography and size of NSW early childhood services –page 60

Table 3: Age of NSW early childhood educators by service type – page 61

Table 4: Early Childhood educators' qualification level – page 62

Table 5: Summary of research participants and their organisations – page 66

Table 6: Profiles of participating peak organisations – page 67

Figure 1: UNESCO (2010) four dimensions or pillars of sustainability page 14

Figure 2: A reworked ecologically based version of the socio-ecological model– page 36

Figure 3: Learning for sustainability: Components of Earth Citizenship – page 37

Figure 4: A framework for environmental education strategies - page 38

Figure 5. The Teaching and Learning Cycle from Quisumbing and de Leo – page 57

Figure 6: The sustainable self-model of Personalised Education for Sustainability

Development - page 58

EXECUTIVE SUMMARY

This *Report* offers a current and comprehensive response to the NSW Environmental Trust (ET, The Trust) project brief, entitled ‘Investigating early childhood education and care services environmental education programs’. The project implementation was guided by three project frames stated by the Trust namely: children’s knowledge and learning about sustainability; exemplary sustainable early childhood service role models; and, early childhood services as community hubs for sustainability. In addition, the Trust identified eight focal questions and negotiated with the consultancy team about which peak bodies within the NSW early childhood education field would participate in the project.

In Section 1, the *Report* offers definitions of key concepts, an initial overview of the ECEfS field including key enabling and constraining factors over the last decade plus snapshots of the international ECEfS landscape and the early childhood education sector overall. A review of both academic and practitioner literature, predominately from the period 2007-2014, follows in Section 2 and this is organised around the Trust frames as noted above. Broad characteristics and various forms of professional learning are discussed in Section 3, and demographics of the NSW early childhood sector follow in Section 4. Findings from focus groups and phone interviews with participants from nine peak early childhood organisations are presented as clustered themes in Section 5. The five clusters are:

Cluster 1: How to engage the early childhood education field?

Cluster 2: How to move beyond engagement to facilitate change?

Cluster 3: Who is involved?

Cluster 4: Why and how change occurs at a deeper level?

Cluster 5: What elements might enable or constrain change?

Then, Sections 6 and 7 bring the literature and findings from the field together; here, a number of areas are highlighted. These include: increasing the confidence and knowledge of educators in relation to translating ECEfS into pedagogical practice; and, acknowledging the critical importance of sustainability as a fully embedded and everyday aspect of early childhood education services. The prioritising of specific actions to support this process was evident, with potential actions including: professional learning for educators; the localised

mapping of potential community partnerships for sustainability; governance and change management support; infrastructure initiatives; and, tangible learning resources to support children and parents. Most importantly the inherent diversity of the early childhood education field, in terms of staff and settings, requires a suite of engagement strategies. Such strategies ought to recognise the multiple ECEfS starting points for both educators and services across NSW and appropriately align with current early childhood education philosophies and pedagogies.

This public document has been compiled from the following consultancy documents prepared and submitted to the NSW Environmental Trust in December, 2014:

Elliott, S., McCrea, N., Newsome, L. & Gaul, J. (unpublished). Project Investigating early childhood education and care services environmental education programs: Final Report. Sydney: NSW ET & NSW ECEEN.

Elliott, S., McCrea, N., Newsome, L. & Gaul, J. (unpublished). Project Investigating early childhood education and care services environmental education programs: Portfolio of activities. Sydney: NSW ET & NSW ECEEN.

DEFINITIONS OF KEY TERMS

Active involvement in learning: ‘Occurs in an active learning environment in which children are encouraged to explore and interact with the environment to make (or construct) meaning and knowledge through their experiences, social interactions and negotiations with others...educators play a crucial role of encouraging children to discover deeper meanings and make connections among ideas and between concepts, processes and representations. (Adapted from South Australian Curriculum Standards and Accountability (SACSA) Framework, General Introduction)ⁱ.

Advocacy: ‘Advancing the values, needs and interests of an individual or group within existing frames of reference’ⁱⁱ.

Agency: ‘Being able to make choices and decisions, to influence events and to have an impact on one’s world’ⁱ.

Anthropocentrism: ‘The belief that there is a clear and morally relevant dividing line between humankind and the rest of nature, that humankind is the only principal source of value or meaning in the world’ⁱⁱⁱ.

Co-construct: ‘Learning takes place as children interact with educators and other children as they work together in partnership’^{iv}.

Communities: ‘Social or cultural groups or networks that share a common purpose, heritage, rights and responsibilities and/or other bonds. “Communities” is used variously to refer, for example, to the community within early childhood settings, extended kinships, the local geographic community and broader Australian society’ⁱ.

Communities of practice: ‘Groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly’^v.

Continuities: Refers to the transfer of knowledge between families, communities, early childhood services and other stakeholders. De Gioia found that continuity of micro and macro cultural practices to be dependent upon the process of communication and staff attitudes^{vi}.

Critical reflection: ‘Reflective practices that focus on implications for equity and social justice’^{iv}. Within the context of sustainability in this report, intergenerational and interspecies equities are also essential to critical reflection.

Curriculum: ‘In the early childhood setting curriculum means “all the interactions, experiences, activities, routines and events, planned and unplanned, that occur in an

environment designed to foster children's learning and development" [adapted from Te Whariki]^{iv}.

Early childhood settings: 'Long day [child] care, occasional care, family day care, Multi-purpose Aboriginal Children's Services, preschools, playgroups, crèches, early intervention settings and similar services'^{iv}. To this definition we add mobile children's services and venues.

Ecocentric view: 'Where humans are recognised as an integral part of the natural environment depending on sustainable ecological relationships for sustenance, rather than forming relationships which dominate or destroy ecosystems'^{vii}.

Ecoliteracy: 'A cumulative knowledge base that describes local ecosystem components and their interactions most commonly derived from a pool of accumulated observations'^{viii}.

Eco-sociological models: Sociological models that incorporate environmental considerations and contribute to the 'context influences human development and construction of world views'^{ix}.

Education for Sustainability (EFS): *Education for sustainability* is incorporates principles such as rights based approaches and responsibilities, transformative approaches, systems theory, critically reflective thinking, participatory and experiential approaches, communities of practice, action orientated approaches including problem solving, equity and social justice, futures orientation, lifelong and intergenerational learning and holistic approaches^x.

Educators: 'Early childhood practitioners who work directly with children in early childhood settings'^{iv}.

Inclusion: 'Involves taking into account all children's social, cultural and linguistic diversity (including learning styles, abilities, disabilities, gender, family circumstances and geographic location) in curriculum decision-making processes. The intent is to ensure that all children's experiences are recognised and valued, and that all children have equitable access to resources and participation, and opportunities to demonstrate their learning and to value difference'ⁱ.

In-service early childhood educators: University or Technical and Further Education (TAFE) educated early childhood practitioners working in early childhood services.

Intentional teaching: 'Involves educators being deliberate, purposeful and thoughtful in their decisions and actions. Intentional teaching is the opposite of teaching by rote or continuing with traditions simply because things have 'always' been done that way'^{iv}.

Intergenerational learning: ‘The learning that occurs as a consequence of being exposed to different generations within a collective’^{xi}.

Learning framework: ‘A guide which provides general goals or outcomes for children’s learning and how they might be attained. It also provides a scaffold to assist early childhood settings to develop their own, more detailed curriculum’^{iv}.

Learning outcome: ‘A skill, knowledge or disposition that educators can actively promote in early childhood settings, in collaboration with children and families’^{iv}.

Mentoring: ‘An activity or relationship that occurs between two or more persons interested in advancing their knowledge, skills or position via a helping relationship’^{xii}.

Nature-based experiences: Early childhood education experiences centred on interacting with the natural environment are seen as vital ‘for enhancing sensory awareness; respect for nature; ecological knowledge and encountering connectedness’^{xiii}. However, nature-based learning is only one component of EfS.

Networking: Building ‘links between social acquaintances, friends, and relatives...of primary importance [is] the relational facets of social networks that link people’s actions to the group, which take precedence over individual agency’^{xiv}.

Participatory learning: When ‘children develop through participation in the everyday activities and practices of communities... Knowledgeable peers and adults in multifaceted roles support children to explore and construct new understandings, knowledge and skills’^{xv}. To this definition we add that adults also engage and benefit from participatory learning.

Participatory decision-making: ‘Defined as a style of working in which superordinates and subordinates work together as equals rather than in a hierarchical arrangement’^{xvi}.

Pedagogies: ‘Practices that are intended to promote children’s learning’^{iv}.

Pedagogy: ‘Early childhood educators’ professional practice, especially those aspects that involve building and nurturing relationships, curriculum decision making, teaching and learning’^{iv}.

Play-based learning: ‘A context for learning through which children organise and make sense of their social worlds, as they engage actively with people, objects and representations’^{iv}.

Pre-service early childhood educators: Individuals who have been accepted into early childhood education University or TAFE level studies, but have not yet completed a course to be an educator or teacher.

Professional learning: ‘Changes in the thinking, knowledge, skills, and approaches to instruction that form practicing teachers’ or administrators’ repertoire’^{xvii}. We employ this term here, rather than the term ‘professional development’.

Professional learning communities: ‘Educators who value engagement in professional learning, actively seek to foster ways of building on their professional knowledge and skills continuously by working together as a group’ⁱⁱ.

Purposefully framed play: ‘involves play experiences in which the teacher provides children with materials suggestive of a sustainability concept and provides opportunities for open-ended play, followed by modelled play and then teacher child interaction/engagement’^{xviii}.

Rights of the child: ‘The Convention on the Rights of the Child (CROC) (United Nations (UN), 1989) requires countries to act in the ‘best interests’ of the child. It was ratified by Australia in 1990. The rights of the child are embedded in the Code of Ethics (ECA, 2006) used by early childhood educators in this country’ⁱⁱ.

Scaffolding: ‘The educators’ decisions and actions that build on children’s existing knowledge and skills to enhance their learning’^{iv}.

Social capital: ‘The trust, reciprocity and networks that contribute to the social wealth or assets of well-being created through community engagement’ⁱⁱ.

Sociocultural theory: ‘The theory that children assimilate their culture through a range of interactions with their family and community’^{xix}. This theory underpins the current *Belonging, Being, Becoming: The Early Years Learning Framework for Australia* (DEEWR, 2009)

Systems theory/systems thinking: ‘Prioritises relationships; and, multiple complex and dynamic interdependencies are recognised within such a perspective’^{xx}.

Transformative learning: ‘Learning that transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change’^{xxi}.

Wellbeing: ‘Sound wellbeing results from the satisfaction of basic needs—the need for tenderness and affection; security and clarity; social recognition; to feel competent; physical needs and for meaning in life (adapted from Laevers 1994). It includes happiness and

satisfaction, effective social functioning and the dispositions of optimism, openness, curiosity and resilience^{iv}.

Whole-school/centre approaches to EfS: ‘Whole-school approaches to EfS aim to critically review practices across the whole life of the school with regard to educating for sustainability. The process of critiquing and changing aspects of unsustainability in a school becomes a focus for teaching and learning. Actions and the associated changes within the school and wider community are a result of investigation, review and participatory decision making, whereby the school becomes an evolving model of sustainability’^{xxii}.

Footnote references:

ⁱ Department of Education and Early Childhood Development (Victoria) (2009)

ⁱⁱ Waniganayake et al(2012)

ⁱⁱⁱ Eckersley (1992)

^{iv} Commonwealth of Australia Department of Education, Employment & Workplace Relations (DEEWR) (2009)

^v Wenger (2006)

^{vi} De Gioia (2009)

^{vii} Littledyke, Taylor & Eames (2009)

^{viii} Pilgrim, Smith and Pretty (2007)

^{ix} Stanger (2011)

^x Commonwealth DEH (2005), Commonwealth DEWHA (2009), Davis, 2010

^{xi} Brennan & Clarke (2011)

^{xii} Black & Zullo (2008)

^{xiii} Zylstra (2004)

^{xiv} Sullivan (2009)

^{xv} Mayer & Lloyd (2011)

^{xvi} Hedges & Cullen (2012)

^{xvii} Wood (1985)

^{xviii} Edwards & Cutter-Mackenzie (2013)

^{xix} Griffith & Kowalski (2009)

^{xx} Capra (2002)

^{xxi} Mezirow (2003)

^{xxii} Eames, Wilson-Hill, & Barker (2013)

SECTION 1: INTRODUCTION

This introductory section provides a statement of intent in relation to the NSW Environmental Trust (ET, Trust) project brief, defines key concepts, offers an initial overview of the Early Childhood Education for Sustainability (ECEfS) field including key factors enabling and constraining ECEfS over the last decade and snapshots of the international ECEfS landscape and the early childhood sector.

Statement of intent

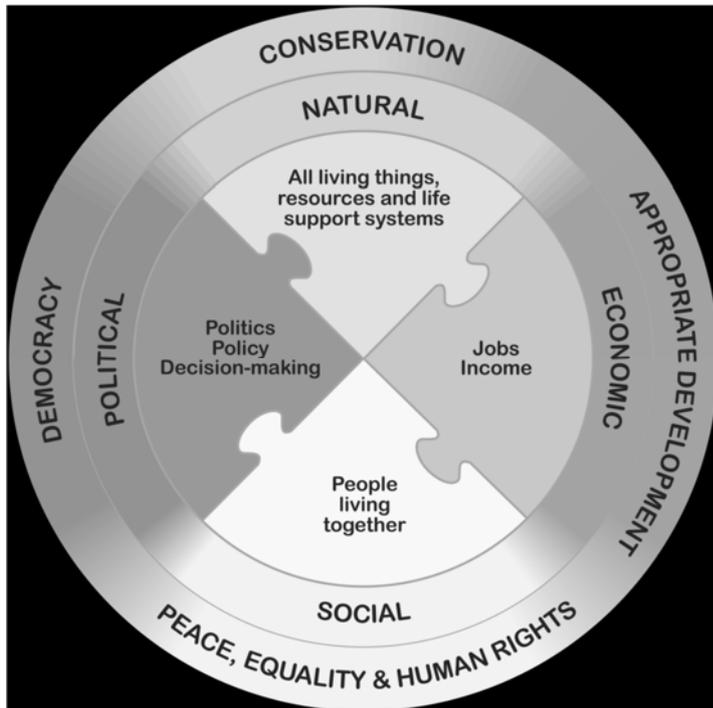
The intent of this report is to offer a current and comprehensive response to the Trust's project brief entitled 'Investigating early childhood education and care services environmental education programs'. The report is organised around the three project frames stated in the project brief namely: children's knowledge and learning about sustainability; exemplary sustainable early childhood service role models; and, early childhood services as community hubs for sustainability. These frames are interwoven with the clustered themes that emerged from focus group and phone interview data as shared by participants from nine peak early childhood organisations. Therefore, the report offers a current snapshot of insights from the NSW field around education for sustainability; this is augmented by both academic and practitioner literature predominately from the period 2007-2014.

Definitions: EfS, EE, ESD

Definitions of the terms *education for sustainability (EfS)*, *environmental education (EE)* and *education for sustainable development (ESD)* are much debated and contested in the academic literature and across various professional organisations and governments. The following synopsis is one interpretation presented to guide the reader regarding terms employed throughout the project documents. Historically, the term *environmental education* was adopted in light of increasing global environmental concerns and internationally seen as the antidote (UNESCO UNEP, 1975; UNESCO UNEP, 1977). *Environmental education* was applied during the 1980s until *The Brundtland Report* (WCED, 1987) and *Agenda 21* (UNCED, 1992) were released. These key documents heralded 'sustainability' as a more encompassing term, as depicted in Figure 1. The concept of sustainability is both complex and dynamic; it incorporates multiple perspectives or dimensions and most critically sustainability is ongoing, evolving over almost incomprehensible extended timeframes.

Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 13

Figure 1: UNESCO (2010) four dimensions or pillars of sustainability



For many, *education for sustainability* has replaced *environmental education* as the preceding historical discussion reflects; but, both terms are still employed, interchangeably in some instances (Commonwealth DEH, 2005). Internationally, *environmental education* seems to be favoured in the United States of America, while *education for sustainable development* (ESD) is mostly employed in Europe (UNESCO, 2005a). *Education for sustainability* is currently the preferred term in Australia and typically it is described by a list of principles (Commonwealth DEH, 2005; Commonwealth DEWHA, 2009; Davis, 2010); these are explored in full later.

Initial overview of the ECEfS field

This overview provides an historical perspective with particular reference to constraining and enabling factors over the last decade; understandings of these factors are critical to moving forward. Then, we describe the international early childhood education for sustainability (ECEfS) landscape. Also, Davis and Elliott (2014) provide a chronology that supports the historical milestones across the field of ECEfS.

The early 1990s is often identified as a starting point in this field, when both Australian and American publications first made explicit connections between early childhood education and environmental education (Elliott & Emmett, 1991; Gordon Community Children's Centre, 1993; Wilson, 1993; 1994). In particular, Tilbury (1994) described the critical importance of the early years for life-long positive environmental attitudes, while Palmer (1995) researched the potential of fostering young children's environmental knowledge and skills. During this early phase practitioner publications often focussed on nature activities in the environment (Cousins, 1996; Faragher & Salter, 1994; Lewis-Webber, 1993; Shantal, 1998); however, research informing pedagogy and theorising about early childhood environmental education was absent. In particular, the publications at the time were about children doing things 'in' and 'about' the environment, but not necessarily being agents 'for' the environment.

Interesting parallel developments were: the emergence of theories around the new sociology of childhood (Corsaro, 1997) that viewed children as social participants; and, the release of the *United Nations Convention on the Rights of the Child* (UNCRC) (UNICEF, 1989) which promoted children's rights to participate in decision-making about matters impacting on them today and into their futures. Thus, the scene was set for children to be 'doing more' than nature activities, and also being more environmentally knowledgeable and skilful. Yet, children's environmental agency is still an important and major work in progress, as discussed later.

Over two decades state-based professional networks were established across Australia to advocate for early childhood environmental education, to offer support and to build a resource-base for practitioners; the networks are:

- Environmental Education in Early Childhood Vic. Inc. (EEEC);
- New South Wales Early Childhood Environmental Education Network (NSW ECEEN) (recipient of this Trust consultancy tender); and,
- Queensland Early Childhood Sustainability Network (QECSN), formerly the Queensland Early Childhood Environmental Education Network (QECEEN).

These networks along with the national Australian Association for Environmental Education's Early Childhood Special Interest Group (AAEE EC SIG; established in 2003), now form an ECEfS national alliance and advocacy group. Such active, focussed active

professional networks are unique to Australia. They have provided much on-the-ground support and momentum when government policy, professional leadership and early childhood practitioner/setting initiatives in environmental education were lacking. During the development of this project and report, a further network has been established in South Australia (Early Education for Sustainability South Australia Incorporated (EESSA)). Additionally, there are movements happening now for initiating networks in both Tasmania and Western Australia.

A decade ago a benchmark publication (and to date the only Australian review ever commissioned) was funded by the New South Wales Environment Protection Authority (NSW EPA). It was a review of early childhood environmental education across Australia entitled *Patches of Green* (NSW EPA, 2003). As the title suggested at the time, the implementation of environmental education was patchy and those patches were described as 'exemplary individuals, organisations and centres that share a passion and commitment to the importance of early childhood environmental education' (NSW EPA, 2003, p. 1). In particular, the review advocated a broad systemic approach to engaging and supporting the early childhood field to embrace ECEfS with resources, professional learning and research as a way forward. These ideas were restated in subsequent publications (Davis, 2009; Davis & Elliott, 2007; Tilbury et al, 2005). In summary, the catch phrase 'mainstream not marginal' (Davis, 1999) characterised this early period when those advocating for and implementing early childhood environmental education were considered to be on the margins rather than within the mainstream of either the early childhood education or environmental education fields.

Change has been clearly evident over the last decade; with various levels of government, particularly local government, and peak early childhood organisations taking an active role. There have been various developments across pre-service and in-service training, further publications and focussed conference opportunities. In Australia, since the implementation of the *National Quality Framework* (NQF) (COAG, 2008), which incorporates the national curriculum *Belonging, Being and Becoming: Early Years Learning Framework for Australia* (EYLF) (Commonwealth DEEWR, 2009) and the *National Quality Standard* (NQS) (ACECQA, 2011), professional awareness has been heightened and the uptake of

sustainability has quickened. In reviewing this most recent decade of change some *key enabling* and *key constraining factors* are clearly evident; and, these do inform any future Trust decisions and directions within the early childhood education field. These key factors are explored below.

Key enabling factors

- The professional networks (EEEC Vic Inc, NSW ECEEN and QECSN) (Refer Table 1) have been significant drivers of sustainability across the early childhood education field. For example, on finding most sustainability awards directed to the school sector, these networks identified a need to celebrate and acknowledge sustainability achievements in the early childhood sector and instigated their own state-based annual early childhood awards. These are the RESPECT Award (EEEC Vic Inc) and the SPROUTS Award (NSW ECEEN). The awards represent public recognition of exemplary early childhood sustainable services. A NSW ECEEN network initiative to be highlighted here is the *EcoSmart for early childhood: A sustainability filter for quality improvement plans* (NSW ECEEN & OEH, 2012), which supports services in their working through all seven quality areas in the *NQS* (ACECQA, 2011) from a sustainability perspective. In summary, the networks are forums for building and sharing practitioner values, knowledge and skills around sustainability. The current *NQS* assessment and ratings snapshot data accords with this role in relation to Quality Area (QA) 3 (ACECQA, 2014) and one key interpretation of the data could be that states with such longstanding and proactive networks are achieving higher ratings.

Table 1: Peak Australian EC and ECEfS Organisations

Name	Members total	Organisations	Services	Individuals	Students
ECA	4800	--	--	--	--
EEEC Victoria	166	120	--	46	--
NSW ECEEN	388	16	282	64	26
QECSN	59	--	32	27	--

- The national mainstream peak organisation Early Childhood Australia (ECA based in ACT) has increasingly supported implementation of ECEfS through its publications Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field*

(Davis & Elliott, 2003; Elliott, Edwards, Davis & Cutter-McKenzie, 2013; Kinsella, 2007; 2008; Lee, 2012; Moore & Young, 2010; Ralton & Young, 2008; Young & Elliott, 2014) and online resources (Young & Elliott, 2013a & b). Further, the ECA conference held in Melbourne 4-7 September 2014, highlighted sustainability through a keynote address by Julie Davis, plus several papers, exhibits, posters, a number of practitioner awards, the doctoral award and sustainable conference operations. This peak organisation has a broad and ongoing reach across the sector that can continue to facilitate the uptake of sustainability for children's learning, whole setting commitment and links with community (Refer Table 1). ECA has state and territory-based branches across Australia and the NSW ECA branch will be instrumental to enabling ECEfS in this state.

- Local governments have been instrumental in enabling change for sustainability through various initiatives most notably the *Little Green Steps* (Gosford & Wyong Councils NSW, 2007) which is now being taken up by other local governments nationally and it is now well established in Perth, Western Australia through the Western Australian Chapter of the Australian Association for Environmental Education. In Victoria, Hobson's Bay Council (2009) initiated the *Green Kinders Tool Kit* through collaboration with two early childhood services which have now become local community exemplars. The City of Knox established the *Kinders for Wildlife* program to promote local biodiversity by creating wildlife habitats within centre outdoor playspaces. Local government collaboration was also identified as a focus for the successful NSW early childhood training program *Ecocentres for early childhood project* implemented by NSW ECEEN (Booth, 2010). This project has been followed by the *Leading for Sustainability in Early Childhood* and *More (Beyond) Little Green Steps* projects which have involved series of workshops and mentoring (NSW ECEEN, 2013a; 2013b) across both regional and metropolitan council areas of NSW. Both of these projects were implemented with Trust funding. An interstate example is a three-year (2012-2014) early childhood services sustainability project entitled *Seedlings* funded by Sustainability Victoria across five metropolitan and regional Victorian councils, led by the City of Knox (Wayfarer, 2014).

- The federally funded *Australian Sustainable Schools Initiative* (AuSSI) has long supported sustainability in the schools sector and it has often been cited as having

implementation possibilities across the early childhood education field. Young (2009; Young & Cutter-Mc Kenzie, 2014) undertook research to explore this potential in Victoria; and, to date two of the four services that Young worked with have been recognised as accredited AuSSI centres and identified as exemplary leading sustainability services. To explore this possibility further Sustainability Victoria funded a 2013-14 implementation and evaluation of the 'Victorian Resource Smart' AuSSI program in early childhood services across nine departmental regions. The outcome of the evaluative study highlights the critical importance of well-targeted approaches and useful resources (Wayfarer, 2014). In its current form the AuSSI schools program appears not to offer a useful option for early childhood services in their uptake of sustainability. This is due to the lack of: relevant and inspiring training; appropriate early childhood resources; and, the time impositions of the required documentation (Wayfarer, 2014). However, in some states where preschools are linked with primary schools and specific early childhood education AuSSI criteria have been devised, such as in South Australia, the positive impacts are evident in the *NQS* assessment and ratings snapshot data (ACECQA, 2014).

- Several organisations and businesses beyond the early childhood sector have sought to develop targeted early childhood programs. For example, the *Rous Water Aware Centre Program* (Davis, Miller, Boyd & Gibson, 2008) well-demonstrated the broader impact on families and local communities when young children are actively engaged participants in water conservation. The children were depicted as knowledgeable advocates 'helping their parents unlearn water wasting habits and attitudes' (Davis, Miller, Boyd & Gibson, 2008, p. 29); this was a somewhat unanticipated, but highly successful aspect of the program. More recently, commercial Australian resources such as '*Small Green Steps*' (<http://www.smallgreen.com.au/>) and '*Backyard in a box*' (<http://backyardinabox.com.au/>) have become available to support educators; however, such resources require the mentoring of a critical educator to help staff review the value and authenticity of the kits and to determine their relevance for specific settings and broader early childhood education pedagogies.

