

Creative Arts-Based Pedagogies in Early Childhood Education for Sustainability (Efs): Challenges and Possibilities

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Abstract

This article showcases a creative approach to early childhood education for sustainability (ECEfS). It reports on the author's doctoral research program, which examined the effectiveness of arts-based pedagogies for exploring and understanding the natural world in an early childhood education program. Motivated by their existing commitment to education for sustainability (Efs), the participating educators used the arts for further exploration and understanding of the natural world in teaching and learning. They explored the role of the arts in knowledge production and embodied experience, and reinterpreted and built on their own funds of knowledge about their environment. The result was meaningful curriculum steeped in content about the natural environments that were local to the children and their educators. The findings further signify the challenges educators needed to overcome in order to intensify their connection with their own local environments, and the effect that this enhanced connection had on their capacity to reflect local natural environments in their programs with the children.

A re-emerging trend in environmental education is that of 'nature education' (Archimedes Training Ltd, 2007; Mindstretchers, 2010; Wallis, 2004). The emphasis here is on primary experience in the natural world — preferably wild or unstructured spaces — with the aim of developing an intrinsic and deep connection with the natural world (Warden & Buchan, 2007). This, according to commentators such as Roszack (2001), Louv (2006), Plotkin (2008), and Kahn and Hasbach (2013), who talk about 'rewilding' the human connection with nature, is essential in recognising our ecopsychological identity and interdependence with the natural world, and key to developing positive dispositions toward coexistence and stewardship. As quoted extensively, Sobel (1996) argues that 'what is important is that children have an opportunity to bond with the natural world, to learn to love it and feel comfortable in it, before being asked to heal its wounds' (p. 10).

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The research detailed in this article is underpinned by the proposition or belief that a connection with, and love for, the environment is essential, particularly in early childhood education. The research generated for this article has been drawn from the research project 'The Living Curriculum: A Natural Wonder'. The project aimed to enhance the ways in which early childhood educators could scaffold young children's learning about the environment, utilising self-generated creative arts experiences. The central research question this article address is: In what ways can self-generated creative arts experiences assist early childhood educators to support young children to learn about the environment?

An Historical Perspective

Early Childhood Education for Sustainability (ECEfS) may be considered a relatively recent development but history tells a more complex story (Spodek & Saracho, 1996). Formalised early childhood education and care began in the late 18th century in Europe, with an orientation toward experience of natural phenomena and a focus on the natural world for developing understanding and character. This was evident in Owen's Infant Schools, and Frobel's Kindergartens, and later in the educational writings of Dewey (Elliott & Davis, 2009; Spodek & Saracho, 1996). While many threads of influence from these educators were carried through in early childhood practices (Ashby & Grieshaber, 1996), this emphasis on the natural world was not widely sustained. It could be argued that there are many reasons, but a credible explanation is the empirical approach to enquiry and the pragmatism of cause and effect that underpinned and characterised the industrial revolution. This resulted in a focus on the scientific method and a view of nature that focused on the utility of raw materials, rather than ecosystems or environmental places of significance (DesJardins, 2006; Shepard, 1982; Spodek & Saracho, 1996).

Throughout the 20th century, investigations into human and child development led to the formation of many developmental, maturational, ecological and socio-cultural theories that influenced ways of thinking about children and childhood and early childhood education (Bronfenbrenner, 1994; Brunner, 1966; Erikson, 1963; Flear et al., 2006; Piaget, 1953; Skinner, 1938; Steiner, 1996). The context or settings in which theorists such as Freud, Skinner, Erikson and Brunner (among others) situated the child and put these theories into practice focused on the home, the church, civil institutions, and the classroom (Roszak, 2001). The natural world, as a space for locating and investigating a child's lived experience, became less prevalent. The built environment became the dominant early childhood setting where children spent their time. Indeed, the required space per child for outdoor, indoor and utility areas in early childhood settings in Australia has changed little since the 1930s (Ashby & Grieshaber, 1996; Ministerial Council on Education, Employment, Training and Youth Affairs [MCEETYA], 2008).

