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Home and Beyond, But Inside Not Outside: Australian and Singaporean Children's Depictions of Their Environment

Keyword List: Arts-based, Multimedia Teaching and Learning, Environmental Education

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Abstract

With a growing disconnect between children and nature, researchers and educators are looking for ways to (re)establish bonds with the environment, and through those bonds to help children to learn about and act sustainably. This paper discusses findings of a postcards project between children in Australia and Singapore, where children created drawings and stories of their environments to share with their peers overseas. Through this largely arts-based, multimedia approach, children's understanding of 'environment' increased and their depictions moved beyond their homes to locations further afield. However, for one group, the preference for the indoor environment increased, indicating, as Louv (2008) suggests, the need for children to reconnect with nature.

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Introduction

Since 1999, the concept of multiple intelligences has included 'naturalistic intelligence', the ability to recognize objects in the natural environment. Yet researchers and educators are alarmed that increasingly, this intelligence is being compromised by children's over-indulgence in human-made objects, such as computers, video games, and electronic toys (Louv, 2008). Therefore, as a necessary first step in sustaining the natural environment for future generations, it is essential that children reconnect with nature.

One way to determine children's perception of the environment, and to help them to reconnect with nature, may be through using a multimodal, arts-based approach to teaching about the environment. The 'arts' have proven to be very successful as tools for children expressing their understanding and ideas about their and others' environments. As part of the "Postcards Across Borders" project, this research examines a postcard-sharing between two groups of children in early childhood classes in Australia and Singapore. It considers their understanding of "environment", their preference for the indoor or outdoor environments, and their depictions of environment from the immediate environment of the home to places further afield.

Review of Literature

Children and the Environment

In 1983, Gardner introduced the concept of multiple intelligences, outlining seven areas including linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal and intrapersonal intelligences where people can excel. By 1999 he had added existential and naturalistic intelligences. Defining naturalistic intelligence as the ability to recognize objects in the natural environment, Gardner argues that today naturalistic intelligence "has been hijacked to deal with the world of man-made objects" such as cars, shoes and jewellery (1999 as cited in Louv, 2008,, p. 72).

According to Louv (2008), schools' push for high test scores and parents' lack of time and safety fears mean that children are spending less and less time outdoors. He coined the term, "nature deficit disorder" to describe the human costs of alienation from nature resulting in, "diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (p. 36). Louv suggests, however, that this "disorder" can be changed (2008).

White and Stoecklin (2008) similarly warn that children have a predisposed tendency to explore and bond with nature – "biophilia" – but if such a bond is not encouraged in developmentally appropriate ways, the result is "biophobia"

an aversion to nature, manifesting in children who regard nature as a disposable resource. They argue that one of the key issues preventing children from forming a positive relationship with nature is abstract and inappropriate teaching of environmental sustainability.

Current environmental education often presents issues relating to recycling or sustaining the world's natural resources. Sobel (2013) suggests that children need to be given "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. 13). Similar to White (2004), he suggests that these multiple interactions with nature need take place over time and in a diversity of contexts (Martin, 2007).

Even more important is the need to provide authentic natural experiences in children's local environment as attachments are formed in places where direct and repeated experiences occur, such as homes, gardens and nearby streets (Jack, 2010). As Sobel argues, "children desire immersion, solitude, and interaction in a close, knowable world... We should be attempting to engage children more deeply in knowing the flora, fauna, and character of their own local places" (2013, p. 15). Yet, as the title of this paper suggests, many children today have neither the opportunity nor the desire to develop this bond.

The Arts

Because young children may not have the words to describe what they see, think or feel about their local environment (Sorin & Gordon, 2010), the arts can serve as a tool for communicating thought processes beyond words (Alerby, 2000; Russell-Bowie, 2006). Kendrick & McKay (2004) highlight children's ability to communicate ideas through a variety of symbol systems, calling for a multi-literacies approach that recognizes various forms of the arts as literacy forms used by children to shape and express their worlds. The content of children's drawings, in particular, is widely recognized as providing insight into their thoughts and feelings about the world (Barazza, 1999). This has important implications, as "environmental education would be more

relevant and effective if teachers understood better how children see and conceive nature” (Martin, 2007, p. 58). Thus, an arts-science nexus to promote environmental sustainability is not only possible but feasible.

Arts and the Environment

Eisner (2008) states that education is improved not only by scientific methods but also by the arts. Taking a multimodal approach that combines the arts with science is an effective way to research and teach children about the environment. Wilson (n.d) explains that arts-based experiences “encourage contemplative, reflective thought, which can extend environmental awareness, an essential basis for environmental understanding” (p. 4). Graham (2007, para. 28) says that for some artists, art is a means to connect or reconnect with the world and is “also a form of knowledge, a way to inquire about life, and a way to change how we understand the world and our relationship to it”. Thus, arts in the classroom can create possibilities for learning that cultivates awareness and care for place (Gruenewald & Smith, 2008).