- Beyond the *Rous Water Aware Centre Program* (Davis, Miller, Boyd & Gibson, 2008) noted above, several studies have highlighted partnerships with parents as a strong Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field*

enabling factor in early childhood settings, more so than other educational settings. Early childhood services have long-standing traditions of working closely with parents and carers to promote children's wellbeing, family learning and continuities between homes and early childhood settings. Such partnerships are now clearly advocated in both the *EYLF* (DEEWR, 2009) and *NQS* (ACECQA, 2013) and more recently, sustainability has offered a relevant partnership focus. Smith et al (2012) outlined how partnerships were enhanced by staff acknowledgment of parents' sustainable practices such as riding a bike or walking to the service, sharing a centre diary of family sustainability adventures with 'Recycle Ted' and active roles in repairing equipment and collecting reusable resources. Elliott (2008; 2012) has described how parents took active roles in natural playspace redevelopment and participated in sustainability management sub-committees. In particular, Elliott (2012) noted the disjuncture between educators' and parents' sustainability values in one case study centre; and outlined how educators' values shifted over a one-year research period to better align with the positive values of the parents. Shared values and actions among educators and parents offer a foundation for authentic partnerships for sustainability; and, this particularly pertains to the social and economic ECEfS dimensions. Such partnerships may then directly impact on children, their learning and the wider community.

- A few organisations have taken the initiative to appoint sustainability project officers for the specific purpose of promoting and resourcing sustainability in early childhood services. Within NSW, KU Children's Services employs a part-time sustainability officer to work with member services and the City of Penrith has a recently redesignated one management position as the National Quality Framework and Sustainability Implementation Co-ordinator. While City of Knox in Victoria employs an early childhood sustainability officer as part of a council sustainability team. In all instances the incumbents are early childhood education qualified with additional expertise in sustainability. These officers are key enablers in their organisational spheres of influence and at times across the broader early childhood education field. Some individual early childhood services are now nominating their own site sustainability leader, not dissimilar to the Educational Leader role now required within the *NQS*.

- The *EYLF* (DEEWR, 2009) and the *NQS* (ACECQA, 2013) offer guidance and have been very useful enabling factors for promoting sustainability. In particular, the *EYLF* offers five learning outcomes for children, but most often ‘Outcome 2: Children are connected with and contribute to their world’ (DEEWR, 2009, p. 25) is cited in relation to sustainability. While QA3, Standard 3.3 in the *NQS* (ACECQA, 2013) requires services to operate sustainably and promote children’s care of and responsibility for the environment. There is some questioning about the potency of these guidelines and directives for fully encapsulating the critical sustainable lifestyle changes required and recognising the agency of children in sustainable change (Davis & Arlemalm-Hagser, 2014). However, these guides offer a valid starting point for many educators. The future challenge is to extend such work with educators and families in authentic ways to deepen thinking.

- Both of the above documents have also promoted more extensive natural outdoor playspaces in early childhood services; and, there is a significant international trend now to implement forest preschool programs. Play in nature with the aim of experiencing and understanding natural environments and strengthening our interconnections with them is often described as foundational to lifelong human values and attitudes (Chawla & Derr, 2012). However, while important, deeper understandings of living sustainably also demand human agency, empowerment and action for the environment. Recent literature (Dickinsen, 2013; Elliott & Young, 2015; Taylor, 2013) is now questioning how romanticised notions of children in nature may be thwarting more challenging and deliberative pedagogical discussions among educators about links between children being in natural environments and also living sustainably. ECEfS must incorporate all four dimensions of sustainability, not just the environmental/nature dimension.

- With respect to the Children’s Services Diploma and Certificate level training, TAFE units in sustainability have been available since 2012 (TAFE NSW Training & Education Support Industry Skills Unit, 2010). Some educators have undertaken unique concurrent Diplomas that blend Children’s Services and Sustainability training. This training is now building a stronger educator knowledge base about sustainability. Further some universities e.g. RMIT University, Australian Catholic University, have introduced sustainability units as part of new early childhood teacher education degrees. A critical

mass of new graduates with fuller understandings of sustainability principles and a pedagogical commitment is an important enabling factor in the field. This point also identifies a knowledge gap for those who studied previously; however, sustainability units of study undertaken individually may alleviate this situation. Demographic data about the early childhood field workforce is offered in Section 4 and, it provides additional relevant detail.

- Beyond the early childhood education sector, schools have long been resourced and supported to implement education for sustainability through national programs such as AuSSI, and policy documents including:

- *Education for a sustainable future: A national environmental education statement for schools* (DEH, 2005);

- *Living Sustainably: National Action Plan* (DEWHA, 2009), the *Sustainability Curriculum Framework* (AGDEWHA, 2010); and,

- *The Australian Curriculum* (ACARA, 2014) where sustainability is a cross-curriculum thread.

What is critical here is the notion that, in addition to the tenet that lifelong learning for sustainability begins in early childhood not later in primary school, there is a clear argument for effective transitions and continuities between early childhood settings and primary schools. This is vital if both educational sectors are to be aligned around sustainability as an educational priority. The initiatives around sustainability in the school sector have offered some leverage for the early childhood sector in moving forward.

In summary these enabling factors over the last decade have played-out against a backdrop of broader social, cultural, political and economic change, where sustainability has come to the fore driven by successive reports about the dire state of the environment that supports human existence (Commonwealth of Australia Department of Climate Change and Energy Efficiency (DCCEE), 2011; United Nations Environment Program (UNEP), 2012). Also, the *UN DESD 2005-2014* (UNESCO, 2012) has raised the profile of EfS across both formal and non-formal education sectors internationally. Australian families and educators are not immune from these broader changes as noted later in the data; also, two recent studies

(Elliott, 2012; Smith et al, 2012) have cited how families in partnership with educators and children were very much seeking and driving sustainability in their children's early childhood services.

There is no one factor over the last decade that has been instrumental in terms of the now increasing uptake of ECEfS across the field. This uptake encompasses shifting early childhood education paradigms and growing global community concerns with specific funded initiatives. Momentum is building, but a current *Early Childhood Productivity Commission Report* (2014) recommendation, proposes the removal of sustainability from the *NQS*; this possibility demonstrates the fragility of sustainability as a recognised and attainable benchmark for the early childhood education field.

Key constraining factors

- Local governments in particular have forged ahead over the last decade with the ECEfS initiatives noted above and state governments have offered funding for some projects. Examples can be drawn at the state level from: the *Patches of Green* (NSW EPA, 2003); the *NSWECEEN Ecocentres for early childhood project: Final evaluation report* (Booth, 2010); the *EcoSmart for early childhood: A sustainability filter for quality improvement plans* (NSW ECEEN, 2012); the Victorian Department of Education *Looking Ahead Report* (Victorian DEECD, 2009); and, the previously described Sustainability Victoria initiatives. Federal government support has been somewhat limited, apart from limited action by ACECQA in supporting QA3.3 and the broader policy and curriculum documents (DEH, 2005; DEWHA, 2009). There is a strong case for national federal leadership across all educational and environmental spheres, if intergenerational equity is to be realised in Australia and most importantly, on-the-ground action towards this goal in the early childhood field.
- Research to inform practice has been significantly lacking until recently. In a study of academic journals, Davis (2009) described the paucity of articles about early childhood education for sustainability or environmental education. The early childhood education

for sustainability research field is best described as ‘nascent’ or virtually newborn (Cutter-MacKenzie & Edwards, 2013); yet, research is integral to professional provocations about how best to implement sustainability and promote systemic change across and within early childhood services and their local wider communities. A literature review by Hedeflak, Almqvist and Ostman (2014, p. 12) has specifically highlighted the need for ‘research into children’s learning processes’ around ESD. Davis and Elliott (2014) co-edited the first compilation of current international ECEfS research and Edwards & Cutter-MacKenzie (2013) have argued for imaginings and reimaginings about research possibilities into the future.

- Although early childhood educators’ knowledge base around sustainability is changing, recent studies have demonstrated that this is still a challenging construct for many (Elliott, 2012; Hill et al, 2014). These findings correlate with a lack of awareness and comprehension recently cited as barriers to uptake by teachers in schools (AESA, 2014). Invariably sustainability is described by early childhood practitioners in terms of nature-based activities or tangible sustainable practices such as water tanks and worm farms, with a ‘tick the sustainability box’ mentality pervading. Deeper understandings of the multiple dimensions of sustainability, consideration of sustainability values and commitment to relevant ethics and systems approaches to daily sustainable living all still appear to be quite limited. The data documented in Section 5 of this report strongly affirms these literature findings.
- Relevant resources for the early childhood education field that promote sustainability and both time and encouragement for educator’s to critically review and adapt learning resources have been problematic. At times, with minimal reflection about foundational understandings of early childhood pedagogy and philosophy, some readily available resources offer limited capacity to engage young children or promote real action for the environment. This situation is exacerbated by the relatively low levels of degree qualified educators across the field and their somewhat practically-orientated understandings of sustainability. Purchasing a commercial resource may be viewed as one way to quickly address sustainability within a service; however, without educators’ understandings and

acknowledgement of the principles and complexities of sustainability such a resource may not be fully utilised to promote children's emergent learning.

In summary, Davis has acknowledged that '20 years of advocacy by a small band of individuals and their networks' (2010, p. 26) led Australian ECEfS to this current juncture, where there are potentially more enabling than constraining factors visible for educators, families and children. These key factors bode well for the next decade when sustainability may simply become the norm; that is 'the way we do things' in all early childhood settings (Elliott, 2014b). The data reported in Section 5 of this report affirms this goal. Funded project initiatives, capacity building through professional learning, partnerships with families, relevant and appropriate resources, leadership at all levels and professional inter-organisational networking are all parts of the mix to make sustainability attainable across the entire early childhood education field.

The international ECEfS landscape

The charting of historical milestones and influential factors above has focussed on Australia; and yet, in this Report it is important to note that internationally Australia is an acknowledged leader in ECEfS (Davis & Elliott, 2014). At the broader level, over the last decade ECEfS has been profiled by such organisations as UNESCO (United Nations Education Scientific and Cultural Organisation) and OMEP (World Organisation for Early Childhood Education); and now, the early childhood years are viewed as integral to life-long learning for sustainability (UNESCO, 2008b; UNESCO & UNEP, 2012; UNESCO, 2013; UNESCO, 2014).

When UNESCO published *Early Childhood and its Contribution to a Sustainable Society* (UNESCO, 2008a) it comprised aspirational chapters from many countries, but few cited on-the-ground actions. Additionally, UNESCO adopted the *Gothenberg Recommendations on Education for Sustainable Development* in 2009; importantly, this report incorporated specific early childhood recommendations (UNESCO, 2008b). However, the *UN Decade of Education for Sustainable Development* (DESD 2005-2014) progress report (UNESCO, 2012, p. 32) stated that 'the presence of ESD in ECCE is a new development. Early in the DESD, the need for ESD at the early childhood level was questioned. Now there is a realization ESD

has an important place in this context'. The report concluded with the statement 'ESD has begun to find its place in Early Childhood Care and Education (ECCE)' (p. 66).

In the closing months of the DESD, UNESCO published a final report entitled *Shaping the Future We Want: UN Decade of Education for Sustainable Development (2005-2014) FINAL REPORT*. The report continues to reiterate the importance of ECEfS stating 'young children are both current and future citizens with already existing capabilities to shape sustainable societies. Investments to build their awareness, values, knowledge and capacity for sustainable development will serve to set the world on more sustainable pathways now and into the future' (UNESCO, 2014, p.78). The report identifies four foci for moving forward which well-reflect the literature and discussions in this report. The foci are:

- deepening the research base;
- approaching learning in community-based and holistic ways;
- educating families as well as children; and
- training early childhood educators.

These foci are also evident within the *Global Action Programme for ESD* (UNESCO, 2013) which is the blueprint for global action over the next five years beyond the DESD. 'Scaling-up' is a key message with this being achieved through systemic approaches, co-ordination at all levels, multi-stakeholder co-operation, integration and localised initiatives.

Also, OMEP as a leading international early childhood organisation continues to play a role in ECEfS. Predominantly during her past presidency of OMEP, Ingrid Pramling Samuelsson promoted ECEfS through conferences and publications (Siraj-Blatchford, Smith & Pramling Samuelsson, 2010; Siraj-Blatchford & Pramling Samuelsson, 2009). In addition, Ingrid Pramling Samuelsson held the UNESCO chair in Early Childhood Education and Sustainable Development. Most recently at the TBILISI+35 Intergovernmental Conference on Environmental Education for Sustainable Development supported by both UNESCO and UNEP, *The Tbilisi Communiqué – Educate Today for a Sustainable Future* (UNESCO & UNEP, 2012) was adopted with explicit affirmation of the pivotal role of ECEfS globally. On the basis of these international directions there can be no hesitation about progressing ECEfS further in Australia; rather, the 'holes', 'aspirations' and the 'margins' previously identified,

ought to be replaced by ethical ‘norms’ for sustainability and intentional ‘everyday’ values, knowledges and actions for sustainability.

Early childhood scope and context

Early childhood is often defined developmentally as the childhood period from birth to eight years and it usually encompasses both the before school years and the initial years of primary schooling. However, both in practice and in terms of pedagogy and philosophy ‘early childhood’ is the label more commonly applied to children’s before school years from birth to about age six years. This project focusses on educators’ working with children in the birth to six years age range in various settings including long day childcare, occasional and mobile childcare, preschool and family day care. Secondly, it is recognised that the *EYLF* (DEEWR, 2009) and *NQS* (ACECQA, 2013) are core to the roles of Australian early childhood educators in these services. These documents reflect socio-cultural approaches informed by the work of Bronfenbrenner (1979), Cannella (1997), Fler (1995) and Rogoff (1990) as well as the *UNCRC* (UNICEF, 1989). It is noteworthy that the *UNCRC* acknowledges children’s rights to freely express their views on all matters affecting them (Article 12, UNICEF, 1989) and that each child shall be ‘directed’ to the development of respect for the natural environment (Article 29, UNICEF, 1989). Similarly, the *ECA Code of Ethics* (ECA, 2006) guides educators to ‘work with children to help them understand that they are global citizens with shared responsibilities to the environment and humanity’. Collectively, these documents and codes set clear directions for the early childhood education field and they are highly pertinent to progressing ECEfS in meaningful ways. Beyond this brief overview of scope and context, a detailed examination of the current Australian demographics of the early childhood education field, particularly in NSW is located in Section 4.

SECTION 2: LITERATURE REVIEW

This section explores the documented principles of education for sustainability with specific attention to how these principles align with early childhood education philosophy, pedagogy and contexts. Following the principles, several models for reflecting on ECEfS are noted, then a detailed examination of the relevant literature is organised into the three frames as identified by the Trust project brief.

Key principles underpinning ECEfS

Education for sustainability as an educational paradigm is guided by a set of principles. Yet, there is no recipe to follow and specifically in early childhood contexts, the approach is about educators, children and families within their local communities participating in ongoing, responsive, collaborative and transformative processes. Such an ideal does align favourably with existing early childhood philosophies and practices; and, several publications have drawn clear connections between EfS and EC (Early Childhood) (Elliott & Davis, 2009; Elliott, 2014). For early childhood educators, doing ECEfS authentically is about moving beyond purchasing a worm farm and ‘ticking the sustainability box’ in a checklist. It is about recognising both principle and practice connections and bringing them to bear through everyday policies and pedagogies that reflect a deeper understanding of sustainability. There is no one right way to engage in education for sustainability in early childhood services; however, recent case studies attest to the critical importance of each context, the people involved and the shared journeys of change (Davis et al, 2005; Elliott, 2012; Ji & Stuhmcke, 2014; Smith et al, 2012; Young, 2010).

The following paragraphs outline key principles drawn for the literature; and, they are significantly informed by both the Australian guide *Living Sustainably: National Action Plan* (DEWHA, 2009) (Refer Appendix 2.1) and the Australian Research Institute for Education for Sustainability (ARIES) principles (Refer Appendix 2.2). Also, principles developed for ECA that target and support early childhood educators are highlighted (Elliott, 2014) (Refer Appendix 2.3). From an initial drafting of eleven ECEfS principles, we have collapsed these into three broad groupings of principles around how we *think*, *act* and *relate* when engaging in and facilitating ECEfS.

1. Thinking about our worldviews and dispositions

Fundamental to any change is reflecting on what we believe and how we view the world. In ECEfS this big picture thinking specifically involves consideration of: rights and responsibilities; equity and social justice; the systems that humans and other species are embedded in; and, orientations towards the future. The following paragraphs explore these related principles.

Rights based approaches and responsibilities

As previously indicated the *UNCRC* (UNICEF, 1989) offers direction around children's right to participate, particularly in critical matters such as climate change which will directly impact on them for years to come. Yet, research suggests that children's voices are not considered, even though they have much at stake (Hill et al, 2014; Strazdinis & Skeat, 2011). It is well acknowledged that with rights come responsibilities; these include responsibilities to live sustainably and also to equitably share the Earth's resources. Davis (2014) has recently questioned the current rights agenda, suggesting that the *UNCRC* ideals (UNICEF, 1989) are somewhat outdated. She proposes that human rights require revisioning through a global sustainability lens which considers agentic participation rights; collective rights; intergenerational rights; and, bio/ecocentric rights. In the current global context focussing our thinking on only individual human rights thwarts attempts for all to live equitably and sustainably.

Equity and social justice

Equity and social justice have long been cornerstones of early childhood education (MacNaughton, 2003) and are recognised principles within the *EYLF* (DEEWR, 2009) and the *ECA Code of Ethics* (ECA, 2006). Equity and social justice framed only among humans and only for the here and now is insufficient for a sustainable future. A shift beyond anthropocentrism, to a bio/ecocentric lens being applied to equity offers support for all life on Earth. Also, sustainability is inclusive of human intergenerational equity; the Brundtland Report (WCED, 1987) stated that sustainability is about meeting the needs of the current

generation without compromising the needs of future generations. Worded more succinctly in a manner that young children would readily grasp, sustainability is about ‘enough for all forever’ (African Elder at Johannesburg WSSD, 2002 as cited in Hopkins, 2009, p.1). ‘All’ in this context meaning, not just humans but, all the living things that share the Earth’s resources.

Systems theory

Systems theory or systems thinking prioritises relationships; and, multiple complex and dynamic interdependencies are recognised within such a perspective (Capra, 2002). A key tenet of systems theory is responsiveness; where every element and relationship within systems impacts of every other one. Bronfenbrenner’s (1979) ecological systems theory and model described children’s development in terms of multiple layers of systems; this model is familiar to many early childhood educators. The model mirrors the global context where human social systems and the Earth’s ecological systems intertwine; however, we now face the consequences of climate change due to extensive human system impacts on the Earth’s systems (DCCEE, 2011). In early childhood education, Elliott (2012), Ferreira and Davis (2010) and Littledyke and McCrea (2009) have documented the potential of systems theory to explore ECEfS (Goleman, Bennett & Barlow, 2012). Also, Young (2009) suggests systems theory offers a non-linear approach to engaging with the ‘big picture’ of ECEfS.

Futures orientation

In a similar vein to above, longer-term thinking or a futures orientation is integral to authentically embracing sustainable living and learning. To both acknowledge and understand that every action or inaction by humans today impacts on the future sustainability of the Earth is an imperative. Equally an ability to positively envision a sustainable future is required; such imagery is about how we might live and work together in ways that the quality of human life is sustained for generations to come. Both the New Zealand and Australian school curriculum documents incorporate a futures approach, but as yet this is not readily evident as an explicit principle in early childhood education (NZ Ministry of Education, 2007; DEWHA, 2010; DEWHA, 2009).

2. Acting for educational and lifestyle changes

The worldviews and dispositions above, subsequently inform how we act and in this context we are referring to acting for holistic educational change (Sterling, 2001) which will ultimately support broad, but essential, lifestyle changes for sustainability. At the forefront of relevant principles here are: holistic approaches; critical reflection; transformative approaches; and, action orientations. These guiding principles identify how change might best be facilitated for meaningful ECEfS.

Holistic approaches

Holistic approaches offer a more encompassing and comprehensive view of people's ideas and everyday events; this is so, whether we are viewing the Earth as a whole, a school, an early childhood service or an individual child. Within a holistic approach, all parameters and perspectives are taken into account. For example, in educational settings that are grappling with sustainability, Eames, Wilson-Hill and Barker (2013) identified four key areas for consideration: place, people, programs and practices; they defined a whole-school approach as follows:

Whole-school approaches to EfS aim to critically review practices across the whole life of the school with regard to educating for sustainability. The process of critiquing and changing aspects of unsustainability in a school becomes a focus for teaching and learning. Actions and the associated changes within the school and wider community are a result of investigation, review and participatory decision making, whereby the school becomes an evolving model of sustainability (Eames, Wilson-Hill, & Barker, 2013, p.14)

This notion of thinking holistically is strongly embedded in early childhood practice (DEEWR, 2009) and whole centre approaches to ECEfS are supported in the literature (Pratt, 2010).

Critical reflection

Informed by critical theory, reflection invites us to question and challenge the norm; in this context and most significantly here, this means interrogating our unsustainable ways of being. The challenge involves reviewing our assumptions and beliefs, then seeking and engaging in ethically informed actions for sustainability. Pratt (2010) demonstrated reflective potential in his examination of ECEfS at Campus Kindergarten, where his interactions with children and adults alike were documented as examples of how supported critical reflections were integral to early childhood planning and programming. Further, Elliott (2012) and O’Gorman (2014) employed critical theory in their research studies with both pre-service and in-service early childhood educators in order to facilitate new sustainability frames of mind (Bonnett, 2002). However, critical reviews may well lead to value conflicts; yet, Hagglund and Johansson (2014) view this outcome positively. In fact they regard the revealing of values and value differences as a prerequisite for learning in sustainability. Thus, a conflict of beliefs has much potential for educators to explore as part of ‘doing’ emergent curriculum with children.

Transformative approaches

The *United Nations Decade of Education for Sustainable Development* (UN DESD 2005-14; UNESCO, 2005a) promoted a transformative approach to sustainability for ten years. This idea was reiterated in the most recent UNESCO review ‘ESD is viewed as a mechanism for transforming education and learning, not simply as an addition of sustainable development-related content to curricula’ (2012, p. 29). Transformative learning theory (Mezirow, 1991) underpins this approach; it promotes critical reflection and responsiveness to new or different perspectives which in turn provoke reframing of our ways of being. As Sterling (2001) maintained more of the same will not create change towards sustainability; thus, we must rethink. Transformative approaches are essentially linked to people’s agency and empowerment, which are key attributes of acting for sustainability. As O’ Callaghan (2004, online) stated ‘it will be far more effective, less costly and more fun to empower people to see for themselves what they can do to a make a difference, to be the change’. In the early childhood arena, Davis (2010) has argued that a transformative agenda is a priority and others have illustrated this in practice and created examples about making a difference for all (Gilbert, Fuller, Palmer & Rose, 2014; Stuhmcke, 2012).

Action orientations

An action orientation suggests a problem or challenge which requires investigating and potentially resolving. For this principle there is no shortage of sustainability problems, dilemmas and challenges to investigate daily. When children are viewed as agentic and capable, that is competent citizens in their communities, they have much more potential to actively contribute to sustainability. Examples in the ECEfS literature range from the discarded shopping trolley challenge at Campus Kindy (Davis et al, 2005), to concerns about wildlife conservation and biodiversity (Ji & Stuchkme, 2014; Phillips, 2014) and building a water tank to sustain a garden (Smith et al, 2012). Action-orientated approaches align well with a project approach to curriculum (Katz & Chard, 2000), which is an acknowledged curriculum approach across the early childhood education field.

3. *Relating with others about ECEfS*

One can think and act individually, but most often what is critical to thinking and acting for sustainability is relating with others through shared and collaborative learning. For ECEfS educators an urgent priority-of-change demands more authentic working with others and thus, creating outward ever-widening ripples of change through intergenerational relationships with children, families and wider communities. Key principles here include social learning in communities of practice; participatory and experiential learning; and, lifelong and intergenerational learning.

Social learning in communities of practice

Communities of practice can be defined as ‘groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly’ (Wenger, 2006, p. 1). Three characteristics of communities of practice are: a shared domain of interest; collaboratively learning together as a community; and, a shared repertoire of practices. Here a social constructionist (Vygotsky, 1978) orientation is clear; this is reflected in ideas about how we can learn better together and scaffold each other. Individual early childhood services are communities of practice and this can include when they network with others. Certainly, sustainability can be a shared-practice concern or valued passion for both educators and families; they can learn together about how they might live more sustainably.

Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood*

Participatory and experiential learning

EfS does demand active engagement across all spheres; both within the education field and broader community. This kind of participation and the resulting direct experiences can potentially facilitate deeper sustainability knowledge and skills as well as different ways of thinking. Further UNESCO's *UNDESD* report (2012) noted that participatory and collaborative learning are the most cited learning approaches in EfS internationally. In discussing children's direct nature experiences, Chawla and Derr (2012) identified that a significant adult who positively shares and wonders about the world is critical. Particularly in early childhood education, participatory and experiential approaches to learning, teaching and leading are core business with both children and adults. Some typical examples include children:

- constructing their understandings about the world; and
- making connections and exploring their roles in the world alongside significant adults.