There is a great deal of research to show that children's free time over the past 2 decades, whether in educational settings or during home time, has become more sedentary and highly scheduled, resulting in a predominance of indoor activities and a disconnection from the natural world (Elliott & Davis, 2009; Gill, 2004; Louv, 2006; Malone, 2004; Orr, 2005; Pyle, 2007; Sobel, 2005). Moreover, in Australian early childhood settings, manufactured play equipment and surfaces have become common design elements in the outdoor spaces, utilised because they are seen to ameliorate risk (Wyver et al., 2010). However, the use of plastic equipment and synthetic ground covers has further restricted young children's opportunities for engaging with nature, therefore compounding the disconnection from the natural world.

Early childhood education for sustainability, or ECEfS, has been through a number of transformations throughout its history, and is still in the process of evolving and making connections with contemporary early childhood theories (Cutter-Mackenzie & Edwards, 2013). Davis (2010), recounting some of the earlier iterations of ECEfS, argues that the emphasis has shifted from experiential practices *in* nature, such as worm farms, gardening, and composting, to more activist-based practices or education *for* the environment. This focus includes the ‘development of values and action skills’ (Davis, 2010 p. 9) and promotes advocacy and agency. Over time, ECEfS has also expanded in scope (Elliot, 2003). Areas emphasised in practice may include a focus on environmental stewardship (Gambino, Davis, & Rowntree, 2009), physical and mental health (Ingunn, 2004), the need for risk in play environments (Gill, 2007), science education (Aitken, Hunt, Roy, & Sajfar, 2012), equity and social justice (Magiropoulous & Guigni, 2007) and aesthetic appreciation (Aitken et al., 2012; Ward, 2011; Wilson, 2010).

Building on this history, there are a number of early child care and education providers throughout Australia incorporating ECEfS into their centre operations (Davis, 2010; Elliot, 2003). There are also a number of ‘Forest Schools’ (Archimedes Training Ltd, 2007) and environmental education programs — for example, Little Green Steps (Huges, 2007) — that provide support and resources. In addition, organisations such as the Early Childhood Environment Education Network (ECEEN) operate to act as advocates and provide networking and professional support for educators. Testifying to the validity of these voluntary activities, recent regulatory frameworks also include requirements for including ECEfS. In 2009, the Early Years Learning Framework (DEEWR, 2009) was introduced in Australia. While references to the interactions between the human and natural world in this document reflect a more environmental education approach rather than an education for sustainability approach (Edwards & Cutter-Mackenzie, 2011), this framework embeds awareness of, and appreciation for the environment into its learning outcomes and practices. Outcome 2 (DEEWR, 2009, p. 26) is particularly explicit where it highlights the need for children to become socially responsible, to show respect for the environment, and where it refers to children developing an awareness of the impact of human activity on the natural environment (p. 29). It also highlights the need for a range of natural elements in outdoor environments to foster appreciation for and understanding of nature. However, in spite of these examples of ECEfS practice and advocacy, there is still widespread resistance in mainstream early childhood programs to ECEfS becoming an integral part of the curriculum for young children (Elliott & Davis, 2009). Elliott and Davis (2009) cite issues such as the view that outdoor play is sufficient outdoor experience, and for many, that sustainability issues are considered too difficult to address with young children. They also highlight the anthropocentric nature of much post-structural theory, and its focus on language, in the early childhood field and the extent to which it can silence discourses around the role of nature.

What is not conscientised or conveyed through language seemingly has little relevance. Methodologically, text and the deconstruction of text reveal meanings and relationships that place humans at centre-stage. Such placement denies agency to the biosphere. Nature is invisible, does not have a voice and does not provide a text for deconstruction of power relations between humans and nature. Only conscientising humans can create texts. As a result, non-human species and natural elements are automatically and fundamentally ‘silenced’ from conceptualisations that rely on voice and text for authenticity (Elliot & Davis, 2009, p. 72).