Methodology

The research, conducted between September and November 2013, was framed around the question: *How can arts-based, online postcard sharing between children in different countries determine and enhance children’s understanding of their own and other environments?* The qualitative study used a mixed methods approach, which Sorin, Brooks and Haring (2012) suggest is “a useful tool for revealing children’s thoughts, feelings and experiences with and towards their environment” (p. 16). Within this paradigm, the research took a multimodal, arts-based approach, which Jewitt, Kress, Ogborn and Tsatsarelis (2001) suggest encompasses diverse communication, such as visual imagery, action and sound. Thus drawing and storytelling were the primary modes used, as they enhance not only children’s expression of ideas but also researchers’ understandings of their work.

The study examined children's understandings of their own local, natural environments through an authentic task of sharing postcards with children in another geographical location where they discussed how they understood their and others' environments. Children from early childhood classes in Australia and Singapore communicated with each other through digital postcards (drawings and stories) in a secure online environment. A total of three postcards were sent and received from each group of children.

Participants

Children at two schools in two tropical locations, a private, middle class Catholic school in an Australian city, and a private, school in Singapore that caters for children with learning differences, participated in the research. White (2004) suggests that the ideal time to form a bond with, and positive attitudes towards, the natural world is "sometime during early and middle childhood" (p. 6). Participants in this research included 19 children aged five to six years in an early childhood class in Australia and eight children aged five to seven years in an early childhood class in Singapore. Because there were fewer children in the Singapore class, the Singapore children wrote postcards to two or three children in Australia. Early childhood educators at both venues scaffolded children's learning in the project.

Researchers in both locations were participant observers, attending the sites in the first instance to introduce the project and interview children and early childhood educators. Children in Australia were shown postcards, offered explanations of what they were, and invited to make postcards about their environment to send to children in Singapore. These were shared online with the children in Singapore, who then responded to children in Australia with postcards about their environments, thus creating a reciprocal process. When three postcard exchanges had been completed, final interviews were conducted with children and early childhood educators from both groups.

Data Collection

Data collection methods used in this research included pre- and post-program interviews with early childhood educators and children; artefact collection (the three postcards each child created); and observations by the researchers. Interviews with children asked them to define the word "environment" (including prompts), describe their local environment and its best features, whether they preferred the indoor or outdoor environments, and why, and what they knew about other environments. In the postcards, children shared information about their environment. For example, S. drew a picture (Figure 1) of three people standing in front of a high rise building. There are birds and clouds in the sky, a tree with ants crawling on it, and grass on the bottom. The story is: "Singapore has flowers and birds. We like rice to eat. It is always sune [sunny]".



Figure 1. S's picture.

Data Analysis

Interview data were analysed using emergent or inductive coding. Mukherji and Albon (2010) note that this technique originated in Glaser and Strauss' (1967) formulation of 'Grounded Theory;' "As the researcher reads through the text, identifying and coding the segments, a list of codes and their meanings is drawn up...Segments that include similar ideas, attitudes, thoughts and feelings are given the same code" (p. 231). As coding is subjective (Ibid), data were coded by two researchers to ensure reliability.

Drawings (supplemented by stories) were coded using Haring's (2012) C-I-D method. This method combines popular ways of analyzing children's art work into three areas: content, interpretive and developmental. For content, we examined which items were present in the drawings, such as trees, houses or people. We classified objects as "human-made" or "natural" and looked at design elements, such as how the child used colour, line, shape and texture. Interpretive analysis included mood and theme of the drawing, if and how the self and others were represented, and the role of the written story in the interpretation (e.g., did it reiterate the drawing or provide additional information?). For the developmental aspect, we cautiously looked at whether the drawing seemed characteristic of the general age of the child, or whether there was something unusual about it. Further, we considered Sobel's (2013) description of three stages of development of bonding to the environment: early childhood (four to seven years), elementary (eight to eleven years) and early adolescence (12 - 15 years). He notes: "From age four until about seven, children's homes fill the center of their maps and much of their play is within sight or earshot of the home. The house and yard are the significant world for them" (p. 15).

Findings

Through interviews, artefacts and observations, the research produced a number of findings. This paper discusses three findings from children's interviews and postcard artefacts. We found that understandings of "environment" increased over the period of the research. Further, the Singaporean children's preference for indoor, human-made environments and the Australian children's preference for outdoor, natural environments increased. Finally, at both venues, postcards moved from representing the immediate home environments to representing social environments such as the zoo, campsites and restaurants. Each of these findings is discussed below.

Children's understanding of 'environment' increased

In the preliminary interviews, a number of children could not define the word, 'environment', sometimes even after being offered a prompt. The children who gave definitions after a prompt often included words or images from the prompt, such as "where sunflowers live", after being shown a picture of sunflowers in a field. Those children who did give a definition without a prompt offered limited definitions, such as "trees...leaves...flowers" or "the space around you."