Play-based approaches (Edwards & Cutter-Mackenzie, 2011; 2013), intentional teaching (DEEWR, 2009; Edwards & Cutter-Mackenzie, 2011), project approach learning (Ji & Stuhmcke, 2014), children's literature (Phillips, 2014) and the creative arts (Tarr, 2013) offer much potential in early childhood programs for everyone's participation and experience. These foundational aspects of early childhood pedagogy and curriculum are considered in depth later.

Lifelong and intergenerational learning

This principle supports the notion that EfS occurs at any time and in any context throughout people's lives; and, the sustainability lessons of one generation have import for the next in an ongoing cycle of learning about how to live on this planet. As previously noted, historically early childhood has not long been viewed as a valid or appropriate life phase for engaging with sustainability; and, various reasons have been postulated for this view (Elliott & Davis, 2009). However, early childhood is foundational to how we value, think and 'be' in the world throughout our lives (Tilbury, 1994). This is a critical time for an ethic of sustainability to be an integral part of young children's learning with peers, parents, educators, elders and others.

Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 34

In summary, the three groupings of principles above are not considered exhaustive; but, they do clearly indicate how early childhood education effectively aligns with principles considered foundational to EfS. On this basis there is much scope for progressing and embedding EfS in all early childhood services. It is not something so different that sustainability has to be avoided or discarded; in fact, there are various synergies for relevant change across the whole early childhood field. The following section outlines some models that can inform how changes might happen; and then, the Trust's frames are considered in depth with further supporting literature.

Theoretical Models

The models and frames offered below provide further insights into how sustainability might be viewed or conceptualised by educators; and, we suggest possible directions for early childhood services. Three models are described in full and three others are identified here and then listed in the references.

Model 1 (Stanger, 2011)

The first model is Stanger's (2011) revision of Bronfenbrenner's (1979) ecological systems theory of child development, a theory of child development known to many early childhood educators. Systems theory, a previously described ECEfS principle, has the potential to interweave human sociocultural systems and the Earth's ecological systems. Stanger (2011) does this in his 'eco-sociological model' recasting the human-centred approach of Bronfenbrenner (1979) to acknowledge humans living within complex ecological systems. He states 'if we are to use ecosystem-based language, it needs to describe the complex interrelationships that support the long-term integrity of living systems rather than the short term singularity of human-designed marketing' (Stanger, 2011, p. 167). The image of the model still retains the concentric circles of ever larger systems with the individual at the centre; however, the focus is on humans and the environment at each system level. He also introduces a nanosystem level to denote the ecological systems beyond the naked eye and extends the chronosystem to include evolutionary time scales. He suggests adopting this

approach for viewing schools (and potentially early childhood services), so we that can ‘see the need to build more liveable schools with more green space, connection with local community, sustainable materials, sustainable pedagogy, local healthy foods ... and integrated buildings that support ecological habitat development and student creativity’ (Stanger, 2011, p. 172).

Figure 2: A reworked ecologically based version of the socio-ecological model (adapted from Bronfenbrenner, 1986) (Stanger, 2011 cited in Yilidirim & Hablemitoglu, 2013, p. 48)

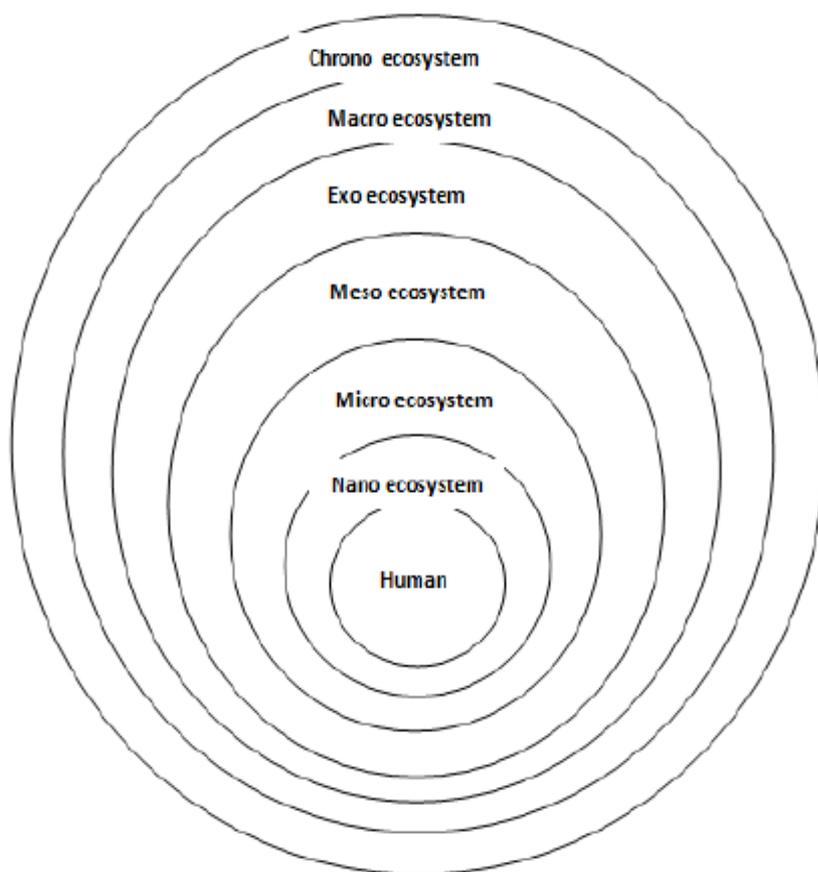


Figure 2 N Stanger's eco-sociological model (Stanger 2011)

Model 2 (NSW Government Education and Training, 2009)

This draft paper entitled *Earth Citizenship: A conceptual framework for learning in sustainability* presents a framework for schools. ‘It is designed to answer the question what

Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 36



should a citizen in our society *know* and *be able* and *motivated* to do if we are to create an *ecologically sustainable society*' (NSW Government Education and Training, 2009, p.5). This is a question that could be equally posed about younger children and adults co-constructing learning in early childhood services. Individual wellbeing is central to the framework (as in early childhood education); then, one needs to consider the individual citizen as a global citizen, a biosphere custodian and a change agent. Such citizens need a repertoire of practice skills to develop and consider worldviews and values; understand complexity, systems and risk; and, be able to engage in futures thinking and design. Also, they need to know about ecological systems and processes and about social systems and technologies; in other words how the world works. These concepts and skills align effectively with a range of early childhood documentation including the *EYLF* (DEEWR, 2009), the *ECA Code of Ethics* (ECA, 2006) and the *NQS* (ACECQA, 2013).

Figure 3: Learning for sustainability: Components of Earth Citizenship (NSW Government Education and Training, 2009, p.7)

Learning for Sustainability: components of Earth Citizenship

Circle 1 Wellbeing

What do I need as a foundation ...

Circle 2 Citizenship

What kind of citizen should I be ...

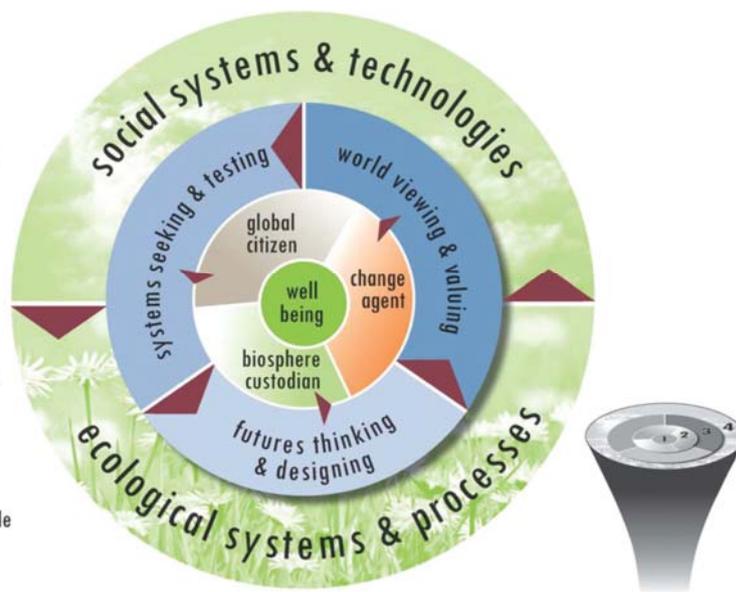
Circle 3 Practice

What do I need to be able to do ...

Circle 4 Knowledge

What do I need to know ...

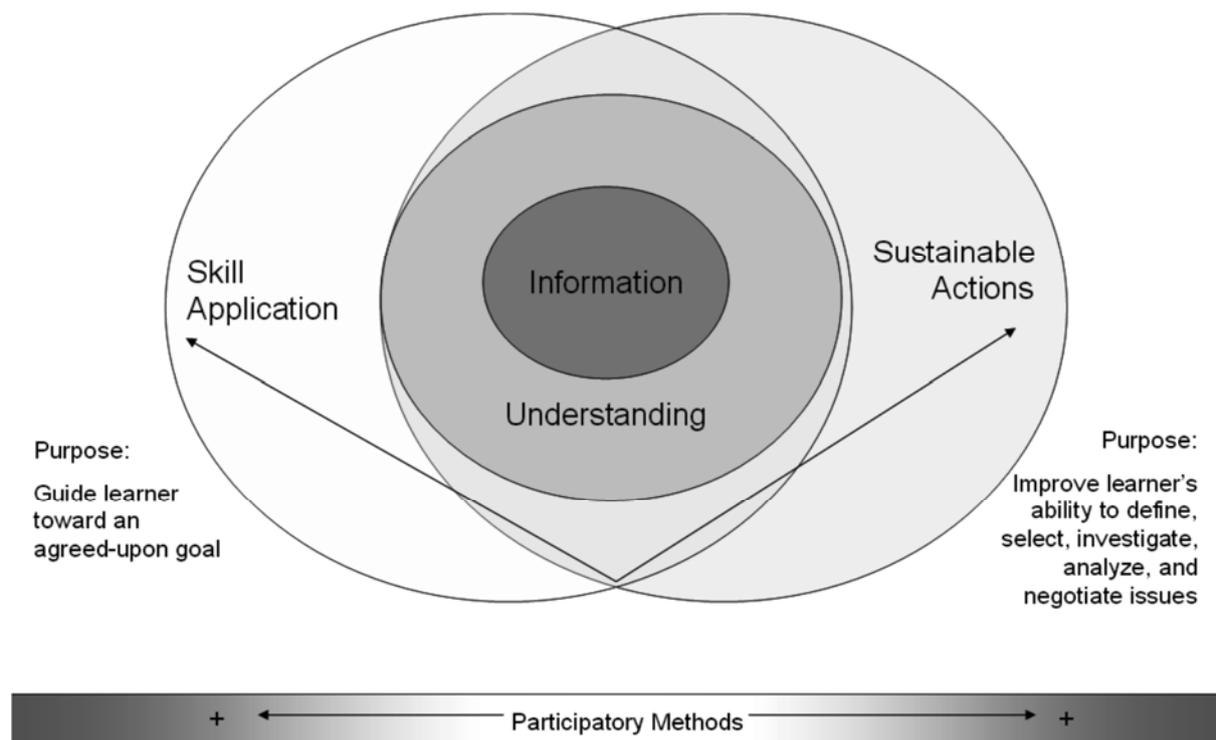
if I am to contribute to creating a sustainable society.



Model 3 (Monroe, Andrews & Biedenweg, 2007)

Drawing on previous frameworks of environmental education strategies, Monroe, Andrews and Biedenweg (2008, p. 210) constructed four categories of strategies: convey information; build understanding; improve skills; and, enable sustainable actions. An approach common to these strategies is interaction and participation by the educators and learners, with interaction that ‘inspires and motivates’ and participation that ‘surveys, engages and collaborates’ with the learners. The educators and learners in this framework are interpreted broadly across the formal and non-formal education sectors, again highlighting the potential for early childhood settings. Monroe, Andrews and Biedenweg (2008, p. 210) state such ‘a framework can help professionals determine an appropriate goal, recognise the strategies most effective for that goal, and evaluate why an intervention may or may not have been effective’.

Figure 4: A framework for environmental education strategies (Monroe, Andrews & Biedenweg, 2008, p. 211)



Further models for consideration, particularly for informing ECEfS resource development and professional learning could include:

- *8 Ways of Aboriginal Learning* (www.earlychildhoodaustralia.org.au/nqsplp/wp-content/uploads/2012/05/Worksheet_8ways.pdf);
- *Make the Change: A Framework for Education and Engagement for Sustainability 2014-2021*, Model of levels of community engagement (AAEE NSW, 2014, p.28); and
- An ECEfS adaptation of Bronfenbrenner's ecological approach (McCrea & Littledyke, 2015).

The Trust Frames and the literature

The following pages offer a detailed examination of the relevant academic and practitioner literature, predominantly from the years 2007-2014. The literature review documented here is organised around the three Trust project brief frames:

Frame 1. Children's knowledge and learning about sustainability;

Frame 2. Exemplary sustainable early childhood service role models; and,

Frame 3. Early childhood services as community hubs for sustainability.

Frame 1. Children's knowledge and learning about sustainability

Both pedagogy and curriculum are specifically addressed here as foundational to children's knowledge and learning in, about and for the environment. It is as much about how children learn, as what they learn and, also within which physical and sociocultural settings.

Sustainability can be embedded in all children's services and quite simply, it can become the 'norm' across children's learning environments.

1.1 Pedagogy

A review of current literature pertaining to pedagogy offers key themes around meaningful and engaging play, intentional teaching, children's agency and active citizenship in the community and real world. Indigenous knowledges and ways of learning are also foregrounded (DEEWR, 2009; www.8ways.wikispaces.com). For example, Edwards and Cutter-Mackenzie (2011; 2013) explored open-ended, modelled and purposefully framed play in terms of environmental education. They identify the critical role of intentional teaching and

purposeful play experiences. ‘Purposefully framed play was the play type most likely to prompt teachers to identify a biodiversity concept and the pedagogical strategies they would use to engage children with the concept, followed by modelled play and open-ended play’ (Edwards & Cutter-Mackenzie, 2013, p. 12). This approach supports the deepening of children’s understandings and skills; but, it also relies on educators’ own depth of environmental understandings and pedagogical repertoire in order to fully explore ideas with children. However, Hedeflak, Almqvist and Ostman (2014, p. 12) would argue based on their literature review of ECEfS, that we know little as yet about how children learn about ESD, how do they deepen their understandings and skills and what learning processes are involved? The authors suggest we need to investigate ‘the learning process by observing young children in action’, to then inform how educators pedagogically engage with children.

From an image viewpoint of children as capable and competent, children’s agency and their active citizenship are well supported (Caiman & Lundegård, 2014; Hedeflak, Almqvist & Ostman, 2014; Nimmo, 2008b; Phillips, 2011). Further, Strife (2012) argues that children’s expression of negative feelings and fears about the world may be alleviated if they have ‘more opportunities to engage and participate in environmental stewardship and civic responsibility’ (p. 50). Young children can also be ‘contributors to social capital’ through such participation (Nimmo, 2008b, p. 8) and ‘educators need to be proactive and intentional about the development of relationships between community adults and children’ (Nimmo, 2008b, p. 9). Furthermore, ECA (UD, p. 8) promotes specifically the embracing of Aboriginal pedagogies and ways of learning and such approaches align well with constructs about sustainable living and learning.

1.2 Curriculum

ECEfS is integral to curriculum and is multifaceted; the literature suggests:

- it is about the inclusion of specific sustainable practices such as worm farms and recycling (Mackey, 2014; McGiffen, 2009; Pancheri-Ambrose & Tritschler-Scali, 2013);

- it is strongly linked with children in the outdoors, being healthy and connecting with nature (Chawla & Derr, 2012; Davis & Elliott, 2004; Faragher, 2012; Melhuus, 2012; Nimmo, 2008a; Townsend & Weerasuriya, 2010);
- it is about values, democracy and conflict resolution (Hedeflak, Almqvist & Ostman 2014; Klaar & Öhman, 2014; Martinez et al, 2014; Prince, 2010); and most critically,
- it is about change, rethinking ways of living and being (Davis, 2010, 2014; Hedeflak, Almqvist & Ostman 2014).

In reviewing the adoption of AuSSI, the national sustainability school curriculum initiative, Davis and Ferreira (2009, p. 59) propose a ‘continuum of cultural change strategies’. As such curriculum is not limited to the boundaries of early childhood services; it can involve families and community across generations. This community view of curriculum is particularly applicable when sustainability is the focus (Gambino, Davis & Rowntree, 2009; Martinez et al, 2014; Pancheri-Ambrose & Tritschler-Scali, 2013). Curriculum in early childhood settings is also inclusive of specific learning foci, such as arts, literature and sciences. Here there is much scope for children to question, interpret and construct understandings about sustainability as these foci are explored and intertwined (Phillips, 2014; Tarr, 2013).

Beyond the *EYLF* (DEEWR, 2009) there are other relevant curriculum frameworks to draw on. For example, the *Sustainability Curriculum Framework* for schools (DEWHA, 2010) invites consideration of sustainability action processes, with these informed by knowledge of ecological and human systems and as well as repertoires of practice. Now under review, the current *Australian Curriculum* (ACARA, 2014), envisages sustainability as a cross-curriculum priority with special attention to ‘the development of knowledge, skills and understanding related to sustainable patterns of living, how humans interact with the environment and the importance of designing and acting for sustainable futures’ (AESA, 2014, p. 9). As a cross-curriculum priority, sustainability has three organising ideas which reflect ‘the essential knowledge, understandings and skills for the priority’; these encompass: systems; worldviews; and, futures (AESA, 2014, p. 10). There are implications here for any future review of the *EYLF* curriculum document (DEEWR, 2009) and the dynamic curricula as created and implemented daily by educators and children in their early childhood services.

Frame 2. Exemplary sustainable early childhood service role models

The literature pertaining to exemplary services having the potential to be role models has been clustered around four key areas: whole centre approaches; professional learning and mentoring; leadership; and, general service provision. In combination with Frame 1 above, there is much potential for exemplary children's services to contribute to encouraging, supporting and empowering children and families to participate in the environment and make changes to create more sustainable lifestyles.

2.1 Whole centre approaches

Whole early childhood centre or setting approaches reflect long recognised whole school initiatives, such as: the *International Greenschools* (<http://www.greenschoolsalliance.org/>); *AuSSI* in Australia (<http://www.environment.gov.au/topics/sustainable-communities/sustainability-education/aussi>); and, *Enviroschools* in New Zealand (<http://www.enviroschools.org.nz/>). For early childhood education, Davis (2010, p. 1) states 'whole centre approaches means working across the whole of a centre's operations-curriculum and pedagogy, physical and social environments, its partnerships and community connections'. Further a 'culture of sustainability' is feasible 'when an early childhood centre brings sustainability thinking and practices to all aspects of its teaching, operations, environment and relationships' (p. 5). Case studies of whole centre approaches are available (Government of SA, UD; Pratt, 2010) and the most notable Australian practitioner guide to whole centre approaches is *Climbing the Little Green Steps* (Gosford & Wyong Councils, 2007). In practical terms, Pratt (2010, p. 122) cited a comprehensive range of engaging possibilities:

- adopting a philosophy of rethink, reduce, reuse, recycle;
- introducing a low-waste lunch program;
- using discarded materials such as pots and pans for play equipment;
- disposing of electronic waste appropriately; and,
- green cleaning and responsible chemical use.

There is no shortage of possibilities across the operation of services and their programs. Furthermore, educators, children and families can be immersed daily in whole centre approaches. A recent study by McNichol, Davis and O'Brien (2011) about whole centre approaches applied ecological footprint auditing to early childhood services. In this study, food, transport and energy had the largest impact on the centre's footprint; and, the auditing was an effective vehicle for educating of the centre's local community.

2.2 Professional learning and mentoring

Early childhood services as professional learning communities that engage in on-going critically reflective practice and continuous improvement are well supported by both the *NQS* (ACECQA, 2013) and the *EYLF* (DEEWR, 2009). A commitment to change is key according to Duhn, Bachmann and Harris (2010); however, they suggest 'taking small steps often and constantly asking challenging questions to prevent slipping back into a 'safe' space' (p. 6). Booth (2010) evaluated the *NSW ECEEN Eco-centre Hubs* as a positive form of early childhood professional development or learning. The hub program included centre audits, on-site visits, mentoring, resourcing and workshops. There were links to the *EYLF* curricula with implementation over an extended period including the active involvement of both educators and parents. This program model offers a current and viable model for professional learning and mentoring. Similarly, three successive professional development sessions, entitled *Living and Learning about Sustainability in the Early Years*, were implemented in Tasmania with positive outcomes in knowledge, confidence and understandings for participating educators (Dyment et al, 2013). Each session involved information lectures, workshops with interactive discussion; and, key themes were the sharing of teachers' understandings about sustainability and their readiness to adopt ECEfS.

Further, if we equate early childhood services to small businesses, then Redmond and Walker's (2009) six elements for the design of environmental education are useful: these are the 'use of plain language, provision of best practice examples, industry specific information, solutions for immediate improvement, practical content and use of trusted sources to deliver the program' (p. 117). Identified effective strategies were 'on-site visits, face-to-face advice, networking with those valued and trusted, and the establishment of meaningful relationships between academics and the small business to enable collaborative work toward a common

goal' (p. 119). These possibilities resonate as potential indicators for professional learning and encouraging change toward exemplary sustainable early childhood services.

2.3 Leadership

Leadership is a key driver for implementing change for sustainability; for example, speaking from direct experience, Gibson (2010) articulated notions of incremental organisational change supported by inclusive leadership and a shared vision. Also, she noted that shared ownership, participatory decision-making and supportive relationships are important. These features of teamwork reflect Senge's (2006) sustainability leadership work, where he advocated for decentralisation of the leadership role. Senge (2006, p. 24) provided direction for sustainability leaders, suggesting that 'systems intelligence, building partnership across boundaries, and openness of mind, heart and will' are required capacities. Further, Nichols and Shorb (2007) promoted leadership for sustainability through collaborative relationships, community engagement, critical reflection, shared visions and collective action. Such notions align with the shared and collaborative approaches that underpin current sociocultural paradigms in early childhood education (Fleer & Richardson, 2004). Somewhat more strongly, Woodrow and Busch (2008, p. 90) argued for 'activist professional leaders' in early childhood education. These leaders are capable of 'embracing conflict and difference as necessary for change and growth in relationships'. Enacting exemplary ECEfS requires such robust and vocal leaders too.

2.4 Service provision

There are many aspects of service provision that can enhance each service's overall sustainability; some examples have been noted above as part of whole centre approaches. It is important to highlight that sustainable service provision is required by the *NQS* under QA3.3.2 (ACECQA, 2013). Such commitment and action can be achieved through: collaboration over audits with local government sustainability teams (Smith et al, 2012); implementation of ecological footprinting (McNichol, Davis & O'Brien, 2011); and, following guides such as the *EcoSmart for early childhood: A sustainability filter for quality improvement plans* (NSW ECEEN, 2012) or the *Climbing Little Green Steps* (Gosford &

Wyong Councils, 2007). As a further example, a sustainable business model was applied by Collier (UD) to a family day care service and he recommended actions such as retrofitting, composting, cloth nappies, native planting and waste free lunches, amongst a wider range of sustainable operation possibilities.

Additionally, cleaning is a somewhat contentious aspect of sustainable service operation, which in early childhood settings is an ongoing daily function. Gardner's study (2007) trialling alternative cleaning practices in early childhood centres highlighted the potential for safer and more sustainable cleaning practices around children. The underlying imperative is promoting children's long term health and well-being.

In summary, the quarterly Australian Children's Education and Care Quality Authority (ACECQA) assessment and ratings reports from August 2013 (ACECQA, 2013b) to August 2014 (ACECQA, 2014) provide evidence that over this time increasing percentages of assessed services are meeting or exceeding QA3. These ratings can be understood as indicative of increased understanding and implementing of sustainability principles and practices, particularly at the whole service sustainable operational level. It is noteworthy, that some services are rated as exemplary for QA3.

Frame 3. Early childhood services as community hubs for sustainability

Early childhood services are community hubs and this is exemplified in the *EYLF* (DEEWR, 2009), where a range of principles and practices focus on relationships, partnerships and community. Additionally, the *NQS* (ACECQA, 2013, p. 139) specifies QA 6: Collaborative partnerships with families and communities. Embracing sustainability adds another important dimension to the role of early childhood settings as giving service to their local communities and doing this through leadership and advocacy for transformative change towards a sustainable future. The above Frames 1 and 2 are absolutely foundational to this broader societal role.

3.1 Partnerships with parents

Partnerships with parents are the cornerstone of curriculum development in early childhood settings and sustainability can be integral to such partnerships. Examples of how parents may contribute to partnerships for sustainability are evident in the literature (Elliott, 2012; Smith et al, 2012; Young & Cutter-MacKenzie, 2014; Young, 2009). For example, parents have: instigated sustainability committees; taken responsibility for conservation elements such as waste and water; contributed to service sustainability diaries; and, participated with educators in action priorities for sustainability. Each of these activity-based partnerships can be further promoted and sensitively deepened. In particular, Elliott (2012) described how parents actually liked the service better once sustainability principles and practices were adopted by educators over a one year study period. At another level, Payne (2010) offered the idea that the ‘domestic space is potentially an everyday crucial site for multiple interpretations of the way practical ethics are conceived, lived, constructed and tactically become forms of ecopolitics’ (p. 211). If these interpretations and discussions are also shared within early childhood programs, there are many options for realising the potential of Frame 1’s pedagogy and curriculum notions. Children’s critical reflecting, questioning and considering of value conflicts are forms of ecopolitics. Meaningful and ongoing sustainability is about having these challenging discussions across all spheres and sharing knowledges and perspectives intergenerationally.