Additional barriers also identified by Davis (2009) include the lack of research related to early childhood environmental education in the past, and the time needed for recent research to infiltrate everyday practice in early childhood settings.

Why Arts-Based Pedagogies?

The arts foster creativity and innovation, engage and promote problem-solving, transfer and adaptation of knowledge and skills and are fundamental in early childhood (Edwards, 2010; Isenberg & Jalongo, 2009; Russell-Bowie, 2009; Wright, 2012). There is a requirement that educators expose children to the arts (Department of Education and Training NSW, 2010; National Childcare Accreditation Council, 2005; NSW Curriculum Framework for Children's Services, 2002) and that educators will support children to see themselves as inherently creative, as agents who can do, make and create art (Isenberg & Jalongo, 2009; Wright, 2012).

The arts support cognitive processes (Russell-Bowie, 2009; Wright, 2012). This is particularly evident in the Reggio Emilia approach where children engage extensively in the arts and act as collaborators, co-constructors of their environment, and creative and effective communicators (Bartlett, 1993; Gandini, 1993). Eisner (2002) writes about the ability afforded by the arts to re-engage with and stabilise memories of lived experiences and to communicate them through the arts. The arts can also be seen as an additional way of knowing, thinking and innovating that encompasses affective realms of being (Wilson, 2010; Wright, 2012). Wilson highlights the emotional connection that arises through fascination, awe and wonder often experienced when engaged in the natural world and in expressing it through the arts. She describes wonder as 'an emotion wedded to understanding based on intuition and natural instinct' (Wilson, 2013, p. 8). The arts are also ideal for reaching students who are not engaged (Fiske, 1999) because the key elements of the arts are applicable to all areas of sensory experience (Department of Education and Training NSW, 2010; Russell-Bowie, 2009).

The curriculum approaches used during this project were those that were already in use in the participating early childhood settings. The Emergent Curriculum (Jones, Evans, & Renken, 2001) approach was evident insofar as the educators identified the children's interests and actively planned to work with and scaffold these interests in collaboration with them. Constructivist (Hohmann & Wekart, 1995) approaches were also evident, positioning the children as co-constructors of the experiences in a manner that allowed for emerging content to develop into projects (Helm & Katz, 2010) based on the depth and/or scope of the children's enquiry. While linking to the children's interests and knowledge is often advocated (Isenberg & Jalongo, 2009; Wright, 2012), in this program, these links were extended and included the educators developing their own experiences and artifacts about their local environments, such as creating stories and telling them, writing songs, verses, and drama pieces, and creating dance and visual arts experiences.

Research Design

This research project was undertaken with a group of educators who worked in the 3- to 5-year-old rooms in four separate preschools in the Sydney region. Three of the preschools were on the urban fringes and one of them was located in the inner western suburbs. A total of 10 educators participated in the program. Four (one in each of the four rooms) were bachelor qualified and experienced (10 years or more) and six were experienced Vocational Education and Training (VET) support educators. I visited each of the settings for 3 hours per month in 2009 from February to December.

A feature of the methodology for this research project is what Ponte, Ax, Beigaard, and Wubbles (2004) refer to as practitioner action research, facilitated by teacher educators through modelling and scaffolding. In addition to well-known practitioner action research processes (Arktoft, 2008; Carr, May, & Podmore, 2002; Groundwater-Smith, 2008; Kirova-Petrova, Alber, & Briod, 2000), the educators drew on their own funds of knowledge with regard to creative practice and to the natural world, and collaborated with me during the initial visits as I modelled a range of example techniques for researching the natural environment, and creatively rendered the content into arts-based experiences for the children. Successive visits included feedback from the educators (who adapted the examples to their settings and practice), and by the end of Stage 1, the model for creating self-generated, arts-based experiences had been established — the second key feature of this project.

The educators gradually took over the process of generating and implementing arts-based experiences based on the natural world, during and in between visits, as the year went on and I became a facilitator. The content in their experiences about the natural world was based on topical flora and fauna, or specifically on the children's interests of the flora and fauna of their local area. The educator-generated experiences and content was expressed in all sessions through storytelling and a variety of other creative experiences such as songs, verses, drama, movement, painting, drawing, sculpture, games and child initiated play. Curtis (2007) highlighted the effectiveness of arts experiences in helping participants to understand information about the natural environment, and emphasised the importance of participation, in preference to passive observation, to maximise learning and understanding.

Data

Data collected by the educators included written observations of the children, reflective journal entries, photographs, planning materials, their own creative artifacts and props, feedback from families, and artifacts created with the children.

The data I collected included video footage of the sessions with the children (presented by either myself or the educators), notes of phone calls with educators to plan the sessions, email records of contact with the educators, journal notes post each session, and creative artifacts such as demonstration sculpture or drawings or new songs based on the session content. I also conducted a questionnaire with the educators at the beginning of the visits (February) and at the end of the visits (December), capturing variances in responses and representing a rich source of data (Goodwin & Goodwin, 1996). Categories of data across all data types emerged and were gradually adjusted and finally confirmed in consultation with the participants (Creswell & Miller, 2000).

Research in Action

The implementation and evaluation of this project was conducted in three stages that reflected three periods throughout the academic year. Stage 1 was from February to April, Stage 2 was from May through to August and Stage 3 proceeded from September to December 2009.

Prior to Stage 1 the sustainability focus of the educators was implemented through gardening, composting, recycling, discussing sustainability, encouraging observation of plants, discussing insects flora and fauna.

Stage 1

The implementation of Stage 1 was characterised by the researcher modelling creative arts sessions based on the natural world, and incorporating educator feedback as



FIGURE 1: This picture is from the educator's journal and shows her and the children moving like seaweed.

mentioned above. Initial participation by all educators was through recording information about the children's interests with regard to the natural world and collaborating on the overall content of the story I would present. The educators prepared creative adjuncts to the stories, such as room settings or props, engaged in movement or drama activities, and in the music and visual arts experiences. They also often specified the arts media they wanted me to use to further explore the story content. The educators said they liked the fact that the stories were set locally as they had familiar elements in them that reflected their home environments. The following journal entry was written by an educator at Preschool 4 under the data category of 'Using the arts to represent the natural world'. The educator recalls an event that occurred a few days after a story I presented, which was set in a local creek called Cabbage Tree Creek. This creek contained leather-jacket fish and emptied into Port Jackson, where there were endangered sea grasses. The main characters were Lester Lightfin Leather-jacket and Bossy Possy, a characterisation of the *Posodonia* sea grass. Figure 1 shows the educator and children moving like seaweed, and her journal entry noted:

After this session many of the children requested 'dress up' dances, which was how they described the 'movement' activity we did with Kumara ... we used ribbons to pretend to be seaweed. Jayden asked to be Lester and swim through the seaweed, Christian keenly followed. Lucy recalled 'Bossy Possy' said 'No you can't come in, they have to be gentle first.'

By the end of Stage 1 the educators were actively encouraging children to participate in creative arts sessions reflecting the local natural environment during and in between research visits. Story content suggestions specifically reflected their local environment,

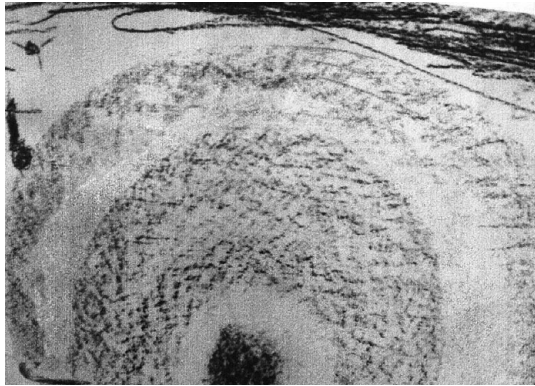


FIGURE 2: Gillie's crayon rainbow.