3.2 Networking

As previously noted, professional networks have been instrumental in the emergence of Australian ECEfS over two decades. It is significant to highlight that in those states where local ECEfS networks do exist, they are generally ahead of other states and territories with respect to *NQS QA3* (ACECQA, 2013). For example, in Victoria where EEEEC Vic. Inc. has supported the sector since 1992, ratings from the initial quarterly assessment and ratings report in August 2013 (ACECQA, 2013b) to the current report (ACECQA, 2014), show that 88-89% of services have consistently met or exceeded the QA3 requirements. These are strong professional networking groups for sustainability; but, this focus can extend to supporting early childhood services as they act as community hubs for broader networks engaging in sustainability. Somerville and Green (2012, p. 74) state that ‘community

grassroots sustainability initiatives are a crucial site of ... learning and innovation. They are not only doing the work of undertaking sustainability education and forming community, but they are necessary to support the integration of sustainability into formal education'. Notions of place-based education and Aboriginal eco-social structures are suggested to underpin effective local networks for sustainability, particularly in regional areas. Ferreira and Davis (2012, p. 687) state that 'participation in networks, both as a concept and process, is widely supported in environmental education as a democratic and equitable pathway to individual and social change for sustainability'; however, they question if 'we inherently know how to participate in networks' and collectively interrogate what problems may arise or exist.

3.3 Partnerships with community organisations

Early childhood services are located within local communities and often form partnerships with other relevant community organisations. Sustainability provides a focal point for such partnerships. The DECT NSW (2006, p. 1) stated 'community engagement and support is crucial to achieving environmental outcomes' and early childhood education services can be integral to these outcomes. Young and Cutter-MacKenzie (2010, p. 154) assert 'community engagement is an intrinsic component of the vision for sustainability in early childhood services' and Elliott (2014a, p. 24) describes how 'community partnerships might include local government sustainability teams, sustainability sub-committees of centre management, community partners such as wildlife or conservation groups, local Indigenous Elders or participation in broader initiatives such as National Tree Day, ... or World Environment Day'.

The DECT NSW (2006, p. 6) further suggested that increased levels of community participation allow for:

- increased potential for conflict resolution;
- increased capacity for critical thinking; and
- innovation and increased capacity for problem-solving.

In summary, there are numerous potential benefits at many levels, including individual, collective and environmental, when early childhood services engage in community

partnerships for sustainability. Also, there can be benefits when they extend this engagement to acting as sustainability hub sites for various shared community events and experiences.

SECTION 3: FRAMING PROFESSIONAL LEARNING

While an overview of the professional learning (PL) literature is a somewhat predictable and readily assessable exercise, the challenge here is linking this literature to the inherent professional and geographic diversity of the early childhood education field. As noted later in Section 4, the field's professional profile is characterised by complexity and variety; hence, one or even a few professional learning strategies or models will not necessarily be relevant and meaningful for all early childhood educators. This is particularly so when engaging with a multi-dimensional and ethically challenging topic such as sustainability. Hence, in examining the PL literature, an emphasis has been cast towards a range of possibilities, rather than an in-depth exploration of a few specific strategies and models that are claimed to 'fit' this target audience (Elliott & Mc Crea, 2015).

The term 'professional learning' rather than 'professional development' is employed here to better reflect a more holistic approach and also, current sector language. Professional learning is about 'changes in the thinking, knowledge, skills, and approaches to instruction that form practicing teachers' or administrators' repertoire' (Knapp, 2003, pp. 112-113). Professional learning may occur formally and informally, individually or through interactive experiences, in various contexts and via a range of mediums. Thus, capturing this variety aligns with the professional needs across the early childhood education field. There is also potential for professional learning communities to be established where 'Educators who value engagement in professional learning, actively seek to foster ways of building on their professional knowledge and skills continuously by working together as a group' (Waniganayake et al, 2012, p. 256). This approach aptly reflects social constructionist learning theory (Vygotsky, 1978) which is well-acknowledged in Australian early childhood education.

Akin to other education fields, ongoing professional learning is a key tenet of being a professional and reflective educator. In the specific context of early childhood education, the

vital importance of ongoing professional learning has come to the fore since the implementation of the *Australian Quality Framework (AQF)* (COAG, 2008) and the introduction of the *National Quality Standard (NQS)* (ACECQA, 2011) in 2012. In particular, the *NQS* highlights professional learning within QA7: Leadership and service management. Specifically the relevant standards are: QA7.1: Effective leadership promotes a positive organisational culture and builds a professional learning community; and, QA 7.2: There is a commitment to continuous improvement (ACECQA, 2013, p. 11). The embedded assessment and ratings process of *Quality Improvement Plans (QIP)* requires critical reflection and ongoing learning by all educators in early childhood services. Beyond sector specific policy parameters, it is notable that early childhood professionals are predominately female (Refer Section 4). Sakellari and Skanavis (2013) state women are reported to be more aware, more concerned and more active than men in environmental issues. These authors recognise the impact of gender for environmental education strategies and propose free choice environmental learning whereby ‘individuals exercise significant choice and control over their learning’ (Sakellari & Skanavis, 2013, p. 84). This would appear to be a key message to consider in planning professional ECEfS learning across the early childhood education field.

Also, as outlined in Section 1 enabling and constraining factors pertinent to professional learning in ECEfS have been noted within the early childhood education field over the last decade. The four professional state-based ECEfS networks and the peak national organisation, Early Childhood Australia, as well as local governments have been keenly active in progressing ECEfS. This has been evident through conferences, awards, publications, local projects, early childhood qualified sustainability officers and various professional learning opportunities. Any professional learning must build on and relate to key early childhood education documents, namely *Belonging, Being and Becoming: Early Years Learning Framework for Australia (EYLF)* (Commonwealth DEEWR, 2009) and the *National Quality Standard (NQS)* (ACECQA, 2013). A key principle in these documents is the promotion of partnerships with parents as integral to children’s learning. There are now documented examples of parent partnerships for learning around sustainability in early childhood settings (Elliott, 2012; Smith et al, 2012; Young, 2009). The clear implication is that professional learning is not only about educators and children, but also about parents as part of the learning context. Current trends in Technical and Further Education (TAFE) bode

well for ECEfS as both the Children's Services Diploma and Certificate III level training now include units in sustainability (TAFE NSW Training & Education Support Industry Skills Unit, 2010). Thus, the professional learning challenge here is filling the gap for educators who studied prior to 2012 when the targeted TAFE sustainability units became available and those who studied in universities where sustainability learning was not identified or prioritised.

While the ECEfS enabling factors currently outnumber the constraining factors, the constraining factors do have direct relevance to any professional learning initiatives. First and foremost educators' knowledge about ECEfS is lacking; and so, sustainability requires 'demystifying' for many in the early childhood education field. Further, research to inform educator practice is only now emerging (Davis & Elliott, 2014) and relevant tangible learning resources for both children and their families are somewhat limited. This overview of recent enabling and constraining factors provides some direction for professional ECEfS learning possibilities into the future.

Broad characteristics of professional learning

With guidance from the previously stated definitions of professional learning, the following paragraphs offer some broad professional learning characteristics and a range of relevant forms that professional ECEfS learning might take.

Drawing on Hunzicker (2010) and Waniganayake et al (2008) broad characteristics of effective professional learning approaches can be identified. Hunzicker (2010) describes the intrinsic motivations of educators and the need to support resolutions for the professional concerns they bring to the table within professional learning contexts. Certainly, the learning needs to be relevant and authentic to participants work roles; this is akin to approaches for children's learning, and offering guidance around both topic and pedagogy. Collaborative or socially interactive forms of learning involving peer feedback, professional communities, active engagement such as problem-solving and participatory learning are also effective. In addition, the most effective professional learning is ongoing, coherently building knowledge and skills both through and with practice over time.

In a report focussed on the impacts of professional development for quality outcomes in childcare centres, Waniganayake et al (2008, p.13) have utilised professional development characteristics previously cited by Mitchell and Cubey (2003). They included:

- The professional development incorporates participant's own aspirations, skills, knowledge and understanding into the learning context;
- The professional development provides theoretical and content knowledge and information about alternative practices;
- Participants are involved in investigating pedagogy within their own early childhood settings;
- Participants analyse data from their own settings;
- Revelation of discrepant data is a mechanism to invoke revised understanding;
- Professional development supports educational practice that is inclusive of diverse children, families and whanau (extended family and friends);
- The professional development helps participants to change educational practice, beliefs, understanding, and/or attitudes; and,
- The professional development helps participants to gain awareness of their own thinking, actions, and influence.

Forms of professional learning

Building on these broad characteristics some specific forms of professional learning are briefly examined below. The forms addressed include: action research; active learning; appreciative inquiry; communities of practice; co-constructed learning; continuous professional learning; dialogues; networked learning; participatory learning and, transformative learning.

Action research

Action research has many guises including participatory action research, practical action research, action science and emancipatory action research (Kemmis & McTaggart, 2005; Liamputtong & Ezzy, 2005; Mills, 2007); but, all action research can be broadly characterised by context, collaboration, participation and self-evaluation (Burns, 2000). Action research engages participants in a process of reflecting and evaluating with a view to resolving locally

identified challenges or concerns. Action research is well represented in the education field and aligns strongly with reflective practice, a key pedagogical element in early childhood education. Peters and Wals (2013, p. 93) align action research with a practical theory building tool and suggest three steps: discovering and analysing what is; debating and determining what should be; and, then closing the gap between what is and what should be. These steps may lead to transformative change. Action research offers, not only an academically theorised form of professional ECEfS learning, but a significant vehicle for change in education contexts.

Active learning

Active learning such as problem solving and addressing challenges hands-on is well understood as integral to young children's learning; but, it can also be applied to adult learning. Dymont et al (2014, p. 663) describe how a series of ECEfS professional workshops with early childhood educators reflected 'collaborative problem-solving around authentic issues and models'. Sustainability problems and challenges relevant to individual services or to regions may provide a focal point for involvement in active learning. Active learning is also aligned with participatory learning.

Appreciative Inquiry (AI)

Professional learning for change can take a very positive, supportive and relational approach and this is the essence of AI. In facilitating AI, one asks 'questions that strengthen a system's capacity to apprehend, anticipate, and heighten positive potential' (<http://appreciativeinquiry.case.edu/>). This view is affirmative with change being facilitated through seeking educators' previously untapped talents and skills and thus, creating the potential for innovation and imagination. AI may involve small or large scale change with individuals or within organisations (Nolan, 2007); but, there is change for the future akin to the changes required for more sustainable everyday living.

Communities of practice (CoP)

‘Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly’ (Wenger, 2006, np). CoP’s are characterised by:

- ✓ a domain defined by shared interest, competence and commitment;
- ✓ a community where members engage in joint activities and discussions, help each other, share information and build learning relationships; and,
- ✓ a shared repertoire of practice involving experiences, stories, tools, ways of addressing problems built over time through sustained interactions (Wenger, 2006).

Further, Wenger, McDermott and Snyder (2002) described the idea that building and sustaining CoPs involves inherent flexibility, open dialog, varying levels of participation, public and private spaces, valuing the community, both familiarity and excitement, and a cycle of activities to maintain vibrancy. This description is apt for the state-based ECEfS networks that currently exist across Australia; but, there is potential to build more regionally based CoP’s for working towards embedded sustainability within hubs of early childhood settings (Refer underpinning key principles in Section 2).

Co-constructed learning

Co-constructed learning reflects notions of social constructionism (Vygotsky, 1978), whereby individuals scaffold each other such that they construct new or revised understandings about a concept. Co-constructed learning is core to early childhood pedagogy, and may involve various combinations of educators, peers and parents collaboratively sharing and working together to co-construct their learning. The value in this form of learning is that each learner is directly interacting and socially-engaged in the process with multiple perspectives brought to bear on the topic or challenge at hand. It is about the negotiation of meanings through social interactions (MacNaughton & Williams, 2009) and as such, this form of learning is highly relevant to progressing understandings about sustainability. The ECEfS professional learning workshops conducted and evaluated by Dymont et al (2014) employed this approach effectively to build educator knowledge during single sessions.

Continuous professional learning (CPL)

CPL can be best described as a codified or systematised set of professional learning activities. Such an approach has the potential to build skills over time and allow for practical implementation between activities to hone one's skills. CPL also offers the possibility of networked learning as shared learning deepens with each successive CPL activity. Booth (2010) outlined the successful application of CPL with ECEfS in local government areas; however, ongoing participation was cited as problematic for educators in terms of time commitment.

Dialogues

Through professional dialogues there are opportunities to understand others' perspectives and values and to potentially develop shared meanings and actions. 'Dialogue is a form of communication that is used to gather information, learn from it, and discover new ideas without seeking to convince or persuade another person' (Gonzalez Mena, 2001 cited in Nolan, 2007, p. 89). Further, Dart and Davies (2003) described dialogues as part of the 'Most Significant Change' research technique; this technique involves building stories of change through dialogic sharing and retelling. A focus can be program improvement and this technique was employed to great effect with early childhood services and schools by Smith et al (2012) who investigated partnerships for sustainability. Dialogues are also instrumental to 'learning circles' for ecoliteracy as described by Goleman, Bennett and Barlow (2012) and were explored by Macfarlane and Cartmel (2012) as 'circles of change' in early childhood services for building leadership, scholarship and identity.

Networked learning

Networked learning is described by Vaessen, van den Beemt and de Laat (2014, p.1) as a 'collective process of sharing and constructing knowledge'. Frequently networked learning occurs outside formal workplace structures and potentially across discipline or organisational boundaries. It can be largely invisible, but offers a bottom-up approach to learning where individuals can act independently and autonomously to build expertise. Networking is a 'natural activity' (Vaessen, van den Beemt & de Laat, 2014, p.11) and in early childhood

settings, Waniganayake et al (2012, p. 101) cite many possibilities for networking. These include hosting meetings to share an interest or concern, planning shared professional learning sessions, joining online forums and/or partnering with local training institutes and academics. All have potential application for progressing ECEfS across NSW.

Participatory learning

Laessoe and Krasny (2013) highlight participation traditions in environmental education as encounters with nature, social learning, reflective action and deliberative dialogue. Generally, participatory learning is described as learning with others through interactions in socio-cultural contexts. Useful and relevant dispositions and skills include trust, respect, commitment, collaboration, communication, negotiation and compromise. Participatory learning may involve partnerships for learning beyond an early childhood setting as advocated by project participants (Refer Section 5) and cited by Smith et al (2012) and Young (2009). Partnerships for learning are also strongly advocated in working with Indigenous early childhood communities (SNAICC, 2014). Shared participation, both within and beyond early childhood settings, may lead to reflective action for whole community change towards sustainability.

Transformative learning

The notion of transformative learning is originally drawn from Mezirow's (2003) work; it is 'learning that transforms problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change'. Transformation can be described as a 'permanent shift of consciousness' (Dencev & Collister, 2010, p. 179) occurring individually or collectively; and, transformative learning is critically reflective, iterative and potentially, generates some tensions. Transformative approaches are frequently associated with EfS; and for some participants, seismic shifts in 'habits of mind and points of view' (Cain & Dixon, 2013) are required for enacting sustainability. In Transformative Inquiry (TI) approaches with teachers implemented via mentor-mentee pairs, Tanaka et al

(2014) advocate beginning with issues which teachers are ‘personally passionate’ about and also recognising that transformation is ‘delicate’ work.

In summary, the forms of professional learning examined above are not exhaustive, but alert readers to the multiple possibilities and diverse forms for best meeting the professional ECEfS learning desires and needs of the early childhood education field. Professional learning is about adults engaging, sharing, relating, questioning, reflecting, researching, shifting and enacting and in this instance, sustainability is the focus of these processes. The clear intent of these processes is to support individual educators to construct their own conceptualisations of sustainability, personally reassess and reprioritise their values around sustainability, and then consider how and whether they wish to enact these in both their professional and personal lives (Murray, Goodhew & Murray, 2014). However, Malikki and Green (2014, p. 18) alert us that there may be resistance, fear and pain to manage in ‘letting go of one’s old habits’; and, this is an aspect to be acknowledged in all professional ECEfS learning. In the following pages two informative models are shared about professional learning.

Professional Learning Models

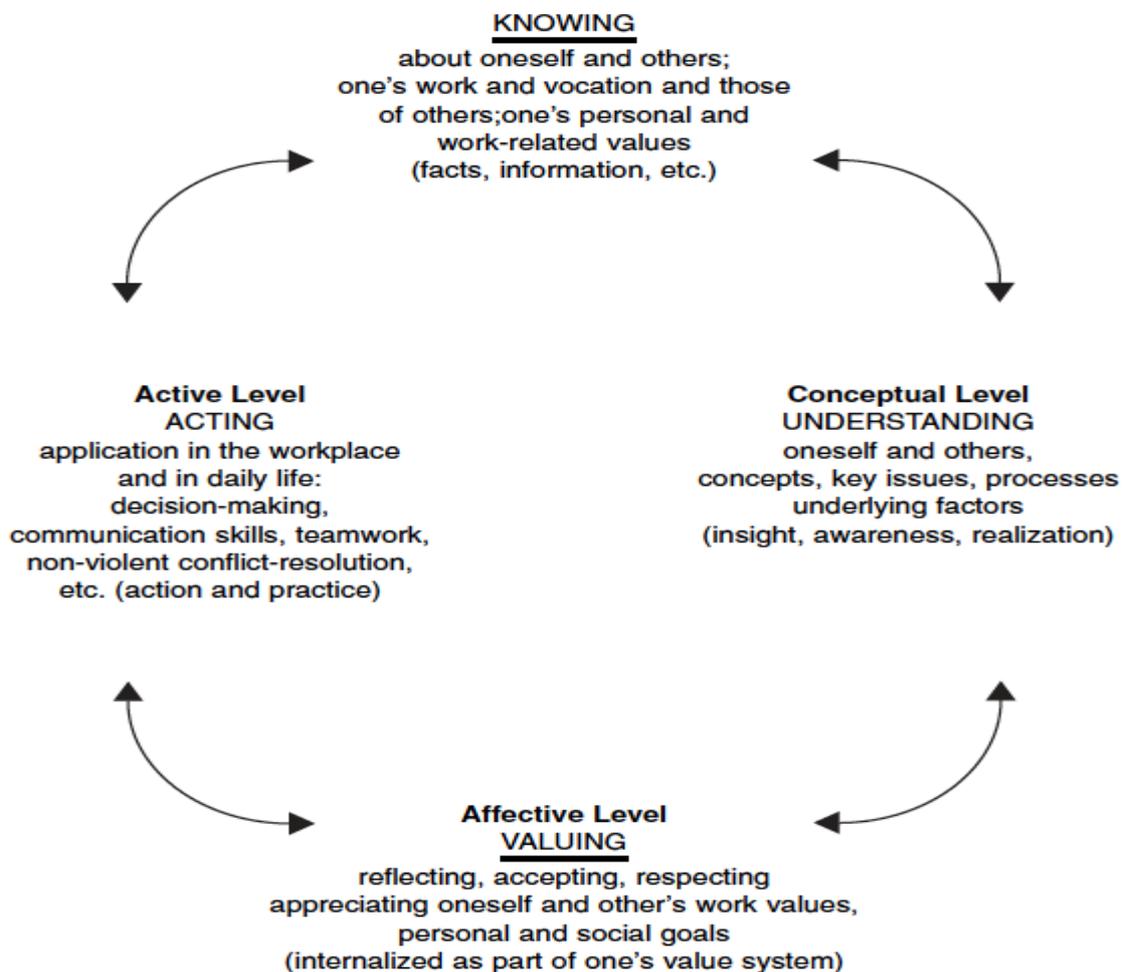
Models can offer additional insights into considerations about how best to implement professional learning. Two specific models are highlighted here, one from Quisumbing and de Leo (2005) and a second from Murray, Goodhew and Murray (2013). These models have been purposefully selected as they are derived from education for sustainability literature and focus on the individual and the steps involved in shifting one’s values and thinking about sustainability. We view this ‘frame of mind’ (Bonnett, 2002) shift as critical to educators in the early childhood field beginning to engage with ECEfS.

Values are the primary focus of the comprehensive UNESCO source book for vocational training by Quisumbing and de Leo (2005). The authors identify eight core values for globally working and learning together and sustainability is a noted core value. The publication is built around four pillars of learning; learning to know; learning to do; learning to be; and, learning to live together. Their approach is a teaching and learning cycle that is holistic and integrated embracing both affective and cognitive levels of learning. It is a

dynamic process and not necessarily orderly, but involves four steps: cognitive level knowing about concepts and values; conceptual level understandings with wisdom and experience; affective level valuing where values may be affirmed and internalised; and, the active level where values are enacted and readily evident in practice. For early childhood educators, grappling with the complexities and ethics of sustainability and how they might translate sustainability knowledge into pedagogical practice this cycle offers pertinent insights.

Figure 5: The Teaching and Learning Cycle from Quisumbing and de Leo (2005, p. 29 adapted from Quisumbing, 2001)

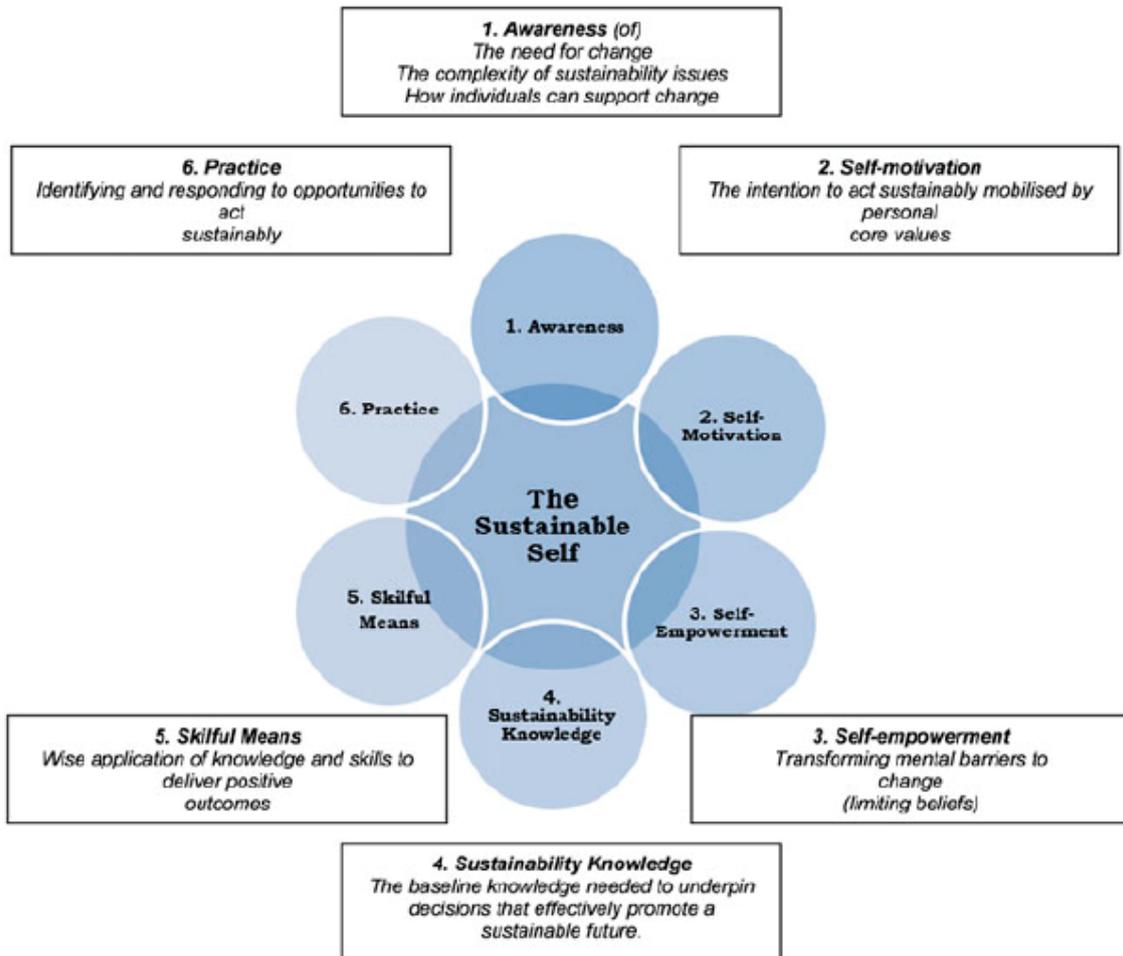
Cognitive Level



The second model briefly examined here is drawn from a sustainability training study of undergraduate students by Murray, Goodhew and Murray (2013). The focus was on training

that moved away from a focus on transmitting sustainability knowledge to provocations for personally engaging learners in thinking about and reflecting upon their values and perspectives about sustainability. The teaching style was open-ended and learner-centred thus, opportunities for role play, perspective sharing, group analysis and imagery stimuli were presented. Three themes of awareness, motivation and empowerment guided the training activities and pedagogy. The results of this study identified a degree of values clarification and a shift of mind-set for participants around sustainability. The Personalised Education for Sustainability Development model underpinning this training approach has potential application for learning more about ECEfS and developing clearer personal and professional beliefs about sustainability.

Figure 6: The sustainable self-model of Personalised Education for Sustainability Development (Murray, Goodhew and Murray (2013, p. 720 adapted from Murray 2011).



This discussion has assisted with identifying the types of activities and learning approaches, as well as authentic resources for facilitating educators' ECEfS roles with children, their families and the wider community. Next a demographic profile of the NSW early childhood education field provides readers with a clear picture of the context. Specifically, understanding the key characteristics of early childhood educators will assist readers to recognise why and how educators might fully engage with ECEfS.

SECTION 4: DEMOGRAPHICS OF THE NSW EARLY CHILDHOOD EDUCATION FIELD

The following tables offer three perspectives on the diversity of the early childhood education field in NSW and each is briefly elaborated in turn. Further, some project participant statements add depth in the final paragraphs of this section.

Firstly, Table 2 provides a background in terms of the range and numbers of various service types, geographic locations and numbers of departmentally approved places for children across NSW. Note the latter point requires some clarification, in that the number of ‘approved places’ does not equate to the number of children accessing a service over a week as many children attend services on a part-time, or in some instances, casual basis. Thus, the potential reach of services to numbers of families and into their local communities may be much greater than predicted by the numbers of approved places listed. In contrast, for services with very low numbers of approved places, below 25, the notion of being a community hub for sustainability may be beyond the capacity of educators and families; this is because a critical mass would seem necessary. Kania and Kramer (2011) highlight the importance of collective impact via social collaborations for change. Also, it must be acknowledged that some families place their children in services closer to their workplace and thus, may not identify with the local service community, for example services located in the CBD of Sydney or regional cities. Similarly, many educators do not necessarily live in the community where they work; hence, their knowledge of local community events and potential partnerships for sustainability may be limited. All of these points have implications for any initiatives that seek to create children’s services as sustainability hubs in their local communities, as suggested by the Trust’s third project frame.

A further key aspect to consider is that most services, irrespective of type, have 40-59 approved places. This implies a relatively small number of educators in each service according to legislated adult to child ratios when compared to schools. A mitigating factor here could be the significant number of part-time or casual staff working in early childhood services; also, it would be useful to include ancillary staff such as cooks, cleaners and administrative staff in discussions around sustainability. Their roles within a whole centre

approach are significant. However, while service specific face-to-face professional ECEfS learning approaches may be valuable for educators and ancillary staff, there are economies of scale to consider; and, so the possibility of building inter-service relationships, or ‘sister services’ through shared locally-based professional learning events or activities is an important consideration.

The range of service types, numbers of each type and geographic locations are somewhat predictable. Long day childcare services catering for children from birth to school entry age are highest in number (2533), mostly located in the major cities (2034), and typically have 40-59 approved places for children. At the other end of the spectrum is one occasional care service in a very remote location most likely with less than 25 approved places. This feature well illustrates how a diversity of professional ECEfS learning approaches will be required to accommodate the markedly different educator contexts for encouraging and implementing ECEfS.

Table 2: Geography and size of NSW early childhood services (Source: NSW Department of Education and Communities)

Service Type	Accessibility/Remoteness Index of Australia Category						Maximum approved places					
	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote	Total	<25	25-39	40-59	60-79	80+	Total
Long Day Care	2034	406	86	7	0	2533	166	907	871	365	224	2533
Mixed centre based	145	38	13	3	2	201	17	64	49	28	43	201
Preschool	465	191	97	13	6	772	213	247	253	55	4	772
Occasional Care & other out of scope services	48	18	0	0	1	67	28	37	2	NA	NA	67
Mobile	14	19	18	4	2	57	NA	NA	NA	NA	NA	57
Home Based Care	35	4	6	0	0	45	45	NA	NA	NA	NA	45
Family Day Care	204	32	13	1	0	250	2	38	210	NA	NA	250

Secondly, Table 3 characterises NSW early childhood educators by gender and also their age relationships to service types. The table solidly illustrates the predominance of females in the early childhood workforce and this gender imbalance has implications for any professional learning as noted in Section 3. The age range of educators is broad from 15 years to over 55

years of age; certainly, one professional learning approach will not cater to this age diversity. Also, of particular note is that older demographics (35 years plus) are more often located in preschools and family day care schemes and the younger demographics (under 29 years) in long day child care centres and occasional child care services. This spread of age ranges is cited as a concern (Refer Section 5) because some younger educators saw older and more experienced educators as less inclined to adopt new ideas such as sustainability.

Table 3: Age of NSW early childhood educators by service type (Source: 2010 Census)

Service Type	Educator's age (%) (94.6% Female, 5.4% Male)								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55 & over
Long Day Care	5.8	20.3	16.2	11.3	11.2	9.8	9.2	8.0	8.1
Mixed centre based	NA	NA	NA	NA	NA	NA	NA	NA	NA
Preschool	2.1	5.6	6.5	8.0	14.3	17.0	18.7	14.5	13.2
Occasional Care & other out of scope services	5.8	15.2	12.8	10.4	7.5	9.6	13.9	8.2	16.6
Mobile	NA	NA	NA	NA	NA	NA	NA	NA	NA
Home Based Care	NA	NA	NA	NA	NA	NA	NA	NA	NA
Family Day Care	0.1	1.6	6.2	11.4	16.8	16.5	16.2	13.5	17.8
Total	5.2	17.9	13.0	10.2	11.5	11.2	11.2	9.6	10.2

Thirdly, Table 4 describes the qualification levels of educators in the various service types. It appears that about three quarters of educators across all service types in 2010 had some level of early childhood education qualification, somewhat less in family day care services. It is noteworthy and concerning that about a quarter of these staff had no early childhood education qualification. However, a Certificate III in Children's Services is now the minimum standard, introduced as part of the Australian Quality Framework (AQF) agenda (COAG, 2008). Practitioners with early childhood education qualifications may have a Certificate III in Children's Services qualification to a degree level qualification or above. Hence, any professional ECEfS learning initiatives need to accommodate this very broad audience. Also, given the range of qualifications there is potential for equipping and supporting more qualified educators as mentors or champions to explicitly facilitate learning among their less qualified staff peers. This can be contrasted to professional learning in a school context where it could be comfortably assumed that most or all participants would hold a degree level qualification in education. Given the history of the field, it is not unexpected that the degree qualified educators are more common in preschool settings and less qualified educators are

employed in childcare settings. The following quotes from project participants reinforce the above interpretations of diverse qualification levels:

'There is a large part of our sector operating at a very low level' (Fm)

'Need to support practitioners at different levels in different places' (Bm)

'The other difficulty we have in the sector... is that we have a lot of people in the sector who are not well trained and don't have a lot of experience ... so they are often sitting back waiting for someone else to lead' (FmF2)

'There are many staff that will say "I'm a visual learner" and they won't read [so the ECA videos are great]' (Em)

'Sometimes less capable people will watch videos and think "these are smart people, they are knowledgeable in the area" and they don't connect' (Fm)

The diversity of qualifications noted here must be understood and acknowledged as it directly links to educators' various skills and abilities including critical thinking, reflective practice and pedagogical understandings. The data in Section 5 highlights the challenges for educators in both understanding sustainability and then, translating sustainability knowledge into everyday practice with children. A step-by-step process with key consistent messages and multiple starting points and strategies, particularly visual ones, was advocated by some project participants.

Table 4: Early Childhood educators' qualification level (Source: 2010 Census)

Service Type	Highest level of qualification completed (%)					
	Bachelor degree or above	Advanced Diploma/ Diploma	Certificate III/IV	Below Certificate III	Total staff with an ECEC-related qualification	Total staff without an ECEC-related qualification
Long Day Care	15.2	28.2	28.9	2.5	74.8	25.2
Mixed centre based	NA	NA	NA	NA	NA	NA
Preschool	29.2	23.4	16.3	2.2	71.1	28.9
Occasional Care & other out of scope services	10.5	22.7	25.0	4.2	62.5	37.5
Mobile	NA	NA	NA	NA	NA	NA
Home Based Care	NA	NA	NA	NA	NA	NA
Family Day Care	5.8	14.9	31.1	4.1	55.9	44.1
Total	15.7	23.9	25.1	2.8	67.5	32.5

In summary, the demographics outlined in the above tables offer some very useful insights; however, they do not convey the full story of early childhood education settings and how educators might perceive engaging with ECEfS. Any professional learning needs to be

implemented in ways that are cognisant of their views and the practical realities on their work roles and contexts. Relevant points about time, funding and cultural diversity are supported by project participant quotes in the following paragraphs.

Early childhood educators are **time poor** in their workplaces as most of their work time is allocated to direct contact with children and this is both physically and mentally demanding. Scheduling time for the implementation of ECEfS and for relevant professional learning during working hours requires staff relief to maintain ratios; and, often any after-hours events do not include paid time and occur following a busy workday. The quotes below are indicative of the workplace pressures:

'The other issue is time. If workshops are in the day some services can't afford to replace someone during the day so they can go to a workshops – have them in the evenings or online or develop an app' (Fm)

'Hard to allocate time for it [ECEfS] at that centre level' (Am)

'Staff say all the time that they don't have time, but if it [ECEfS] is that embedded in your day you do have time' (Em)

'Still a big risk that you will start and then you will stop ... they're not confident, they are under time pressure, they are not sure that it is right ... in this environment where they get assessed by someone externally' (Fm)

'The person delivering PD needs to have credibility which comes from understanding the pressures that educators are under' (Gm)

'Have to light a spark in people to get them thinking, but it's hard because people are so over-loaded' (Gm)

'Most training is through the day and there is no time. Can't always release people during the day and if you have it during the night people often don't want to go' (Ip)

Funding sources are also a concern for most early childhood education services and educators, any ECEfS initiatives including professional learning sessions require additional funding. Somewhat related to funding are the diversity of governance and management structures in the early childhood field ranging from community-based parent co-operatives or committees to council services and large for-profit companies with multiple services state-

wide and nationally. The following quotes from practitioners and managers identify some funding, management and geographic challenges:

'We aren't funded at all from the state, so the money needs to be generated from the centre, but it's not enough' (Gm)

'A lot of the funding that is around is directed to schools and early childhood centres miss out' (Em)

'Their radars are up all the time about where they can get funding from, especially in the regional areas' (Gm)

'Often no way I can get to training days in Sydney, wouldn't have to funds for it, would have to fund it myself' (Ip)

'Management may not be as committed as the educators in some organisations' (Ap)

Cultural diversity among staff and families is also a major feature of the early childhood education field. Both anecdotally and from the data in Section 5, the importance of culturally-inclusive approaches to sustainability was highlighted; particularly, in terms of professional learning and resources for promoting children's and parent's learning. Children, families and educators bring many diverse values and perspectives to service discussions about ECEfS and educators need specific skills to respectfully explore these values among a staff team and with children and families. The following quotes offer some possibilities and priorities:

'Connecting with migrants through community gardens' (Bm)

'Having Indigenous agencies and groups involved talking about this' (Gm)

'Really hard for us [because] new migrants aren't aware of sustainability ... but we try to involve the families and we did some sessions ... from the local community we had a presenter on healthy lunch boxes ... and using recycling' (Dp)

'The thing with waste is having everyone on board with it and having a strong understanding of it. Particularly for people who haven't grown up in Australia and haven't been as educated in recycling' (Ip)

'Tried to implement an edible garden utilising Aboriginal plants' (Ep)

'Need more multilingual information for the parents, more sessions for the parents ... even for different cultures, different languages' (Dp)

In summary, the three demographic tables well-illustrate the diversity of early childhood educators and their education contexts with project participants' quotes adding depth to our understandings of the views and realities of managers and educators across NSW. Thus, when designing and providing professional ECEfS learning, there is clearly no 'one size that fits all' as there are a diversity of needs and perspectives to be acknowledged and incorporated. In fact, there is a national need for professional ECEfS learning opportunities; this is evident in ACECQA's *NQS* snapshot data for QA3 across Australia.

SECTION 5: FIELD CONSULTATION

The preceding Sections 1-4 offer a comprehensive foundation for consideration and interpretation of the collated field data. The following paragraphs initially outline the methodological approach undertaken for this project and then, the findings from the data are presented as a collection of themes and clusters.

Methodological approach

As presented in Section 2 of this report, the initial phase of this project was to conduct a comprehensive review of the literature related to the field of ECEfS. Literature databases and websites were surveyed to collate a range of published texts including academic research from current and historical journals and books as well as practitioner journals and publications with a focus on the years 2007 to present. Relevant policies and other documents from peak organisations and governments were also collated. The three Trust themes of children's knowledge, exemplary service role models and early childhood centres as community hubs framed the consultative process and project.

The second phase of this process was to collate data through two qualitative methods; these were focus groups and phone interviews with individuals working in the early childhood education field. We first identified a range of organisations that represented both urban and regional areas, culturally and linguistically diverse clients and educators and the spectrum of different types of early childhood education services in NSW (Refer Tables 5 and 6). Services included long day childcare centres, mobile services, preschools, family day care services and both for profit and not-for-profit centres. From the range of peak stakeholder professional

organisations an initial group of seven most likely to offer a broadly representative, inclusive and current data set was selected to participate in the focus groups (note two additional peaks were included later) (Refer to Appendix 1.4 for the project invitation). Whilst it was difficult to access organisations with this broad representation, we did eventually succeed with this vital task. Once organisations were selected and agreed to partake in the project, we sought their consent and they were assured of confidentiality throughout the process. As such all participants and organisations were de-identified and assigned a letter (A, B, C, etc. in the case of organisations) and a number (1, 2, 3, etc. in the case of participants).

Table 5: Summary of project participants and their organisations

Organisation	Organisational Focus	Senior management (m) participants in focus groups undertaken between 2/9/2014-9/9/2014	Practitioner (p) participants in phone interviews undertaken between 15/9/2014-14/10/2014	Total number of participants per organisation
A	Service provider, professional learning provider, national network member,	1 FG3 2 FG3	1 2	4
B	State co-ordinating and support body, national network member, professional learning provider	1 FG3 2 FG3	1 2	4
C	State co-ordinating and support body, national network member, professional learning provider, with a focus on regional, rural and remote services	1 FG5	1	2
D	National co-ordinating and support body, professional learning provider, service provider	1 FG4 2 FG4 3 FG4	1 2	5
E	National co-ordinating and support body, professional learning provider, service provider	1 FG1	1 2	3
F	State support and guidance body, professional learning provider	1 FG1 2 FG1	1 2 3 4	6
G	National co-ordinating and support body, professional learning provider, service provider	1 FG2 2 FG2	1 2	4
H	State co-ordinating, support and advocacy body and professional learning provider	N/A	1	1
I	National and state-based private service providers	N/A	1 2	2
TOTALS		13 focus group participants	18 phone interview participants	31 participants

Table 6: Profiles of participating peak organisations

Organisation	A	B	C	D	E	F	G
Member services	3	90	104	150	57	576	129
Children attending	266	20000	--	15128	PS-1837 LDC-1656 ACFC-47 OCC-248 OSHC-1358	--	14388
Educators	46	5000	--	2027	PS-235 LDC-291 ACFC-9 OCC-22 OSHC-106	--	2414
Families	224	17000	--	13502	--	--	11991
Preschool services	--	--	42	93	21	--	--
Family day care services	--	Approx. 250	--	--	--	--	--
Long day care services	3	--	7	43	21	--	129
Multi-purpose centres	--	--	--	--	14	--	--
Regional services	--	--	88	4	0	--	78
Metropolitan services	3	--	16	146	57	--	51
Culturally-diverse services	--	--	--	150	Approx. 57	--	--
Indigenous services	--	--	--	--	1	--	--

(Profile data for peaks H and I unavailable)

Phone interviews took place with educators in the early childhood field and focus groups were conducted with senior managers of the key peak early childhood organisations. Phone interviews were conducted with 18 participants across all organisations and ranged from 25 minutes to 1 hour and 10 minutes. In the case of the two organisations added later, there were phone interviews only and no focus groups. Five focus groups took place consisting of thirteen participants in total from across seven organisations. The focus groups took between 40 minutes and 1 hour 25 minutes and were conducted in person in greater Sydney. For both the focus groups and the phone interviews participants were presented with a briefing statement and asked to comment on areas such as:

- the ECEfS and sustainability practices in their service;
- the models and resources that they accessed in doing so;
- gaps in professional learning and development; and,
- potential sites of funding to improve education for sustainability (Refer to Appendix 1.5 for project questionnaire).

Questions were open-ended and the wording of the interview schedule was generally adhered to by the focus group facilitator and phone interviewer. Key aspects of each interview were then transcribed and the data was then professionally collated for analysis by the academic project leaders of this consultancy project.

A third aspect of the methodological approach employed involved seeking professional feedback at pertinent junctures as the documentation of the project evolved. The Trust convened steering group, broadly representative of the early childhood and education for sustainability fields, met on two occasions during the project and offered both face-to-face and online feedback. In particular, steering group feedback led to the addition of two further peak organisations, thus a total of nine peaks participated. Beyond this steering group, review input was sought from three interstate critical friends; they are respected academics with significant ECEfS expertise and all offered highly useful feedback at the end of the second reporting stage.

Data findings: Themes and clusters

The clustered themes identified below initially arose from debriefings by the focus group facilitators. These occurred immediately after each focus group as they were implemented over a two-week period. The emergent themes comprised:

- Multiple strategies to engage: IT, professional learning, visuals, resource person;
- Information digestible and repeated as key consistent messages;
- Demystify sustainability knowledge and building confidence;
- Beyond tick the box: link practice to deeper thinking/ethics/values;
- ECEfS as the norm and everyday/culturally embedded;
- Inclusion: regional and remote, cultural and Indigenous;
- Contextualised to each service/community with multiple starting points;
- Leadership/governance/strategic plans and policies;
- Families/children/communities/educators all involved with children as key drivers;
- and
- Infrastructure and physical changes.

These themes then formed a starting point for reviewing the transcripts from both the focus groups (managers) and phone interviews (practitioners), as well as coding these according to the three Trust frames. Note that the ten questions posed were directly derived from the Trust's project brief, with some editing for meaningful consultancy purposes.

Following the initial process of theme development above from the debriefings and transcribed data, the themes provided a basis for broader clustering to create more meaningful reporting and for readers to more readily see the complexities of the findings. Below, we have

identified five emerging yet flexible clusters of themes; these are centred around questions of who, how, why and what might be involved for progressing positive change in ECEfS.

Cluster 1: How to engage the early childhood education field?

- Multiple strategies of engagement

Cluster 2: How to move beyond engagement to facilitate change?

- Digestible and repeated messages
- Demystifying sustainability and building confidence
- Contexts with multiple starting points

Cluster 3: Who is involved?

- Inclusion
- Children as key drivers

Cluster 4: Why and how change occurs at a deeper level?

- Beyond tick the box
- ECEfS as the norm

Cluster 5: What elements might enable or constrain change?

- Leadership and governance
- Infrastructure and physical change

The following pages elaborate on each of these five clusters and their specific themes through discussion and links to supporting evidence from the collated data. Each cluster is identified in terms of: the key ideas evident; quotes from both managers and practitioners; and, links back to the three Trust frames of children's knowledge (F1), exemplary service role models (F2) and early childhood centres as community hubs (F3). Readers should note each quote is identified by an organisational code from A to I, a manager (m) or practitioner (p) perspective and then linked with one or more of the three Trust frames above.

Cluster 1: How to engage the early childhood education field?

- Multiple strategies of engagement

This cluster highlights a recurring theme in the data about the need for multiple strategies to effectively engage educators in sustainability; there is no one recipe or strategy that

Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 70

dominated, but many. Not unexpectedly, this outcome reflects the inherent diversity of the early childhood education field in terms of service types and educator qualifications across varied socio-cultural and geographical contexts including regional and remote settings of NSW.

The following strategies were noted by practitioners and managers alike and are grouped as: IT related strategies; resource strategies; and, those involving direct relationships.

IT related strategies:

- Webinars, teleconferences or audio tapes (relevant to mobile services when travelling) for professional learning, particularly to support some practitioners in remote and regional areas.
- Websites with readily accessible resource information, including intranet within organisations. The ECA government funded *Professional Learning Program* which has now been rebadged as the in-house *Early Childhood Learning Hub* were often cited as exemplary online resources.
- Social media including blogs to support after hours accessibility.
'Webinars don't inspire you the same way face to face does' (Ip F2)
'Educators will be accessing information out of work time, need to look at the timing of people accessing information-social media is really important' (Gm F2)
'We all use the internet, apps and mobile phones so it is not really difficult to go and check a website to gain more ideas' (Ap F1-2)
'If they email information it rarely gets past the co-ordinator's email. If it's hard copy it goes into the staff room' (Hp F2)

Resource strategies:

- Visuals as resources, in particular photographs and videos.
- Bulletins, guides and fact sheets with key information to share among practitioners and families.
- Stories shared by practitioners that highlight the 'doability' of sustainability for all.
'We need something visual, short little videos and clips. Staff are young' (Em F2)

'Practice guide with bullet points to work through when engaging people in conversation'
(Dm F2)

'Bulletins for services and families on a regular basis' (Dm F2-3)

'Stories are a powerful way of showing moving to a better place, not necessarily an exemplar' (Fm F2)

'This was the thing people enjoyed the most- engaging with peers when they shared their success stories because what they did seems achievable' (Gm F2)

'Need more multilingual information for the parents, more sessions for the parents ... even for different cultures, different languages' (Dp F3).

Direct relationships:

- Relationships with other services implementing sustainability as sister services, local networks or through visiting, but sometimes this is problematic due to perceived competition.
- Face to face regional meetings, networking opportunities and targeted credible training linked to the NQS.
- Partnerships with organisations beyond early childhood such as local government, Indigenous people, community gardens and corporates.
- Projects including action research were identified as a strategy to build local partnerships.
- Designated early childhood sustainability officers within organisations to support services.
- Train the trainer strategy.

'Visiting other centres that are exemplary' (Dm F2)

'Targeted training linked to NQS' (Dm F2)

'Person delivering PD need to have credibility which comes from understanding the pressures that educators are under' (Gm F2)

'Can do great partnerships at a local level, but I would like to see partnerships at a higher level ... I'd like to see some corporate partnerships. Can't the buildings with green codes, can't they help us?' (Em F3)

'Build partnerships through working on projects together' (Am F3)

'Interesting to see what other centres are doing- like an exchange for a couple of hours. It could grow into something bigger. Help from partnerships by allocating time to do it, we lack time' (Ap F2-3)

'It is a lot easier to hear of things that are actually happening within centres as opposed to theory, like practical examples and seeing it' (Ap F2)

'When you have been doing something for a while you do start to burn out with ideas to implement, more training sessions to inspire educators' (Bp F2)

'Useful to have a community hub - has helped us a lot ... it opened minds and the thinking changed from the different cultures - developed hubs with ECEEN' (Dp F2)

'Develop partnerships between centres who have established sustainability programs and those that are starting out' (Ep F2)

'Need more than workshops, people need to use an action research approach. Actually get together and think about what you want to achieve with regular feedback to help people to be driven and make sure sustainability doesn't get put on the back burner (Fp F2)

Beyond highlighting these strategies a number of successful programs for sustainability and other fields were noted. Participants recognised the *Earth Charter*, *Little Green Steps* (Gosford & Wyong Councils, 2007) and *Ecosmart* (NSW ECEEN, 2012) as effective and useful sustainability resources and described the *Professional Learning Program (PLP)* available from the Early Childhood Australia website until recently and the *Munch and Move* program as models to potentially emulate. The following quotes identify the multiple elements of *Munch and Move* that promoted successful uptake.

'When Munch & Move started a few years ago they then followed up services and that was really good. So they all went to the training and then somebody rang you [and asked] "what have you been doing" [etc] and actually prompted you to think a little bit about keeping this up ... so it does become embedded' (Em F2)

'One of the key benefits of Munch & Move was the staff development kit that was developed. They had a resource kit that took them through the 5 key messages and had links etc'. Munch and Move has become embedded in the everyday of centres. Fact sheets. Taken a few years but there has been culture change. Development kit.

Some key messages, a website. Need a quick easy place to find stories and information that you can trust' (Fm F2)

Cluster 2: How to move beyond engagement to facilitate change?

- Digestible and repeated messages
- Demystifying sustainability and building confidence
- Contexts with multiple starting points

Cluster 2 comprises three themes centred on sustainability content and practice knowledge and how best to facilitate improved understandings and confidence among a diverse group of practitioners and services. The term aptly applied by one manager was 'demystifying sustainability' (Am F2). It was acknowledged that discussion around sustainability would be robust and there would be challenges based on personal beliefs about climate change and levels of practitioner confidence to engage with the topic. Practitioner knowledge and professional confidence around sustainability were cited as two key areas requiring development across the early childhood education field.

'The staff may not have a huge amount of confidence in talking about sustainability. Perhaps it's not something that was covered-off in their course at TAFE or University. Or they may not believe in climate change. There is some significant resistance to sustainability ... whether people believe it is a big thing and then, whether they are confident or comfortable in teaching it' (Gm F2)

The recent introduction of sustainability units in TAFE Children's Services training was noted as now having an impact in the field in this respect. *'With newly trained educators I can see a cultural shift so there has been a shift in the training' (Am F2)*. All universities too, need to be encouraged to include sustainability in their curriculum, because we *'need to make sure that the educators who are educating are informed ... so they can impart that knowledge' (Cp F2)*. Further, any in-service professional learning about sustainability *'needs more than one person to go to training otherwise the message gets lost' (Gm F2)*; so here, critical mass and shared learning appear to be influential. Potentially, the notion of *'professional learning communities having a critical friend coming in' (Dm F2)* offers a viable option to facilitate shared professional learning about sustainability challenges and possibilities. In one service

an *'audit was the foundation for thinking about sustainability'* (Ep F2) and provided a starting point for ECEfS change.

Specific contextual challenges were identified for some practitioners and these highlighted the potential for social, economic and political implications when engaging with sustainability in early childhood communities.