FIGURE 3: Water-colour rainbows.

and two of the educators began to develop and tell their own stories. The educators' sense of connection to the natural world developed throughout the course of Stage 1 and they began to research their own local environment, with a broader sense of its relevance to their daily curriculum and to investigate the creative experiences they could develop to represent it.

Stage 2

In Stage 2, the focus for the educators was researching factual information about flora and fauna and creatively transforming it into story content. It also included connecting story content to children's interests in natural flora and fauna, planning, collaborating on and implementing stories, and suggesting, planning or implementing after-story creative experiences.

In Preschool 4 the topic of rainbows was introduced through a story where the drip droplets of water and the sundancers (sunrays) were the main characters. The educators carried this topic forward in the following weeks, investigating it thoroughly through a number of arts-based media. This included painting, light tables, prisms in the window, drawing and song (see Figures 2 and 3).



FIGURE 4: Children's clay burrows.

The educator in Preschool 1 wrote the following entry in her journal on July 8, 2009:

After the rain stopped the sun came out. We observed the rainbows created by the prisms.

Lennox: 'I caught one on my finger.'

Tate: 'They're dancing everywhere.'

We watched the steam rise from the school playground.

Chloe: 'The sundancers are the steam.'

We felt the sun warm our cheeks and watched the pavers dry.'

One educator at Preschool 3 began to tell stories of brushtailed possums and common wombats, both of which were a feature of their local area. The wombat stories were prompted by one of the children who had seen wombats in the parking area of a campsite they visited during the holidays. This educator reported feeling liberated. She said: 'No one ever told me I could tell a story — just research the subject and content and turn it into a story.'

From that point on this educator had a heightened appreciation for topics that could be rendered creatively into self-generated stories that reflected what was happening with the children, and in the environment. She told stories regularly from this point on, during research visits and in between them, often serialising the stories so that the same or similar characters from the natural story settings engaged in new adventures. This content also lent itself to other modes of creative expression such as painting, drawing, clay or beeswax modelling, drama and music. The burrows and wombats formed in clay shown in Figures 4 and 5 illustrate the children's creative experience of the story.

One element of the process that became evident during Stage 2 was the tension between factual research of a topic related to the natural world, and creative rendering of it into a story. This can be exemplified by the episode of the educator who researched the Port Jackson Shark (later affectionately known as Hetty PJ Shark) and then developed a story from it. While the educator was adept at research and gathered many facts about the Port Jackson Shark's habitat, breeding cycle and food chain, she found it challenging to create a story narrative out of these facts that would be engaging for the children. Developing a plot, characters, appropriate settings and dynamics is not an automatic process, just because you have gathered the relevant facts. In this instance (and



FIGURE 5: Wombats modelled in clay.

in a number of others across the research sites) the educators and I worked together and rendered their stories creatively so they had the feel of story narratives and settings. The revised stories were appropriate to their choice of subject matter and engaging for the children.

By the end of Stage 2, the educators began to explore animal qualities through artistic expression, and demonstrated a facility for presenting factual information through the arts. Throughout the process they dramatically increased their knowledge of plants, animals/insects and habitats, and incorporated them into an intensive program of creative experiences and stories. This resulted in an increased number of creative arts experiences in other modes, such as plays based on the story content and characters, painting, drawing, sculpture, dance and music. This multimodal creative arts activity reflected a significantly intensified and detailed understanding of the local natural environment in each of the preschool settings. This is consistent with outcomes indicated by Curtis (2007), showing that participation in creative arts activities related to the natural world intensifies learning and leads to change in environmentally oriented behaviour.