'sometimes they are awkward conversations, [for example] farmers would say 'hang on that's my livelihood' (Fm F3)

'a lot of our families would be employed in industries that would be considered less than environmentally friendly like coal mining [or] logging ... it's a bit of a touchy issue as well, there is a fear around it ... you need to be really diplomatic about the things that you're talking about' (Cp F2-3).

Digestible and repeated key consistent messages about sustainability being embedded in available resources and through shared stories/case studies were highlighted. Research participants noted that knowledge alone is not enough; for example, practitioners need to be able to identify a starting point, and *'each staff has a different interest which will impact on what they share with children and the families'* (Ap F1-2). From diverse starting points and various interests educators' translations into sustainability practices with children and families is best facilitated by breaking processes down into steps. One *'needs to show the steps to get there'* (Gm F2) and recognise that the *'people who are the most influential are the ones who can translate it into practice'* (Gm F2). *'A lot of people don't see that link because they don't have the experience and knowledge'* (Ap F1). Any ECEfS resources need to include practitioner knowledge about sustainability as well as pedagogical ideas for translation of concepts into practice with children. The following quote identifies the many inherent levels possible within such resources.

'If people don't have the experience themselves, it is very hard for them to start discussions with young children around issues of sustainability. So I think resources that have prompts, discussion questions as well as reflective questions for team meetings for staff to discuss themselves would be good. But I think sometimes people aren't sure where to take the conversation or even [how] to start the conversation... people are confused about what it is... might be good to have 5 key messages and

break it down into recycling and purchasing and ... with key strategies with children, families [etc]' (Fm F2)

The field revealed consensus around sustainability being contextualised to each service and/or community with multiple starting points. *'Each centre had a different starting point, so you can't have a catch-all approach. This is more sustainable in terms of longevity' (Gm F2).*

Multiple starting points let *'people know that there are lots of different entry points to this ... depending on where the service is and what time and resources are available. Some steps are better than nothing at all' (Fm F2).* Also, the demographics of early childhood educators as a possible barrier to implementation was mentioned by a practitioner who described *'the culture of long-term educators'* and stated *'the younger ones are a lot more aware that we need to recycle and that we need to look at ... sustainability. So [a barrier would be] changing people's thoughts and ideas [particularly for] different age groups' (Bp F2).*

One approach to beginning from and identifying relevant starting points is to have a staff conversation and simply ask questions such as:

'Have a conversation. What's the reason? Why? Why would you do it? What is it that you actually want to achieve? Why is it important? What do you love about it? What do you want children to fall in love with? From that you can set goals' (Fp F2).

Contextually, relevant approaches also offer more potential for linking children and families with local community facilities, events and resources, such as community gardens. In particular the NSW Shell Harbour *'Growing Minds Greening Communities'* was offered as exemplary:

'Growing Minds Greening Communities, there are a lot of services engaged in that and they have seen real benefits because ... it has workshops for the educators to go to, but it also has events for families, they have a campfire event that families could go to. They have a newsletter which lists things that families could do in the school holidays; go to local state parks, botanical gardens those sorts of things ... it doesn't just look at one thing; it looks at compost and recycling but also cleaning products ... They're working with families, but they are targeting the children as messengers.

They are working with centres because that is how they get to the children. So, very much that intergenerational approach' (Fm F3).

While the above program is local and comprehensive, for some practitioners it might be *'hard to know what's out there'* (Gm F3) and the mapping of sustainability related agencies in local areas was noted as a useful resource for services, particularly when many practitioners do not live in the area where they are employed.

Cluster 3: Who is involved?

- Inclusion
- Children as key drivers

The diverse geographic and sociocultural contexts of early childhood services in NSW and generally across Australia highlight that inclusive approaches are paramount in any promotion of sustainability both with and within services. Whether services are catering for the short-term childcare needs of migrant language groups or ongoing fortnightly preschool programs in remote rural farming communities, sustainability can be meaningfully and authentically addressed. One participant described how *'most migrant families not aware of issues around sustainability'* (Dp F3). Tailoring ECEfS initiatives to these diverse service types is feasible; for example, edible gardening projects instigated in both a migrant childcare service and a remote mobile service, supported children and parents learning together and were seen as highly valuable by educators. In an additional example, previously farm safety programs in remote areas have been approached in this manner. Some managers identified the creativity of regionally-based services in developing sustainability projects; meeting particular service needs for funding; and, in developing partnerships through regionally-based professional learning. Indigenous perspectives were strongly supported and linked to sustainability, *'anything that had Indigenous threads or perspectives on sustainability would be absolutely critical because this discussion is about sustainability, but the depth of thinking that people do around Indigenous practices is really minimal'* (Gm F2).

Linked to the principle of inclusion as outlined above is the notion that sustainability involves all participants in an early childhood service; that is, children, educators and families alike. Reflecting current reconceptualised images of children as capable and competent with

participatory rights, many project participants clearly affirmed children as active and visible drivers for sustainability both within services and in their family homes.

'Children are solving problems, but how is it made visible to families' (Gm F1)

'Children are civic participants; they should have a seat at the table' (Gm F1)

'Children would give us ideas about what to do' (Bm F1)

'Country children have a good awareness that water is dependent on rain and are good at conserving it' (Cp F1)

'We have been looking more at sustainability in terms of curriculum planning. That has come purely from questions from children and conversations with educators' (Dp F1)

'It's about knowing what the children already know and how we can shape this generation to be more wise' (Dp F1)

'They [children] carry it home to their communities, to their grandparents and bring information from their grandparents' (Ep F1-3)

'Acknowledge that children's knowledge provides a valuable contribution to this issue ... we don't give them enough credit as capable human beings' (Ep F1)

When children are acknowledged as drivers of learning and they take ownership *'it becomes much more authentic for people. It isn't just the tick a box approach' (Gm F2)*. Also, this idea is combined with *'a depth of thinking. How are children solving some of the problems? How are they having voices within some of the issues? How is that learning made visible to families and documented?' (Gm F1)*. The whole curriculum has potential for embedding a sustainability ethic when such a child-led ethos to learning is adopted. *'Once driven by children it becomes part of the curriculum, remarkable change in services, and educators astounded by children's knowledge' (Gm F1)*. There is also potential to *'address social justice and equity in sustainability by talking about all people being treated equally and embedding into their program about different children's cultures - children need to be exposed to this constantly' (Bp F1)*.

Not only are children engaging and learning, but so too are their families; *'I am seeing it where services are turning a light bulb on for some families who have never thought about it' (Em F3)*. There is potential for social learning, a shared commitment and examples of

continuities between services, families and local communities. As one manager participant summarised this *'sustainability is one of the key principles [along with pedagogy, nutrition etc] of how we should be educating young children and working with families and communities'* (Fm F123). Three practitioners described their experiences of children educating their families and building continuities:

'an information board about sustainability that staff can pass onto the families ... parents are saying that their children are correcting their behaviour in the home regarding recycling and water conservation. The children are taking it home, the things we are putting in place here, they are taking it home to their families and their families are taking it on board' (Fp F1,3).

'we do have a really good support base from families so... that's part of it; that the parents are interested in what's happening and when we tell them what we are doing they are excited so that does help' (Fp F1)

'children take information on sustainability home to their parents. Children are really mindful about what they are doing and have been noticing when organisations such as the Council are wasting water by not watering at appropriate times' (Ip F1, 3)

Another approach for a number of practitioners was to *'always put sustainability ideas in newsletters so parents can think about sustainability in their own homes'* (Bp F2-3). It was suggested that *'once you have engaged with people, people in the community take responsibility for it, but it initially takes quite a bit of work'* (Gm F3). This is both within and beyond the setting work that many practitioners need support with; for example, meaningful and relevant resourcing might assist educators to undertake ECEfS in a more comprehensive and informed manner.

Cluster 4: Why and how change occurs at a deeper level?

- Beyond tick the box
- ECEfS as the norm

The themes canvassed in the previous clusters lead to the possibility that sustainability can be more than a ‘tick the box’ approach; and thus, it seems that ECEfS must incorporate deeper thinking and ethics/values across all four dimensions of sustainability. With deeper thinking and critical reflection about why and how, ECEfS may well become embedded as the ‘norm’ in early childhood services. Project participants often identified these elements and they well recognised that sustainability required more than simply implementing some environmental practices. Several participants noted the challenges of shifting some practitioners’ thinking and the time constraints surrounding fully embedding sustainability. The following quotes substantiate these claims:

‘Models need to be more than tick the box’ ‘Sustainability is something you have to believe in’ (Dm F2)

‘I think it has just been ticking a box, it hasn’t been authentic in their practice a lot of the time, it’s just been meeting a standard’ (Em F2)

‘From a sector perspective I think it is knowing ourselves and the importance [of sustainability] and how we address that. It is almost separate to how we address it in an early childhood curriculum perspective. What do I think about sustainability? Because that will be reflected in how I teach and position it’ (Gm F2)

‘Maybe a third of centres have been addressing sustainability, it’s viewed as an add on... rather than being embedded’ (Gm F2)

‘Embedding something deeply is really challenging. Sustainability wasn’t prioritised as something that needed to be addressed immediately because there were more pressing things’ (Gm F2)

‘Barriers are getting people on board and having consistency and that’s why you need someone driving it all the time’ (Fp F2).

There was consensus that sustainability in practice should not be viewed as an ‘add on’ in services; rather, ECEfS ought to be woven into the whole service operation and children’s program. The change process towards sustainability being ‘everyday’ and the ‘norm’ was seen to involve ‘ideological debate’ (Gm F2) and making ‘decisions along the way’ (Am F2); this means a transformative process for potentially all concerned. Documenting both the process and a vision is useful, as one practitioner described when outlining ‘where they began, where they are now and their vision for the future so new educators could understand

where they were on their sustainability journey' (Gp F2). The following quote encapsulates the picture for one service and reflects back to Cluster 2 regarding knowledge gaps among early childhood educators:

'We have focused very much on sustainability within the environment and not looking at sustainability as a whole ... we automatically link sustainability with recycling and that kind of thing and yet ... we need to look at it more holistically ... and on a global scale. That's where there a lot of gaps and misconceptions about what sustainability actually entails. It's more than just having your compost bin ... there are gaps in the knowledge that we have' (Cp F2).

Significantly families are integral to the socio-cultural embedding of sustainability; for example, one service's replacement of plastic learning materials with natural ones created a setting-wide role model for parents with respect to play materials for their children. Also, one practitioner outlined how *'children are changing practices in family homes, families were given a list of things that they could do at home and parents took photos of children doing sustainable jobs in the home' (Ip F123)*. Strong partnerships for sustainability were evident between services and their families and these interactions promoted sustainability as the 'norm' for all involved across both contexts. Such interactions highlighting the social change dimension of sustainability.

Cluster 5: What elements might enable or constrain change?

- Leadership and governance
- Infrastructure and physical change

Within the broad themes of leadership and governance several foci were evident in the field data. Sustainability focussed policies, strategic plans and philosophical statements were seen as critical enablers for effective leadership both at organisational and individual service levels. Some organisations and settings had already incorporated sustainability, but many were just beginning and were somewhat prompted by the *NQS* (ACECQA, 2013).

'What's important is a philosophy and policies to guide people and to reflect their community' (Bm F2)

'In terms of sustainability it's about having something in the strategic plan ... if it's in the plan it's something that is identified and that they are working towards. Means that you are talking with families and with the community about how your centre is managing that whole system' (Fm F2)

'Trying to make the sustainability policy something achievable for the educators' (Bp F2)

'Starts with policies-showcase best practice around a range of sustainability issues. But, policy has to be workable so that it can be followed' (Bp F2)

The peak organisation managers in particular identified their role to model and lead in this area; and, several peaks had implemented initiatives such as sustainability working groups. However, it can be challenging as the following quote illustrates: *'EfS principles need to be implemented holistically. I tried to do it [at] an organisational level, but it was too beyond where we were at the time so we have gone back to grass roots' (Am F3)*. Knowing the organisation well and targeting starting points seems relevant here. One further approach is to *'have sustainability leaders within organisations - give someone ownership as the driver - to stop things dropping off the agenda' (Am F3)*, and *'give them scope to pursue their focus, but also give them clear objectives (Ip F2)*. However, one children's service did not have a current sustainability leader and noted *'unless someone takes it on it won't happen because everyone is so pressed for time pressures' (Ep F2)*. Organisations also recognised that some local governments are already engaged; but, it was suggested that *'it would be good if it was a message coming from state government - they could use their voice for greater leverage' (Gm F3)*.

A third and final foci emerged around change management and how sustainability in particular is about continuous change. Change was considered challenging for services from an organisational management perspective and services do need support to progress change towards fully embedding sustainability. This is because some practitioners,

'really struggle with that [the idea of continuous change] because they have to manage people in that process. Some people are early adopters, some people need to [be] pulled along and some people need to be pushed' (Fm F2)

Ultimately then, drawing on the three foci here, sustainability *'has to be owned and really supported from an organisational level'* (Am F3) for all members, whether the organisation is at a peak level or individual service level. Then, at the service level, as one practitioner pragmatically stated *'I can drive it, but you still need the support of the others'* (Ep F2). One needs to *'ignite passion by realising you are already doing part of it and developing a vision and discussing why you want to do it e.g. help the world'* (Ep F2).

Infrastructure, the need for physical change and the related constraints were often noted by research participants. It was suggested that tangible environmental changes could lead to *'educators' ability to think differently and changes to curriculum'* (Gm F2). Physical changes could offer much potential for both the children's learning program and the social learning engagement with families; these were viewed positively. Physical changes ranged from solar panels to water tanks and the purchasing of play equipment from credible sustainable sources. Such changes have potential across the social, economic and environmental dimensions of sustainability (UNESCO, 2010). A range of constraints were identified as problematic, including accessing funding, operating in leased buildings and locating relevant information and services. The following quotes represent these points:

'We have always started with Little Green Steps and Eco Smart, but personally I would like to take it another step in terms of building and things like harvesting sun... but we don't know how to do it without a lot of money' (Em F2)

'Need to know where to look for funding in terms of making the centre more sustainable with grey water and solar panels, but not everyone knows where to look' (Fm F2)

'Tried to measure our carbon footprint, which has been difficult because the companies that do that are used to doing it for larger organisations. But, we believe we need to measure it' (Am F2)

'It is easier to rush into a shop and buy what you need instead of ... you have to think outside the picture to recycle and be resourceful with what you have' (Ap F2)

'We are finding [resources] that fit into what our needs are ... we are looking at the micro level, working with our children and then working at the macro level with parents and with the community too. So, that's where our philosophy lies' (Fp F1-3)

'Having someone to collate resources and act as a filter for you. There could be resources out there doing it that we don't know of' (Fp F2)

But, despite the positive sustainability intentions of children's services in relation to resources *'sometimes the community thinks perhaps that 'oh it's a cheapskate type of thing' ... but generally there is an appreciation of recycling' (Ip F2)*. Thus, the service message about sustainability needs to be clear and readily visible in the community for all to understand and appreciate.

In conclusion, the field data reported here offers a rich and diverse base and offers priorities for leading change in ECEfS. It is clear from both the literature and data that ECEfS change has begun within the NSW early childhood field prompted by a number of initiatives and the *NQS* (ACECQA, 2013). However, there is still much to be achieved. Early childhood educators acknowledged the urgent need to build their knowledge and confidence around sustainability, to think more deeply and critically reflect on why sustainability is essential as a 'norm' for all participants in early childhood services. In this data they identified key facilitators to make this happen from multiple engagement strategies to resources and activities.

SECTION 6: A SYNTHESIS OF FINDINGS FROM THE LITERATURE AND FIELD

The focus in this discussion section of the report is to synthesise the findings from the literature organised around the three Trust frames (Section 2) and the emergent clusters of themes from the field data (Section 5). Mindful of the project brief, the frames are prioritised here for helping to shape this synthesis.

Frame 1. Children’s knowledge and learning about sustainability

While there were no direct questions regarding children’s learning in the questionnaire employed, aspects of participant responses were very relevant to children’s knowledge and learning. For example, there were responses about gaps in adults’ knowledge and the resources available, pedagogical knowledge, confidence to engage in sustainability and partnerships with community. All these have implications for educators’ pedagogical stances and thus, what children might be learning about sustainability. Some significant common threads are embedded in the literature and data which are relevant to children’s knowledge and how children learn about sustainability are. These focus on images of children, pedagogy, curriculum and parent partnerships for learning.

An image of children as capable, agentic and knowledgeable citizens with rights and active participatory roles in sustainability was clearly espoused in both the literature (Davis, 2014; Davis & Elliott, 2014) and field data (Refer Section 3). Also, there was evidence of educators being somewhat surprised or even astounded by children’s knowledge about sustainability (Refer Section 5). It appears that revealing and guiding this previously unexplored knowledge offers a point of departure for a journey of shared learning by children and educators. But, how do children learn about sustainability is recognised as a research gap (Hedeflak, Almqvist & Ostman, 2014).

Management and educator participants alike promoted children as visible and key drivers of change for sustainability; they saw them as ‘solving problems’, ‘civic participants’ and giving ‘us ideas about what to do’ (Refer Cluster 3 in Section 5). These images also align with broader ECEfS principles specifically those around rights, equity and social justice (Refer

Section 1). All children have rights and are viewed as having a significant role in addressing sustainability as a daily component of curricula and routines, both now and for the future.

The subject of pedagogy offers some complexities to unravel. For example, Edwards and Cutter-MacKenzie (2013) highlight purposefully framed play as a highly effective approach for ECEfS; however, this requires educators to have both a depth of understanding about sustainability and a pedagogical repertoire to fully explore the possibilities. The data strongly identified that educator knowledge and confidence is generally lacking across the early childhood field; and, even when ECEfS knowledge is accessible, educators often require assistance to translate this into authentic pedagogical practice with children. As stated by one practitioner, *'A lot of people don't see the link because they don't have the experience and knowledge'* (Ap F1). Perhaps some of this complexity harks back to educators somewhat confused understandings of sustainability; Hedeflak, Almqvist & Ostman (2014) describe a spectrum of concepts and here in this study participants called for a *'demystifying of sustainability'* (Refer Section 5). Hence, there appears to be a chasm between an ECEfS pedagogical approach supported by research and professional literature and the levels of knowledge and skills that educators currently have to implement such an approach. This situation clearly points to much scope for activities and initiatives that address educator's sustainability knowledge and confidence across the early childhood education field.

Key aspects about curriculum cited in the literature were reinforced by the collated findings. For example, curriculum involved specific sustainable practices with children, children being outdoors and an acknowledgement of values and change (Refer Section 2). In contrast, while various partnerships were advocated as an engagement strategy by some educators, community partnerships for directly contributing to the curriculum and children's learning were not cited by project participants. A constraint stated here was *'it's hard to know what's out there'* (Gm F3). The potential for children to carry messages back to their homes and into their communities was acknowledged; but, apart from the exemplary *Growing Minds Greening Communities* program noted, productive community-curriculum links were absent in the data. Also, the potential for specific curriculum foci such as the sciences or arts to embed sustainability was identified in the literature, but this pedagogical content knowledge idea was also not cited by participants. Both of these points resonate with a previous point

about educators needing more and focussed support to translate knowledge into everyday practice. There is much potential here to explore ways of encouraging greater knowledge within local communities and likely partnerships. For example, we might ask how can educators be ‘proactive and intentional about the development of relationships between community adults and children’ (Nimmo, 2008b, p. 9)? The various direct and positive impacts for the early childhood curriculum, sustainability concepts and practices and the community members are highly self-evident.

A strong aspect that was common in the literature and with participants involved partnerships with parents; this feature has been as outlined in the literature review within Frame 3 in relation to services being community hubs. However, within the field data the emphasis on parents was more keenly focussed in Clusters 3 and 4, where parents were involved in sustainability through shared learning with their children and by promoting sustainability as a cultural ‘norm’ for services. Thus, the idea of creating continuities between services and home contexts was supported. While parents can be acknowledged as players in community hubs, from the early childhood education field’s perspective families are usually more tightly bound with the curriculum and learning in early childhood settings as promoted by the *EYLF* (DEEWR, 2009) and *NQS* (ACECQA, 2013). Hence, the approach of refinement and relocation of partnerships with parents to this first frame describing children’s knowledge and learning. A focus on social and intergenerational learning for sustainability is well-supported here by both the literature and educators.

Frame 2. Exemplary sustainable early childhood service role models

An exemplary sustainable early childhood service could firstly be characterised by the points raised above in relation to Frame 1 with respect to children and their learning. These include:

- images of children as capable change agents for sustainability;
- confident and knowledgeable educators who readily translate their understandings about sustainability into pedagogical practice;
- a curriculum that incorporates sustainable practices and outdoor play and acknowledges values and change; and,

- effective community and parent partnerships for shared learning about sustainability.

Building on this initial, but critically foundational frame, we can draw on both the literature and field data to state that an exemplary service can also be characterised by whole centre inclusive approaches; intentional leadership, professional learning and governance; multiple strategies and starting points; and, a physically sustainable setting. It is these latter points that are developed further within this second frame.

Whole centre approaches underpin a number of school-based sustainability programs internationally and they are also strongly advocated in the literature for early childhood services (Davis, 2010). Whole centre early childhood case studies have been described (Pratt, 2010) and these affirm the potential for a wider application of this approach across early childhood education settings. One study participant stated '*we need to look at it [sustainability] more holistically*' when referring to the need for more than a compost bin to authentically embed sustainability. Although study participants did not necessarily employ the term 'whole centre approach', this idea was clearly the intent as they described ECEfS as being more than 'tick the box' and 'a norm' in Cluster 4 (Refer Section 5). The principle of inclusion raised in Cluster 3 (Refer Section 5) also aligns with a whole centre approach; thus, it is reasonable to argue that the success of a whole centre approach is dependent on everyone being involved and actively included. Inclusion, in relation to ECEfS approaches, was not explicitly highlighted in the literature presented here; but, study participants were unequivocal that ECEfS was for all and so, specific strategies were necessary to ensure all voices were heard, particularly Indigenous and non-English speaking voices (Flores, Casebeer & Riojas-Cortez, 2011; Mundine & Giugni, 2006). Inclusion as equity and social justice resonates with a core ECEfS principle (Refer Section 2) and the UNESCO (2010) dimensions of sustainability (Refer Figure 1). It is firmly supported by the *EYLF* (DEEWR, 2009) and *NQS* (ACECQA, 2013). A whole centre approach to sustainability includes everyone and permeates all aspects of an exemplary service.

Leadership, professional learning and governance for sustainability were viewed as integral to an exemplary service by study participants (Gibson, 2010). The importance of intentional

leadership was identified in the literature within Frame 2 (Refer Section 2) and further echoed by the data in Cluster 5 (Section 5); similarly, governance and change management were highlighted. These latter points were not raised in the selected literature, but they appeared very pertinent to project participants, particularly those speaking from management perspectives. Governance in terms of sustainability philosophies, policies and strategic plans at both peak organisational and local service levels were described as integral to facilitating change. However, change management itself was considered problematic for many in the early childhood education field. Sustainability was acknowledged as involving continuous change management with professionals in the field needing support to effectively implement such change.

It is evident from previous discussions in this section, that there is a general lack of sustainability knowledge among educators; therefore, we suggest ongoing and transformative professional learning is essential to effect change and promote exemplary services. Both the professional learning literature in Section 3 and field data in Clusters 1 and 2 (in Section 5) offer a range of professional learning possibilities; these may vary from online resources to mentoring and series of workshops. However, we suggest that these possibilities be firmly underpinned by a few consistent and key messages about sustainability at all levels so that ECEfS becomes a broader reality. The rationale for project participants was that reiterated key messages were more likely to help create impact. Further, participants described how sustainability as a concept can be overwhelming initially; and so, locating one starting point and taking small steps often will be a useful strategy. Many small steps over time can lead to exemplary sustainable early childhood education services.

Linked to professional learning above are the notions of multiple engagement strategies and multiple starting points as highlighted by the study participants in Clusters 1 and 2. Such points did not surface in the selected literature, but they were keenly emphasised by participants. Multiple strategies and multiple starting points reflect the inherent diversity of the early childhood education field which varies from levels of qualifications, to service types and to geographic/socio-cultural places (Refer Section 4). No one strategy will engage all educators and no one starting point will provoke changes in all services. Any initiatives developed and implemented for and with the early childhood education field must

demonstrate a firm grasp of this key point. Thus, a focus on flexible and responsive implementation is vital. Such a focus will align with contemporary early childhood education thinking and more readily promote exemplary sustainable services.

Beyond values, dispositions and everyday governance, an exemplary early childhood service is also a physical setting. Hence, service provisions including ecological audits were noted in the literature (Refer Section 2); audits are generally relevant to the *NQS* Quality Improvement Plans (QIPs) and specifically to the QA 3.3.1 Sustainable service operation requirement (ACECQA, 2013). Project participants enthusiastically described feasible infrastructure and physical changes for early childhood settings and highlighted the learning potential for all. But constraints were also readily brought forward, such as challenges with accessing funding and locating relevant information and resources for implementing physical infrastructure changes.

To summarise an exemplary sustainable early childhood education service would demonstrate sustainability and ECEfS in totality, from the children's curriculum and educator's pedagogy to professional learning, along with leadership and governance, service operations, infrastructure actions and everything that might lie in between. This sustainability profile would be readily visible to all, both within and beyond the immediate setting. Such visibility would mean that these services would become beacons for other early childhood education services seeking starting points for their ECEfS changes.

Frame 3. Early childhood services as community hubs for sustainability

Early childhood services as community hubs for sustainability, essentially extends the everyday work and reach of Frames 1 and 2 into the local community. Children can be visible as advocates and agents for sustainability in their neighbourhoods and exemplary services can be acknowledged as inspiring sustainability leaders. The notion of services as community hubs is well supported by the literature; including the *EYLF* (DEEWR, 2009) and the *NQS* (2013) (Refer Section 2). As community hubs, services might create partnerships with local organisations or participate in local networks; thus, they are creating further opportunities for

capacity-building, establishing shared communities of practice and fostering a sense of community belonging for many.

There are documented examples of services that have developed community partnerships with sustainability as a focal point (Ji & Stuhmcke, 2014; Lee, 2012; Smith et al, 2012); and, there is a handful of NSW early childhood education services that have hosted community sustainability days. However, tangible examples were limited in the field data collated here. Community partnerships were itemised in Cluster 1 as a strategy for engagement with ECEfS and in particular, the professional hubs created through the NSW ECEEN *Ecocentres for early childhood project* were cited as an effective impetus. Local government partnerships and networking with other educators and services featured in practitioner perceptions of partnerships for sustainability; additionally, managers extended their thinking beyond the local to corporates. As previously stated, having time to search and to know ‘what’s out there’ in the neighbourhood and broader community is a significant constraint; hence, forms of localised mapping are suggested to support educators.

Partnerships with parents are integral to services being community hubs; and, here parents can be advocates for exemplary sustainable services in their wider communities. However, the viewpoint of the project participants was that they identified parents as part of the service and children’s learning, but not necessarily as somewhat removed community partners. This finding reinforces the typically close relationships between parents and early childhood education services that can and do ultimately support the building of these settings into community hubs for sustainability.

SECTION 7: BRINGING IT ALL TOGETHER

This final section acknowledges the limitations of this consultancy project and outlines possible actions for moving forward with ECEfS across NSW.

Limitations

While every effort has been made to fully address the project brief, the following limitations are acknowledged as pertinent to the reader's interpretations of the project report in general. We consider that the peak organisations that participated in this consultation to be broadly representative; but, we also note that not all peak early childhood organisations in NSW were consulted because of the limited timeframe. The senior managers and practitioners who participated in the focus groups and phone interviews were either self-nominated or nominated by their organisation; hence, collectively a group of participants who most likely had some interest or knowledge of sustainability. This also meant that those who could best contribute on behalf of their organisation may have participated. The shared-organisation format of some focus groups may have created commercial-in-confidence concerns for some senior management participants; however, the free flowing discussion recorded suggests this was not an issue. This study was conducted within a five-month timeframe; hence, while we endeavoured to access a significant amount of relevant literature, fully analyse the field data and synthesise the findings, a longer time frame would have enabled a more measured approach to all project tasks.

Possible actions for moving ECEfS forward across NSW

The literature and field data that has been collated and analysed here, they variously support the following outcomes:

1. Initiatives for sustainability in the early childhood field must account for the inherent diversity of the field in terms of service types, educator qualifications, geographic and socio-cultural contexts and the constraints of time, funds and resources.
2. There is no one way to engage with the early childhood education field to promote sustainability, thus multiple strategies employing diverse, but early childhood education aligned approaches are required.

3. The synergies between the principles of EfS and the philosophies and pedagogies of early childhood education are ripe with potential for thinking, acting and relating for ECEfS by all participants in early childhood services; especially with support from the current *EYLF* (DEEWR, 2009) and *NQS* (ACECQA, 2013).
4. Relationships between parents, children and educators are core to socially transformative changes and shared learning opportunities about sustainability in early childhood settings. Here, there are unique opportunities to build all kinds of social capital for now and into the future through intergenerational learning and actions for sustainability.
5. Many early childhood educators currently lack ECEfS knowledge and confidence; this reality creates a high priority need across the field for urgently progressing sustainability by supporting numerous opportunities for focussed training, mentoring, networking, and researching, resourcing and online interactions.
6. Community ECEfS partnerships offer much potential for shared learning and exemplary exchanges through various projects and events; for these to occur educators need support in locating and building relevant and viable partnerships for sustainability with people and organisations.
7. Adjustments to early childhood education governance, leadership and change management are priorities for progressing a sustainability agenda in the field; sustainability-orientated philosophies, policies and strategic plans are essential components of exemplary ECEfS services and organisations.
8. Sustainable infrastructure initiatives offer diverse potential for highly visible environmental, economic and social outcomes within and beyond early childhood education services. Educators are uniquely placed to capitalise on such initiatives for learning about sustainability with both children and families.
9. Apart from the mostly voluntary networking and co-ordination offered by the four state-based professional ECEfS groups across Australia, there is as yet no funded co-ordinated effort to systemically progress ECEfS in the field. This is a high priority to address effective and timely holistic change, aligned both locally with the *NQS* (ACECQA, 2013) and *EYLF* (DEEWR, 2009) and globally with the directions of UNESCO (2013; 2014).

10. Both EfS and early childhood education draw on foundational principles of social justice and equity, hence it is strongly recommended that any initiatives are fully inclusive and demonstrate respect for and consideration of Indigenous knowledge's and ways of understanding sustainable living.

SECTION 8: REFERENCES

- AAEE NSW (2014). *Make the change: A framework for education and engagement for sustainability 2014-2021*. NSW: AAEE NSW.
- Australian Curriculum and Reporting Authority (ACARA). (2014). *Australian Curriculum V5.2*. Retrieved from www.acara.edu.au
- Australian Children's Education & Care Quality Authority (ACECQA) (2011). *Guide to the national standard*. Retrieved October 19, 2011 from http://acecqa.gov.au/storage/THREE_Guide_to_the_National_Quality_Standard.pdf
- Australian Children's Education & Care Quality Authority (ACECQA) (2013a). *Guide to the national standard*. Retrieved from <http://files.acecqa.gov.au/files/National-Quality-Framework-Resources-Kit/NQF03-Guide-to-NQS-130902.pdf>
- Australian Children's Education & Care Quality Authority (ACECQA) (2013b). *NQF snapshot Q2 2013*. Retrieved from <http://files.acecqa.gov.au/files/Reports/130801-ACECQA-NQFSnapshot-FINAL.pdf>
- Australian Children's Education & Care Quality Authority (ACECQA) (2014). *NQF snapshot Q2 2014*. Retrieved from http://files.acecqa.gov.au/files/Reports/2014/2014_ACECQA_Snapshot_Q2_Final.pdf
- Australian Education for Sustainability Alliance (AESA). (2014). *Education for sustainability and the Australian Curriculum Project: Final report for research phases 1 to 3*. Melbourne: AESA.
- Australian Government Department of Environment Water Heritage and the Arts (DEWHA). (2009). *Living sustainably: The Australian Government's national action plan for education for sustainability*. Canberra: Australian Government Department of Environment Water Heritage and the Arts (DEWHA).
- Australian Government Department of Environment Water Heritage and the Arts (DEWHA). (2010). *Sustainability Curriculum Framework: A guide for curriculum developers and policy makers*. Retrieved from <http://www.environment.gov.au>.
- Bangamalanha Centre. (2013). *8 Aboriginal ways of learning*. Retrieved 26 November, 2014, from www.8ways.wikispaces.com

- Barrera, I. & Corso, R. M. (2002). Cultural competency as skilled dialogue. *Topics in Early Childhood Special Education, 22* (2), 103-113.
- Bloch, P., Toft, U., Reinbach, H. C., Clausen, L. T., Mikkelsen, B. E., Poulsen, K., & Jensen, B. B. (2014). Revitalizing the setting approach - supersettings for sustainable impact in community health promotion. *The International Journal of Behavioural Nutrition and Physical Activity, 11*(Journal Article), 118.
- Bonnett, M. (2002). Education for sustainability as a frame of mind. *Environmental Education Research, 8* (1), 9-20.
- Booth, P. (2010). *NSW ECEEN Ecocentres for early childhood project: Final evaluation report*. Sydney: NSW Department of Environment, Climate Change & Water and NSW ECEEN.
- Brennan, K. & Clarke, A. (2011). Intergenerational learning in a teacher education context: the Jared Phenomenon. *Asia-Pacific Journal of Teacher Education, 39*(2), 125-137.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.
- Caiman, C. & Lundegård, I. (2014). Pre-school children's agency in learning for sustainable development. *Environmental Education Research, 20*(4), 437.
- Cain, B., & Dixon, J. A. (2013). The arts connection: The arts and transformative learning in professional development. *Journal of Transformative Education, 11*(4), 261-274. doi: 10.1177/1541344613514135
- Cannella, G. S. (1997). *Deconstructing early childhood education: Social justice and revolution*. Berne: Peter Lang Publishing.
- Capra, F. (1996). *The web of life*. New York: Anchor Books.
- Capra, F. (2002). *The hidden connections: Integrating the biological, cognitive, and social dimensions of life into a science of sustainability*. New York: Doubleday.
- Chawla, L. & Derr, V. (2012). The development of conservation behaviours in childhood and youth. In S. D. Clayton (Ed.), *The Oxford handbook of environmental and conservation psychology* (pp. 527-555). Oxford: Oxford University Press.
- Cobb, E. (1977). *The ecology of imagination in childhood*. Dallas: Spring Publications.
- Commonwealth of Australia (2008). *Garnaut climate change review*. Canberra: Commonwealth Government of Australia.

- Commonwealth of Australia Department of Climate Change and Energy Efficiency (DCCEE) (2011). *Australian Climate Commission report: The critical decade*. Canberra: Department of Climate Change and Energy Efficiency.
- Commonwealth of Australia Department of Environment Water Heritage and the Arts (DEWHA) (2009). *Living Sustainably: National Action Plan*. Canberra: Commonwealth of Australia Department of Environment Water Heritage and the Arts.
- Commonwealth of Australia Department of Environment & Heritage (DEH) (1999). *Today shapes tomorrow: Environmental education for a sustainable future*. Canberra: Commonwealth Department of Environment & Heritage.
- Commonwealth of Australia Department of Environment & Heritage (DEH) (2005). *Education for a sustainable future: A national environmental education statement for schools*. Carlton: Curriculum Corporation.
- Corsaro, W. A. (1997). *The sociology of childhood*. Thousand Oaks, CA: Pine Forge Press.
- Costa, A. L., & Kallick, B. (2008). *Learning and leading with habits of mind: 16 essential characteristics for success*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Council of Australian Governments (COAG) (2008). *A national quality framework for early childhood education and care: A discussion paper*. Canberra: COAG.
- Cousins, J. (1996). Environmental Activities: Starting young Children on the Road to a Lifelong Interest. In M. Wild & L. Corrie (Eds.) *Wild Beasts and Other Curiosities: West Australian Research, Issues and Innovation in Early Childhood Education*, (page unknown) Perth: Edith Cowan University.
- Davies, R., Dart, J. & Care/International. (2005). *The 'most significant change' (MSC) technique: A guide to its use*. Geneva: Care International.
- Davis, J. (1999). Early childhood environmental education—Mainstream not marginal. *OzEENews*, 76, p. 2.
- Davis, J. (2009), 'Revealing the research 'hole' of early childhood education for sustainability: A preliminary survey of the literature', *Environmental Education Research*, 15 (2): 227-241.
- Davis, J. (Ed.). (2010). *Young children and the environment: Early education for sustainability*. Port Melbourne, Vic: Cambridge University Press.

- Davis, J. (2014). Examining early childhood education through the lens of education for sustainability: Revisioning rights. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Davis, J. & Arlemalm-Hagser, E. (2014). Examining the rhetoric: A comparison of how sustainability and young children's participation and agency are framed in Australian and Swedish early childhood education curricula. *Contemporary Issues in Early Childhood*, 15(3), 231-244.
- Davis, J. & Elliott, S. (2003). *Early childhood environmental education: Making it mainstream*. Canberra: Early Childhood Australia.
- Davis, J., & Elliott, S. (2004). Mudpies and daisy chains: Connecting young children and nature. *Every Child*, 10(4), 4-5.
- Davis, J. & Elliott, S. (2007). Early childhood: A new horizon in EfS. *North American Association for Environmental Education (NAAEE) Conference*. Retrieved October 20, 2008 from <http://www.naaee.org/conference-history/2007-proceedings/2007-conference-proceedings>.
- Davis, J. & Elliott, S. (2014). *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Davis, J. & Ferreira, J. (2009). Creating cultural change in education: A proposal for a continuum for evaluating the effectiveness of sustainable schools implementation strategies in Australia. *Australian Journal of Environmental Education*, 25, pp. 59-70.
- Davis, J., Gibson, M., Pratt, R., Eglington, A. and Rowntree, N. (2005). 'Creating a culture of sustainability: From project to integrated education for sustainability at Campus Kindergarten' in W. L. Filho (Ed.), *The International Handbook of Sustainability Research* (pp. 563-594), Paris: UNESCO.
- Davis, J., Miller, M., Boyd, W. & Gibson, M. (2008). *The impact and potential of water education in early childhood care and education settings*. Brisbane, Queensland: Rous Water Board, Queensland University of Technology and Institute of Sustainable Resources.
- de Leo, J. (2006). *Social and cultural perspectives of ESD: Cultural diversity and intercultural understanding within ESD*. Paper presented at the UNESCO Expert

- Meeting on Education for Sustainable Development (ESD): Reorienting Education to address Sustainability, Thailand.
- De Gioia, K. (2009). Parent and staff expectations for continuity of home practices in the child care setting for families with diverse cultural backgrounds. *Australasian Journal of Early Childhood*, 34(3), 9.
- Department of Education and Early Childhood Development (Victoria) (DEECD) (2009). *Victorian early years learning and development framework: For all children from birth to eight years*, Department of Education and Early Childhood Development (Victoria), Melbourne.
- Department of Education, Employment & Workplace Relations (DEEWR) (2009). *Belonging, Being and Becoming: The Early Years Learning Framework for Australia*. Canberra: Department of Education, Employment & Workplace Relations.
- Department of Environment and Conservation NSW (DEC NSW). (2006). *A guide for engaging communities in environmental planning and decision-making*. Sydney: Department of Environment and Conservation NSW.
- Dickinson, E. (2013). The misdiagnosis: Rethinking "nature-deficit disorder". *Environmental Communication*, 7(3), 315-335.
- Dyment et al. (2013). *Living and learning about sustainability in the early years*. Hobart: University of Tasmania.
- Dyment, J. E., Davis, J. M., Nailon, D., Emery, S., Getenet, S., McCrea, N. & Hill, A. (2014). The impact of professional development on early childhood educators' confidence, understanding and knowledge of education for sustainability. *Environmental Education Research*, 20(5), 660-679. doi: 10.1080/13504622.2013.833591
- Eames, C., Wilson-Hill, F. & Barker, M. (2013). *Exploring whole-school approaches to education for sustainability*. *SET* (1).
- Early Childhood Australia (2006). *Code of Ethics*. Retrieved October 16, 2011, from http://www.earlychildhoodaustralia.org.au/pdf/code_of_ethics/code_of_ethics_%20brochure_screenweb_2010.pdf
- Early Childhood Australia. (UD). *Respect, connect, enact: A reconciliation action plan for early childhood Australia 2012-2016*. Deakin West, ACT: Early Childhood Australia.
- Eckersley, R. (1992). *Environmentalism and political theory: Toward an ecocentric approach*. London: UCL Press.
- Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 99
-

- Edwards, S. & Cutter-Mackenzie, A. (2011). Environmentalising early childhood education curriculum through pedagogies of play. *Australasian Journal of Early Childhood*, 36(1), 51-59.
- Edwards, S. & Cutter-Mackenzie, A. (2013). Pedagogical play types: What do they suggest for learning about sustainability in early childhood education. *International Journal of Early Childhood*, 45(3), 327-346.
- Elliott, S. (2008). *The outdoor playspace naturally: For children birth to five years*. Castle Hill, NSW: Pademelon Press.
- Elliott, S. (2012). *Sustainable outdoor playspaces in early childhood centres: Investigating perceptions, facilitating change and generating theory*. (Doctor of Education), University of New England, Armidale, NSW. (une_thesis-20111216-202659)
- Elliott, S. (2014a). Sustainability and the Early Years Learning Framework. Mt Victoria, NSW: Pademelon.
- Elliott, S. (2014b). Sustainability as the norm in early childhood settings. *Every Child*, 20(1), 10-11.
- Elliott, S. & Davis, J. (2009). Exploring the resistance: An Australian perspective on educating for sustainability in early childhood. *International Journal of Early Childhood*, 41 (2), 65-77.
- Elliott, S., Edwards, S., Davis, J. & Cutter-Mackenzie, A. (2013). *Best of sustainability: Research, theory and practice*. Deakin West, ACT: Early Childhood Australia.
- Elliott, S. & Emmett, S. (1991). *Snails live in houses too: Environmental education for the early years*. Sydney: Martin Educational.
- Elliott, S. & Mc Crea, N. (2015). Gaps and challenges informing professional learning about early childhood education for sustainability. *The Social Educator*. 33 (3), 17-28.
- Elliott, S. & Young, T. (2015). Nature by default in early childhood education for sustainability. *Australian Journal of Environmental Education*. DOI: <http://dx.doi.org/10.1017/aee.2015.44>
- Ellyard, P. (2008). *Designing 2050: Pathways to sustainable prosperity on Spaceship Earth*. Yarraville, Vic: TPN TXT.
- Ernst, J. (2014). Early childhood educators' preferences and perceptions regarding outdoor settings as learning environments. *International Journal of Early Childhood Environmental Education*, 2(1), 97-125.
- Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 100
-

- Faragher, D. (2012). Bush kinder. *Reflections: Gowrie Australia*. (47), 18-19.
- Faragher, J. & Salter, E. (1994). *Look, listen and learn: Exploring maths and science in the environment*. Melbourne: TAFE Publications.
- Ferreria, J. & Davis, J. (2010). Creating deep and broad change through research and systems approaches in early childhood education for sustainability. In J. Davis (Ed.) *Young children and the environment: Early education for sustainability* (pp. 273-289). Melbourne: Cambridge Press.
- Ferreira, J. & Davis, J. (2012). Problematizing the processes of participation in networks: Working through the rhetoric. *Environmental Education Research*. 18(5), pp.687-697
- Flannery, T. (2010). *Here on earth: An argument for hope*. Melbourne: Text Publishing.
- Fleer, M. (Ed.) (1995). *DAPcentrism: Challenging developmentally appropriate practice*. Canberra: AECA.
- Fleer, M. & Richardson, C. (2004). *Observing and planning in early childhood settings: Using a sociocultural approach*. Canberra: Early Childhood Australia.
- Flores, B., Casebeer, C. & Riojas-Cortez, M. (2011). Validation of the Early Childhood Ecology Scale-Revised: A Reflective Tool for Teacher Candidates. *Journal of Early Childhood Teacher Education*, 32(3), 266-286. doi: 10.1080/10901027.2011.594487
- Gambino, A., Davis, J. & Rowntree, N. (2009). Young children learning for the environment: Researching a forest adventure. *Australian Journal of Environmental Education*, 25(Journal Article), 83-94.
- Gardner, B. (2007). What is safely and sustainably clean? *Reflections: Gowrie Australia* (Winter), 13.
- Gibson. (2010). Leadership for creating cultures of sustainability. In J. Davis (Ed.), *Young children and the environment: Early education for sustainability* (pp. 76-103). Melbourne: Cambridge University Press.
- Gilbert, L., Fuller, M., Palmer, S., & Rose, J. (2014). Early Childhood Education for Sustainability in the UK: Generating professional capital. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations* (pp.294-308). London: Routledge.
- Goleman, D., Bennett, L., & Barlow, Z. (2012). *Eco literate: How educators are cultivating emotional, social, and ecological intelligence*. San Francisco, CA: Jossey-Bass.

- Goodhew, J., Murray, P. & Murray, S. (2014). The heart of ESD: Personally engaging learners with sustainability. *Environmental Education Research*, 20(5), 718.
- Gordon Community Children's Centre (1993). *Playing for keeps*. Geelong: Gordon Technical College.
- Gore, A. (2006). *An inconvenient truth* (DVD). USA: Paramount Classics.
- Gosford City Council & Wyong Shire Council (2007). *Climbing little green steps*. NSW: Gosford City Council & Wyong Shire Council.
- Government of South Australia. (UD). *Case studies* Retrieved 5 September, 2014, from <http://www.sustainableschools.sa.edu.au/resources/pages/casestudies/>
- Griffith, K. & Kowalski, H. (2009). *Dictionary of education terms*. South Melbourne, Vic: Oxford University Press.
- Groundwater-Smith, S. (2008). *Designing a K-12 Framework informed by student voice*. Sydney: NSW Department of Education and Training.
- Hedefalk, M., Almqvist, J. & Östman, L. (2014). Education for sustainable development in early childhood education: a review of the research literature. *Environmental Education Research (Journal Article)*, 1-16
- Hedges, H. & Cullen, J. (2012). Participatory learning theories: A framework for early childhood pedagogy. *Early Child Development and Care*, 182(7), 921-940.
- Hill, A., McCrea, N., Emery, S., Nailon, D., Davis, J., Dymont, J., & Getenet, S. (2014). Exploring how adults who work with young children conceptualise sustainability and describe their practice initiatives. *Australasian Journal of Early Childhood*, 39(3), 14-22.
- Hobson's Bay Council (2009). *Green kinders tool kit*. Altona, Victoria: Hobson's Bay Council.
- Hodge, S. (2014). Transformative learning as an "inter-practice" phenomenon. *Adult Education Quarterly*, 64(2), 165-181.
- Hopkins, C. (2009). Enough, for all, forever: The quest for a sustainable future. *Education Canada*, 49 (4), 42-46.
- Hunter Institute of Mental Health (2014). *Connections: A resource for early childhood educators about children's wellbeing*. Canberra, ACT: Australian Government Department of Education.

- Hägglund, S. & Johansson, E. M. (2014). Belonging, value conflicts and children's rights in learning for sustainability in early childhood. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations* (pp. 38-48). London: Routledge.
- Ji, O. & Stuhmcke, S. (2014). The project approach in early childhood education for sustainability: Exemplars from Korea and Australia. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Johnson, K. (2014). Creative connecting: Early childhood nature journaling sparks wonder and develops ecological literacy. *International Journal of Early Childhood Environmental Education*, 2(1), 126-139.
- Katz, L., & Chard, S. C. (2000). *Engaging children's minds: The Project Approach*. Stamford: Ablex.
- Kemmis, S. (2009). Action research as a practice-based practice. *Educational Action Research*, 17 (3), 463-474.
- Kinsella, R. (2007). *Greening services: Practical sustainability*. Watson, ACT: Early Childhood Australia.
- Kinsella, R. (2008). *Everyday learning about being green*. Watson, ACT: Early Childhood Australia.
- Klaar, S., & Öhman, J. (2014). Children's meaning-making of nature in an outdoor-oriented and democratic Swedish preschool practice. *European Early Childhood Education Research Journal*, 22(2), 229.
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3), 239-260.
- Lee, C. (2012). *'Stories from the Heart' Connecting children and families with our Earth*. Deakin West, ACT: Early Childhood Australia.
- Lewis-Webber, M. (1993). *Earth cycles – Environmental education with preschool children*. Winnipeg, Canada: Lewis-Webber.
- Littledyke, R. & McCrea, N. (2009). Starting sustainability early: Young children exploring people and places. In M. Littledyke, N. Taylor & C. Eames (Eds.), *Education for*

- sustainability in the primary curriculum: A guide for teachers* (pp. 39-56). Melbourne: Palgrave Macmillan.
- Littley, M., Taylor, N. & Eames, C. (2009). *Education for sustainability in the primary curriculum: A guide for teachers*. South Yarra, Vic.: Palgrave Macmillan.
- Löf, A. (2010). Exploring adaptability through learning layers and learning loops. *Environmental Education Research*, 16(5-6), 529-543.
- Mackey, G. (2014). Valuing agency in young children: Teachers rising to the challenge of sustainability in the Aotearoa New Zealand early childhood context. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Martínez Agut, M. P., Ull, M. A. & Pilar Aznar, M. (2014). Education for sustainable development in early childhood education in Spain. Evolution, trends and proposals. *European Early Childhood Education Research Journal*, 22(2), 213.
- MacNaughton, G. (2003). *Shaping early childhood*. Maidenhead, England: Open University Press.
- Mayer, D. & Lloyd, M. (2011). *Professional Learning: An introduction to the research literature*. Melbourne: Australian Institute for Teaching and School Leadership.
- McCrea, N. & Littley, R. (2015). Young children sampling sustainable learning as 'Healthier me'. In N. Taylor, F. Quin & C. Eames (Eds), *Teaching for the future: Education for sustainability in primary schools* (pp.45-63). Rotterdam, Netherlands: Sense Publishers.
- McGiffen, J. (2009). The bean project: Learning about sustainability and organic gardening. *Every Child*, 15(1), 11.
- McNichol, H., Davis, J. M. & O'Brien, K., R. (2011). An ecological footprint for an early learning centre: identifying opportunities for early childhood sustainability education through interdisciplinary research. *Environmental Education Research*, 17(5), 689.
- Melhuus, E. C. (2012). Outdoor day-care centres—a culturalization of nature: How do children relate to nature as educational practice? *European Early Childhood Education Research Journal*, 20(3), 455-467.
- Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Francisco, CA: Jossey-Bass.