Stage 3

Stage 3 was characterised by the explicit use of planned stories, daily conversations and investigation, and creative arts experiences to explore and convey concepts about the natural world. One educator also engaged in song writing — a new experience for her. The educators conducted excursions to natural spaces and provided a wide range of natural materials. They consolidated the process of serialising stories or telling locally situated stories in chapters, using the characters that had become features of the narrative.

One educator set her stories on a farm that was surrounded by natural forest that was reflective of the local natural environment with which the children were now familiar. There were a number of well-loved animal characters in these stories, but the most



FIGURE 6: Jake is the wind.

popular were the baby ducks: Dibble Duck, Dabble Duck and Paddle Quack. The adventures of these baby Peking ducks caused such excitement that two of the 5-year-old boys elicited a promise from the educator that she would not tell any further chapters of the story on the one day of the week when they were not present, because they could not bear to miss it. Even though these ducks were not native to the Australian bush setting, the adventures they had were situated in and descriptive of the local natural environment, and the duck characters interacted with many native species. From the stories came other creative arts experiences such as drama, movement, music, painting, drawing, and clay and beeswax modelling and these were implemented in at least one of the media mentioned daily (see Figure 6).

Artifacts and displays in the preschool rooms also highlighted the extent to which the natural world had become an everyday focus and the key topic of investigation and expression (see Figure 7).

September 09: This collection of small creatures is the result of an interest we have been following with the children in the small creatures we find in our preschool playground. At preschool we promote an appreciation and respect for the natural environment and living creatures and we encourage environmentally sustainable practices. The children enthusiastically participated in this project and we used recycled materials where possible. We experimented with a range of craft experiences and we researched information about the characteristics of each small creature as we created them. (An excerpt from a text information sheet for the public and families that accompanied a display by Preschool 1 at their local Spring festival)

These displays and their explanatory texts were also an indication of the extent to which knowledge of the local natural environments had developed, and the way in which this



FIGURE 7: The mini-beast mural.

knowledge was linked to sustainability behaviours and connection with the natural world.

Discussion on Research Findings

Throughout this research, the educators investigated and came to know the local flora and fauna in their environment, and this had an impact on their degree of connection with, and sense of responsibility for their environment. They developed a strong sense of place (Orr, 2005; Pyle, 2002; Sobel, 2005; Somerville, Dundas, Mead, Oliver, & Sulter; Suzuki, 1997; Tooth, 2006; Tooth & Renshaw, 2009; Vaske & Kobrin, 2001), which they reflected through their stories and other creative experiences. They developed ongoing teaching and learning content that was based on the natural world through a process of investigation, deep reflection, and deliberate creative transformation of factual information.

The inherent intentional teaching (Arapaki & Zafrana, 2004; DEEWR, 2009; Hedges, 2000) evident in this approach, and the scope for including content about the natural world, is also, according to Cutter-MacKenzie and Edwards (2006), consistent with socio-cultural approaches to teaching, and provides opportunity for 'knowledge rich experiences' (p. 15). Engagement in this process also placed the educators in the role of action researchers, where they were constantly engaging in research, developing program content as a result of it, implementing, evaluating, and adapting (Arktoft, 2008; Ballantyne & Packer, 2009; Bloom, Sheerer, & Britz, 1991; Gambino et al., 2009; Groundwater-Smith, 2008; Koepfel Strasser, 2000).

The educators used this content daily and reflected the different animals, insects and plants, and weather phenomena. They highlighted the qualities or characteristics of the subject, looked at the relationships between it and the habitat or other animals, and examined the symbiotic relationships evident between species. The natural world became a rich source of analogy and example for behaviour, collaboration, and social interaction. It also became a source of awe and wonder as they pondered the beauty and wisdom of the natural world. Awe and wonder, according to Wilson (2010), are meaningful contributors to knowledge and should not be overlooked in our attempts to develop metacognitive relationships or to understand the world around us. Although immersion in the arts and investigation and expression of content about the natural

world were key factors in this research, engaging in self-generated creative arts process initially presented the educators with challenges.