- Mezirow, J. (2003). Transformative learning as discourse. *Journal of Transformative Education*, 1(1), 58-63.
- Monroe, M. C., Andrews, E. & Biedenweg, K. (2007). A framework for environmental education strategies. *Applied Environmental Education & Communication*, 6(3-4), 205-216. doi: 10.1080/15330150801944416
- Moore, D. & Young, T. (2010). *Biodiversity the essence of life*. Fact sheet and poster. Melbourne: Early Childhood Australia.
- Morton, T. (2010). *The ecological thought*. Cambridge, MA: Harvard University Press.
- Mundine, K., & Giugni, M. (2006). Diversity and difference: Lighting the spirit of identity. In L. Fasoli (Ed.), *Research in practice series* (Vol. 13 (3)). Watson, ACT: ECA, Inc.
- Mälkki, K., & Green, L. (2014). Navigational aids: The phenomenology of transformative learning. *Journal of Transformative Education*, 12(1), 5-24.
- Nimmo, J. (2008). Young children's access to real life: An examination of the growing boundaries between children in child care and adults in the community. *Contemporary Issues in Early Childhood*, 9, 3-13.
- Nichols, J., & Shorb, T. (1997). Sustainability education and teaching leadership. *Academic Exchange Quarterly*, 11(2).
- NSW ECEEN (2012). *EcoSmart for early childhood: A sustainability filter for quality improvement plans*. Sydney: NSW ECEEN.
- NSW ECEEN. (2013a). *Evaluative report to ET: Leading sustainability in early childhood*. St Pauls, NSW: NSW ECEEN.
- NSW ECEEN. (2013b). *Evaluative report to ET: More (beyond) Little Green Steps*. St Pauls, NSW: NSW ECEEN.
- NSW Government Education and Communities. (2014). *NSW Transition to School Statement: Information sheet for early childhood educators*. Sydney: NSW Government Education and Communities.
- NSW Government Education and Training. (2009). *Earth Citizenship: A conceptual framework for learning in sustainability*. Sydney: NSW Government Education and Training.
- NSW Environment Protection Authority (NSW EPA) (2003). *Patches of green: A review of early childhood environmental education*. Sydney: NSW EPA.

- NZ Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: New Zealand Ministry of Education.
- O'Callaghan, M. (2004). The pattern that connects the world situation to our own way of seeing it. *Global Vision*. Retrieved 11 September, 2006, from <http://www.global-vision.org/bateson.html>
- O'Gorman, L. (2014). The Arts and education for sustainability: Shaping student teachers' identities towards sustainability. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability* (pp. 266-279). London: Routledge.
- Palmer, J. (1995). How research is informing practice in environmental education. *Environmental Education*, Autumn, 33-34.
- Phillips, L. G. (2014). I want to do real things: Explorations of children's active community participation. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Pilgrim, S., Smith, D. & Pretty, J. (2007). A Cross-Regional Assessment of the Factors Affecting Ecoliteracy: Implications for Policy and Practice. *Ecological Applications*, 17(6), 1742-51.
- Pratt, R. (2010). Practical possibilities and pedagogical approaches for early childhood education for sustainability. In J. Davis (Ed.), *Young children and the environment: Early education for sustainability* (pp. 104-153). Melbourne: Cambridge University Press.
- Pancheri-Ambrose, B., & Tritschler-Scali, J. (2013). Beyond green: Developing social and environmental awareness in early childhood. *Young Children* (September), 54-61.
- Payne, P. G. (2010). Moral spaces, the struggle for an intergenerational environmental thesis and the social ecology of families: An 'other' form of environmental education *Environmental Education Research*, 16(2), 209-231.
- Prince, C. (2010). Sowing the seeds: Education for sustainability within the early years curriculum. *European Early Childhood Education Research Journal*, 18(3), 423.
- Productivity Commission. (2014). *Childcare and early childhood learning: Draft report*. Canberra: Productivity Commission.
- Ralton, S. & Young, T. (2008). *Water play is essential play*. Fact sheet and poster. Melbourne: Early Childhood Australia.

- Redmond, J., & Walker, E. (2009). Environmental education in small business: The owner-manager's perspective. *Australian Journal of Environmental Education*, 25, 117-128.
- Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context*. New York: Random House.
- Secretariat of National Aboriginal and Islander Child Care. (2014a). *Partnership audit tool: Creating change through partnerships*. North Fitzroy: Secretariat of National Aboriginal and Islander Child Care.
- Secretariat of National Aboriginal and Islander Child Care. (2014b). *Partnership training manual: Creating change through partnerships*. North Fitzroy: Secretariat of National Aboriginal and Islander Child Care.
- Senge, P. (2006). *The Fifth Discipline: The art and practice of the learning organization*. New York: Doubleday.
- Shantal, R. (1998). Age appropriate Ecology: Are You Practising It? *Young Children*, 53 (1), 70-71.
- Siraj-Blatchford, I., & Pramling Samuelsson, I. (2009). The sustainable development case. In I. Siraj-Blatchford & M. Woodhead (Eds.), *Early childhood in focus 4: Effective early childhood programmes* (pp. 10-11). Milton Keynes, UK: The Open University.
- Siraj-Blatchford, J., Smith, K. C. & Pramling Samuelsson, I. (2010). *Education for sustainable development in the early years*. Gothenburg, Sweden: OMEP.
- Smith, K., Wheeler, L., Guevara, J. R., Gough, A., & Fein, J. (2012). *Conversations on school-community learning partnerships for sustainability: A guidebook*. Bundoora, Victoria: RMIT University.
- Somerville, M., & Green, M. (2012). Mapping sustainability initiatives across a region: An innovative survey approach. *Australian Journal of Environmental Education*, 28(2), 65-77.
- Stanger, N. (2011). Moving "eco" back into socio-ecological models: A proposal to reorient ecological literacy into human development models and school systems. *Human Ecology Review*, 18(2), 167-173.
- Sterling, S. (2001). *Sustainable education: Re-visioning learning and change*. Devon, UK: Green Books.
- Stern, N. (2006). *Stern review on the economics of climate change*. London, UK: HM Treasury Cabinet Office.
- Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 107
-

- Strazdinis, L. & Skeat, H. (2011). *Weathering the future: Climate change, children and young people and decision making*. Canberra: Australian Research Alliance for Children and Youth.
- Strife, S. J. (2012). Children's environmental concerns: Expressing ecophobia. *Journal of Environmental Education*, 43(1), 37.
- Stuhmcke, S. (2012). *Children as change agents for sustainability: An action research case study in a kindergarten*. (Doctor of Education), QUT.
- Sullivan, L. (2009). Networking. In L. Sullivan (Ed.), *The SAGE Glossary of the Social and Behavioural Sciences* (pp. 348). Thousand Oaks, CA: SAGE Publications, Inc.
- Suzuki, D. (2010). *The Legacy: An elder's vision for a sustainable future*. Crow's Nest, NSW: Allen & Unwin.
- Tanaka, MTD., Farish, M., Nicholson, D., Tse, V., Doll, J. & Archer, E. (2014). Transformative inquiry while learning-teaching: Entry points through mentor-mentee vulnerability. *Journal of Transformative Education*, 12(3), pp. 206-25.
- Tarr, K. (2013). Enhancing environmental awareness through the arts. In S. Elliott, S. Edwards, J. Davis & A. Cutter-Mackenzie (Eds.), *Best of sustainability: Research, practice and theory*. Canberra: Early Childhood Australia.
- Taylor, A. (2013). *Reconfiguring the natures of childhood*. Milton Park, Abingdon, Oxon: Routledge.
- Technical & Further Education (TAFE) New South Wales Training & Education Support Industry Skills Unit (2010). *Small footprints: CHCPR515A Develop and implement a program to support sustainable practice*. Meadowbank, Sydney: TAFE NSW Training & Education Support Industry Skills Unit.
- Tilbury, D. (1994). The critical learning years for environmental education. In R. A. Wilson (Ed.), *Environmental education at the early childhood level* (pp. 5-9). Troy: North American Association for Environmental Education.
- Tilbury, D., Coleman, V. & Garlick, D. (2005). *A national review of environmental education and its contribution to sustainability in Australia: School education*. Canberra: Australian Government Department of the Environment & Heritage & Australian Research Institute in Education for Sustainability.
- Townsend, M., & Weerasuriya, R. (2010). *Beyond blue to green: The benefits of contact with nature for mental health and well-being*. Burwood: Beyond Blue.
- Elliott, McCrea, Newsome & Gaul (2016) *Examining environmental education in NSW early childhood education services: A literature review with findings from the field* Page 108
-

- UNCED (1992). *Promoting education and awareness and public training, Agenda 21*. United Nations Conference on Environment and Development. Conches, Brazil: UNCED.
- UNEP (2012). *The Emissions Gap Report 2012*. Nairobi: UNEP.
- UNESCO (2010). *Education for Sustainable Development Lens: A Policy and Practice Review Tool*. Paris: UNESCO.
- UNESCO UNEP (1975). *The Belgrade Charter: A framework for environmental education*. Retrieved December 20, 2010 from <http://unesdoc.unesco.org/images/0001/000177/017772eb.pdf>
- UNESCO UNEP (1977). *Intergovernmental conference on environmental education: Tbilisi (USSR), 14-26 October 1977. Final Report*. Paris: UNESCO.
- UNESCO UNEP (2012). *Tbilisi Communique: Educate today for a sustainable future*. Retrieved from https://cmsdata.iucn.org/downloads/tbilisi_story_komunike_small.pdf
- UNESCO (2005). *Decade of education for sustainable development 2005-2014 Draft International Implementation Scheme*. Paris: UNESCO.
- UNESCO (2008a). *Early childhood and its contribution to a sustainable society*. Paris: UNESCO.
- UNESCO (2008b). *The Gothenburg recommendations on education for sustainable development*. Retrieved January 30, 2009, from omep.vrserver2.cl/cgi-bin/procesa.pl?plantilla=/archivo.html&bri=omep&tab=art_6&campo=c_file&id=27
- UNESCO (2009). *Review of contexts and structures for sustainable development 2009*. Paris: UNESCO.
- UNESCO (2010). *Four Dimensions of Sustainable Development*. Retrieved 25 September, 2014, from http://www.unesco.org/education/tlsf/mods/theme_a/popups/mod04t01s03.html
- UNESCO (2012). *Education for sustainable development: Good practices in early childhood*. Geneva: UNESCO.
- UNESCO (2013). *Proposal for a global action programme on education for sustainable development as follow-up to the United Nations Decade of Education for Sustainable Development (DESD) after 2014*. Paris: UNESCO.
- UNESCO (2014). *Shaping the future we want: UN Decade of Education for Sustainable Development (2005-2014) final report*. Paris: UNESCO.

- UNICEF (1989). *United Nations Convention on the Rights of the Child*. Retrieved October 30, 2009, from <http://www2.ohchr.org/english/law/crc.htm>
- Vandenabeele, J. & Wildemeersch, D. (2012). How farmers learn about environmental issues: Reflections on a sociobiographical approach. *Adult Education Quarterly*, 62(1), pp. 56-72.
- Victorian Department of Education & Early Childhood Development (DEECD) (2009a). *Looking ahead: DEECD's environmental sustainability strategy*. Retrieved December 20, 2010 from <http://www.eduweb.vic.gov.au/edulibrary/public/schadmin/environment/lookahead.pdf>
- Vygotsky, L. (1978). The Role of Play in Development (pp. 92-104). In *Mind in Society*. (Trans. M. Cole). Cambridge, MA: Harvard University Press.
- Waniganayake, M. (2012). *Leadership: Contexts and complexities in early childhood education*, Oxford University Press, South Melbourne, Vic.
- Wayfarer Consulting. (2014). *Education for sustainability in early years services: Final report*. Melbourne: Wayfarer Consulting.
- Wenger, E. (2006). *Communities of practice: A brief introduction*. Retrieved 25 September, 2014, from <https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/11736/A%20brief%20introduction%20to%20CoP.pdf?sequence=1>
- Wilson, R. (1993). *Fostering a sense of wonder during the early childhood years*. Columbus, OH: Greyden Press.
- Wilson, R. (Ed.) (1994). *Environmental education at the early childhood level*. Troy, OH: North American Association for Environmental Education.
- W.K. Kellogg Foundation. (2003). *Grassroots leadership development: Workbook for aspiring or current grassroots leaders*. Battle Creek: W.K Kellogg Foundation.
- Wood, C. J. (1985). Participatory Decision Making. *Educational Forum*, 49(1), 55.
- Woodrow, C. & Busch, G. (2008). Repositioning early childhood leadership as action and activism. *European Early Childhood Research Journal*, 16 (1), 83-93.
- World Commission on Environment & Development (WCED) (1987). *The Brundtland report: Our common future*. Oxford: Oxford University Press.

- Yildirim, F., & Hablemitoglu, S. (2013). *Ecological literacy for a sustainable future: Proposal of an "eco-sociological model"*. Paper presented at the Rural Environment. Education. Personality, Jelgava.
- Young, T. (2009). 'The crack where the light gets in': An examination of sustainability education in early childhood education. Unpublished Masters Thesis, Monash University, Clayton, Victoria.
- Young, T. C. (2010). St Kilda and Balaclava Kindergarten wins gold for being green. *Every Child*, 16(3).
- Young, T. C., & Cutter-Mackenzie, A. (2014). An AuSSI early childhood adventure: Early childhood educators and researchers actioning change. In J. Davis & S. Elliott (Eds.), *Research in early childhood education for sustainability: International perspectives and provocations*. London: Routledge.
- Young, T. & Elliott, S. (2013a). Provocations for outdoor learning environments. *PLP e-Newsletter No.59*. Deakin West, ACT: Early Childhood Australia.
- Young, T. & Elliott, S. (2013b). Provisions for outdoor learning environments. *PLP e-Newsletter No.60*. Deakin West, ACT: Early Childhood Australia.
- Young, T. & Elliott, S. (2014). *Ways of thinking, acting and relating about sustainability*. Deakin West, ACT: Early Childhood Australia.
- Zembylas, M 2007, 'Emotional ecology: The intersection of emotional knowledge and pedagogical content knowledge in teaching', *Teaching and Teacher Education*, vol. 23, no. 4, pp. 355-67.
- Zurek, A., Torquati, J., & Acar, I. (2014). Scaffolding as a tool for environmental education in early childhood. *International Journal of Early Childhood Environmental Education*, 2(1), 27-58.
- Zylstra, M. J. (2004). Exploring meaningful nature experience, connectedness with nature and the revitalization of transformative education for sustainability. (Doctoral), Stellenbosch University.

SECTION 9: APPENDICES

Appendix 1.1 Principles as stated in Living Sustainably: National Action Plan (DEWHA, 2009, p.9)

Education for sustainability is based on the following principles:

Transformation and change

Education for sustainability is not simply about providing information but involves equipping people with the skills, capacity and motivation to plan and manage change towards sustainability within an organisation, industry or community.

Education for all and lifelong learning

Education for sustainability is driven by a broad understanding of education and learning that includes people of all ages and backgrounds and at all stages of life and takes place within all possible learning spaces, formal and informal, in schools, workplaces, homes and communities.

Systems thinking

Education for sustainability aims to equip people to understand connections between environmental, economic, social and political systems.

Envisioning a better future

Education for sustainability engages people in developing a shared vision for a sustainable future.

Critical thinking and reflection

Education for sustainability values the capacity of individuals and groups to reflect on personal experiences and world views and to challenge accepted ways of interpreting and engaging with the world.

Participation

Education for sustainability recognises participation as critical for engaging groups and individuals in sustainability.

Partnerships for change

Education for sustainability focuses on the use of genuine partnerships to build networks and relationships, and improve communication between different sectors of society.

Appendix 1.2 Australian Research Institute for Education for Sustainability principles of EfS (www.aries.mq.edu.au)

1. Envisioning a sustainable future
2. Systems thinking
3. Critical and creative thinking
4. Participation to encourage 'ownership' of solutions
5. Partnerships to maximise creativity and systems resilience.

Appendix 1.3 Principles about education for sustainability for Early Childhood Australia Sue Elliott and Tracy Young (February 2012)
Published in Elliott (2014, pp. 10-12)

Preamble: Sustainability is a critical global issue now and for the future (Flannery, 2010; Gore, 2006; Morton, 2010; Stern, 2006; Suzuki, 2010). A transformative process is required for moving from unsustainable to sustainable ways of human thinking, acting and relating (Kemmis, 2009; Sterling, 2001; UNESCO, 2005). Education for sustainability is transformative and the goal is for all individuals to be empowered and active participants in sustainable living such that current and future generations may equitably share the Earth's resources (WCED, 1987; Davis, 2010). This is essential not optional across all education contexts and sectors including early childhood education (Elliott, 2010).

We propose the following five principles as central to embedding education for sustainability in early childhood education. Relevant links are drawn to *Belonging Being Becoming: The Australian Early Years Learning Framework for Australia* (DEEWR, 2009).

Principle 1 Relationships

Relationships are interpreted broadly here beyond simply human ones to incorporate relationships between all species on the Earth. There is interconnectedness between all species that share the Earth bound by reciprocity, respectfulness and responsiveness (Barrera & Corso, 2002). Only when such relationships are fully acknowledged is sustainable living possible. Further these broader relationships foster a genuine sense of *Belonging* to the Earth. Human relationships for sustainability require collective and collaborative action through mentoring, scaffolding and networking approaches. Young children are *Becoming* active participants in sustainability when they experience and practice these types of relationships.

Principle 2 Ways of thinking

Ways of human thinking inform our human ways of *Being* on the Earth. Education for sustainability demands that our ways of thinking or frame of mind (Bonnett, 2002) fundamentally changes, so we may embrace new ways of *Being*. New ways that view the Earth as a complex dynamic whole of interactive systems where a long-term global vision overrides short-term local gains and humans are not centre stage. *Being* in the world, takes on a different meaning when viewed from these perspectives. Young children are actively constructing their frame of mind and ways of *Being* in the world.

Principle 3 Active citizenship

A transformative approach recognises that young children have the potential to be active agents for sustainability in their communities (Davis, 2009). Children attending early childhood services need to be equipped for the present and the future and are *Becoming* citizens as they learn to participate in society. Lifelong education that recognises young children as global citizens with rights (UNICEF, 1989) to shape and impact upon their communities is needed. The goals of education for sustainability support young children to become what Ellyard (2008) refers to as *future makers rather than future takers*. Nimmo (1998) asserts that this engagement offers possibilities for authentic understanding of not only local issues and landmarks, but also how communities function on a daily basis and how children can participate in these communities. 'Bringing children into the public sphere celebrates their potential to contribute and lets them feel the pulse of their future lives' (p. 306).

Principle 4 Ecoliteracy

Ecological or Eco-literacy acknowledges who and what *Belongs* on Earth to sustain the cycles of life. This is more than just understanding the systems of energy, soils, forests, water and the diversity of living species, but a deeper understanding of interconnections and interdependencies. Ecoliteracy must begin early in life with the development of what Cobb once called the child's 'ecological sense of continuity with nature that is basically aesthetic and infused with the joy in the power to know and to be' (1977, p. 23). Ecoliteracy is more than simply direct experiences with nature, but understandings about the principles of organisation inherent in ecosystems that sustain the web of life. Capra (1996) identifies that *Becoming* ecoliterate is one of the most important aspects of education in the 21st century with the need for children and adults to understand the principles of ecology, sustainability and community, and to fully embrace living by these principles.

Principle 5 Sustained health

Being healthy is vital for the survival of humans, plants, animals and the planet. Children's sense of wellbeing and sustained health are inextricably linked to the health of their physical, social and emotional environments. Climate change has potentially significant developmental impacts for young children at their most critical life stage (Strazdinis & Skeat, 2011). Pollutants and waste materials from mining and manufacturing impact on ecosystems and enter the food chain and atmosphere. Children are also particularly vulnerable to distress and anxiety associated with their growing awareness of environmental issues and concerns. It is imperative that children have hope for the future and are not overwhelmed with negativity, but rather feel they have agency to make a difference. Sustained health is about identifying the daily risks to health from environmental factors and avoiding or minimising the impacts particularly for young children.

Appendix 1.4 Invitation to participate in study (Example)

<Insert CEO & Peak address>

<Insert Date>

Dear.....,

<<Insert project title>>

This is a letter of invitation for your peak early childhood organisation to participate in <<insert project summary details including who funded by, managed by, purpose>>

Please consider the attached Briefing Statement and Agreement/Consent Form where we have provided details regarding how your organisation could participate in the project, if this invitation is accepted. We ask that you nominate 2-3 senior management staff and 2-3 practitioner members as prospective participants (with phone contact details on the following page, PTO). We will then contact individuals directly to provide a Briefing Statement and the Agreement/Consent Form to seek their consent to participate.

If amenable, we envisage that the focus groups would be held at the offices of some participating peak organisations. At this early stage, it would be helpful to know if your organisation would be willing to host a focus group.

An email reply to this letter of invitation at your earliest convenience, including completion of the following page, would be appreciated as we are working to a brief timeline.

Please reply to:

<<Insert contact name, position, email, phone>>

Further, if you have any queries about the nature of this project or implementation please contact:

<<Insert contact name, position, email, phone>>

Thank-you for your consideration,

<<Name>>

Your organisational response to the invitation to participate in the <<insert project name>>

Does your organisationaccept this invitation?

- Yes/No

Would your organisation be willing to host a focus group for 6-8 people at your offices?

- Yes/No

Please nominate 2-3 senior management staff and 2-3 practitioner members as prospective participants with phone contact details.

<i>Names of nominated senior management persons</i>	<i>Organisational role</i>	<i>Phone/email contact details</i>
<i>Names of nominated practitioner members</i>	<i>Organisational role</i>	<i>Phone/email contact details</i>

Thank-you and please reply to:

<<Insert contact name, position, email, phone>>

Appendix 1.5 Interview/Focus Group Questions (Example)

Interview/Focus Group Questions (circle which format)

Interviewee/Focus group participants name(s): CODES 1-20	
Interviewer/Facilitator name(s):	
Date:	
Time:	Starting time: Finishing time:
Contact Number (if applicable):	
Venue (if applicable):	
Service Name/Type: OR Organisational Names: CODES A-F	

Introduce Interview/Focus Group facilitators

For both interview and focus group, advise as per the signed consent forms that this discussion will be audio recorded, I/we will now turn on the recording device.

For Focus Group only invite brief introductions around group (note place name for each person to facilitate discussion)

Thanks for agreeing to speak with me/us today.

Provide background

<<Insert project details including who funded by, managed by and purpose>>

Phone interviews/focus groups are integral to this project and we are seeking your support by participation in a focus group for one and a half hours/an Interview up to 40 minutes. The focus group/interview discussions will be audio recorded and some notes will be taken.

However, we are aware of ‘commercial in confidence’ issues as well as confidentiality and privacy obligations. **Therefore, we ask that all interview/focus group discussions are held in confidence by you as the participant(s).** We assume that the names of organisations, services and participating individuals will not be used in any reporting. However, please refer to the relevant questions regarding this on the form provided to indicate your preference [**Do halfway in focus group session with mini break/send via email pre interview for phone interviews**]

In this interview/focus group, we will broadly consider questions about ECEfS including:

- how is ECEfS currently supported and implemented in your organisation/service?
- what implementation challenges are there?
- how might your organisation/service further engage in ECEfS?
- what resources and support might assist you at the organisational level/service level?

Are you willing to consent to proceed with the interview/focus group on this basis? Y/N

Let’s start please be aware of recording and the need to speak clearly, thanks.

Question	Response
1. Is ECEfS currently being supported and implemented in your service(s)/organisation and if so, how?	
<p>2. Please describe any existing models or resources for ECEfS that you are aware of and/or may have used to support your work?</p> <p>2a. Let's start with models, for example <i>Climbing the Little Green Steps</i> (Gosford & Wyong, 2007), NSW ECEEN EcoSmart (2012)</p> <p>2b. Now, let's move to resources for examples the ECEEN website; ECA publications; local government staff and programs?</p>	
<p>3. What do you see as the successes or failures of these models and/or resources?</p> <p>3a. Successes or short-comings/limitations and gaps – models</p> <p>3b. Successes or short-comings/limitations and gaps – resources</p>	
<p>4. What gaps in professional learning for ECEfS can you identify?</p> <p>4a. Gaps identified...</p> <p>4b. How might such gaps be addressed...</p> <p style="padding-left: 40px;">EfS content knowledge?</p> <p style="padding-left: 40px;">EfS pedagogical knowledge?</p> <p style="padding-left: 40px;">Specific professional learning approaches?</p> <p style="padding-left: 40px;">Other?</p>	
<p>5. What barriers to the implementation of ECEfS can you identify in....</p> <p>5a. Your organisation/service?</p> <p>5b. More broadly in the early childhood field?</p>	

<p>6. What strategies do you think might assist with implementing and maintaining ECEfS across the early childhood field?</p>	
<p>7. What opportunities might exist for partnerships with others; such as: other children’s services, local organisations [LandCare, Planet Ark], local councils, other peak bodies to provide support and assistance for ECEfS?</p>	
<p>8. What specific Environmental Trust funded ‘activities’ do you think might assist the early childhood field with implementing and maintaining ECEfS? [<i>across three frames: Children’s knowledge, exemplary service role models and EC centres as community hubs</i>]</p> <p>Examples to date are Eco-Smart development; ECEEN neighbourhood/local gov’t hubs...</p>	
<p>9. For this project, sustainability has a whole centre approach [<i>NQS 7</i>] this includes service operations, everyday routines with children, and learning and teaching. Are there any other ways that ECE organisations and services can be encouraged to integrate ECEfS?</p>	
<p>10. For this project, we will be developing a report and creating a portfolio of activities around the three frames: Children’s knowledge, exemplary service role models and EC centres as community hubs.</p> <p>How might the outcomes around these themes best be shared and communicated with the early childhood field?</p>	
<p>Invite participants to identify anything else they would add to help inform our project outcomes?</p>	