Challenge 1: Lack of Confidence With Creative Arts

Generally, the educators had a lack of confidence in their own creative/artistic abilities, consistent with many educators of this generation (Isenberg & Jalongo, 2009). The idea that experienced educators feel that their skills in some of the arts modes are limited is also supported by Russell-Bowie (2009) and Meier (2008), who cite numerous instances of working with practising educators who felt that they were not creative. This, according to De Vries (2008), at least in the musical art form, is due to lack of preservice teacher education in Australia. McArdle (2012) posits that many educators of this generation are also products — and perpetuators — of the ‘laissez-faire’ (p. 36) pedagogical approach that refrained from direct teaching in the arts for fear of limiting children’s creativity.

Challenge 2: Transforming Factual Information and Content to Story Narratives

Given the comments above, it is not surprising that the educators found it challenging to transform factual content into story narratives. The process of research is far more empirical and does not require the scope involved in other ways of knowing and interpreting as those used in the arts or, in this case, in story telling. Meier (2008) states that the facilities required to transform information creatively, and to allow educators to see differently, are the ‘senses — the heart and the mind and the soul’ (p. 61). Once the connection between content and creative activity was made — and this came primarily through understanding how to transform information into story narratives — many of the educators’ concerns about generating their own creative arts experiences were allayed. The educators also saw through the modelling process that the original content portrayed in the stories had life of its own, and the inherent characteristics of the subjects were amenable to interpretation through various art forms. Animals, plants and other characters were drawn, sculpted, danced and played. Some attempts were also made at creating music.

Challenge 3: Engaging Their Creative Arts Skills

None of the educators was predisposed to music and none played a musical instrument. While some of the educators made attempts at creating simple songs and tunes that were relevant to the other content they were engaged in, they all found it challenging and a stretch of their current skill levels. While there was some modelling of the processes involved in creating musical experiences early in the visits, teaching educators to develop musical experiences was not an explicit focus for any length of time, and time is what is required in order to develop such skills (de Vries, 2008). However, there were a variety of ways in which the educators engaged and developed their creative arts skills, and employed arts-based pedagogies in order to teach content about the natural world.

Conclusion

This article highlights the use of arts-based teaching pedagogies for including content about the natural world in early childhood settings. It distinguishes this research process from other action research and arts-based research projects by highlighting the modelling process engaged in by the researcher, and the commitment on the part of participants to create original arts-based experiences for use in their program to convey information about the natural world.

Arts-based pedagogies have been highlighted as a useful and creative approach for exploring and expressing understandings of the natural world, and for assisting participants in the project to engage with their own local natural environment. The arts-based exploration of their environments provided additional ways of knowing and understanding their environments that encompassed cognitive, affective and kinesthetic ways of knowing.

The findings showed that when educators used arts-based pedagogies, and generated their own creative arts experiences, they significantly increased the extent to which they incorporated daily content about the natural world. However, there were limitations when developing new approaches that involved expanding creative arts capacities and skills due to the time involved. Musical skills were highlighted as a skill set where the educators had considerable challenges. The other art forms, such as story development and telling, drama, movement, and visual arts, were more readily employed by the educators in the study, and were used with great facility to explicitly express key concepts and curriculum content.

The findings also showed that the arts-based pedagogies were key elements in the educators generating and perpetuating meaningful, child-centred content in the daily program for the children where a nexus between intentional teaching and a child initiated curiosity and enquiry about the natural world formed interrelated and complementary pillars of the lived experience for both educators and children. This lived experience also involved a greatly enhanced understanding of the local natural environment for the educators, and a considerable intensification of their sense of connection with, belonging to and responsibility for, the natural world.

Keywords: early childhood education, natural learning, arts-based pedagogies, sustainability

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