The post-program interviews demonstrated a much-increased understanding of "environment". This followed three postcard exchanges with the other class, and follow up discussion and activities by both teachers. In these interviews, fewer children required prompts and the majority gave more extensive definitions. For example:

- *It means that the world needs to be clean.*
- *A place, a river, a beach.*
- *You can't pull the plants... You can't disturb the nature, don't disturb the animals. You keep animals ... don't ... we take care of animals ... you should be responsible to take care of the whole world... And you should take care ... you should also take care of the nature*

In Australia, a number of children defined "environment" as "your favourite place", followed by naming a place of importance to them. This could have been the result of intentional teaching by the classroom teacher.

Australians prefer the outdoors; Singaporeans the inside

In both the preliminary interview and the post-program interview, children were asked whether they preferred the indoor or outdoor environments (see Table 1). In the preliminary interviews, 50% of Singaporean and 47% of Australian children said they preferred the indoor environment. Yet by the post-program interview, the number of children preferring the indoors increased in Singapore from 50% to 57% and the number in Australia decreased from 47% to 23%. In the post-program interview, the Singaporean

children demonstrated a strong preference for the indoor environment, explained by one child as, “I’m not allowed [outdoors]. I go outside to go to school.” Reasons for the Singaporean children preferring the indoor environment included: “because there’s mosquitoes [outside]”; “I got fun games (inside)”; “because the outside has many flies and the inside doesn’t have any flies,” and “there’s air conditioning in my room.”

While a number of children said they prefer the indoor environment because it is very hot outdoors and the inside is air conditioned, Australian children, who live in a similar, if not hotter tropical climate, decreased their preferences for indoor environments during this research, from 47% to 23%. Instead, they increased their preferences for the outdoor environment, from 37% to 54%. Their reasons for choosing the outdoors included: “because I can see more stuff”; “because I can play hide and seek and there are more places to hide”; “because it is fun and I like making sandcastles”; and “because I like to ride up and down the hill on my bike.”

A number of children stated that they preferred both environments, giving examples of the benefits of each. For example, “inside because there is air conditioning and outside because it gives plants sun,” and “[inside] there’s a lot of things there...[outside] running around.”

Table 1

Children’s preferences for the indoor or outdoor environment

Question: <i>Do you prefer the indoor or the outdoor environment?</i>	Singapore Preliminary	Singapore final	Australia Preliminary	Australia Final
Indoor	50%	57%	47%	23%
Outdoor	12.5%	15%	37%	54%
Both	37.5%	28%	16%	23%

While this research showed an increase in bonding with the natural environment for Australian children, the Singaporean children's increased preference for the indoor environment echoes Gardner's concern about naturalistic intelligence being "hijacked" by human-made environments. It confirms Louv's (2008) conviction that the broken bond between children and nature must be changed, and further ways to reconnect with nature, such as outdoor classrooms, might support this change.

Moving from immediate to social environments

In both Australia and Singapore, initial depictions of children's environments centred around their homes. For example, Figure 2 is a drawing centred around a family home. On one side, there appears to be a car with a number of people in it, and on the other side, a swing set. There are birds labeled "cockatoos" in the sky. The story that accompanies the drawing tells of an incident where a cockatoo took some fruit from the house.



Figure 2. Initial postcard

In the first postcards, 62% of Singaporean and 85% of Australian children depicted their homes and things around their homes, such as pools, vehicles and playground equipment. This is in keeping with what Sobel (2013) asserts is common environmental understanding for four to seven year olds, a time when “children’s homes fill the centre of their maps” (p. 15).

By the final postcards, children’s depictions of the environment, though still including the home (62% in Singapore and 11% in Australia), expanded to include environments beyond the home, often places that had been visited by the children, such as the Night Safari, Sentosa Island, the zoo, the beach, a restaurant, the movies and schools. In Singapore, 25% of children drew either the beach or a restaurant; others drew an aquarium and the zoo. In Australia, 21% of children drew the beach, and another 10% each drew camping spots or travel in either a car or airplane. For example, in Figure 3, the child drew a picture of people around a fire, a tent and a car. The story discussed planned trips to Japan and camping and asked, “Do you go camping? I like sitting near the fire. I like eating food.”



Figure 3. Camping

In Figure 4, the child split the drawing into two scenes: an outside view of a sushi restaurant, and an indoor view, with a family sitting around a table in the

restaurant. The story said, “The best in Singapore is Sushi Tei (the name of the restaurant).”



Figure 4. A restaurant

Sobel (2013) notes that as children’s understanding of the environment develops, it expands geographically, and their immediate environment, their homes “become small, inconsequential, and often move to the periphery” (p. 15). He suggests that this generally happens between the ages of eight and eleven. Perhaps this expansion occurred in the current research due to the implementation of the Postcards project and may be indicative of how sharing postcards can help children to develop their understanding of and appreciation for their and others' environments.

Conclusion

Sobel (2013) suggests that environmental education in the early childhood years should focus on “enhancing the developmental tendency toward empathy with the natural world” (pp. 15–16). Findings from this research suggest that authentic, real-life, postcard activities between different groups of children seem to have accomplished this. Children were better able to define “environment” and give details and examples to support their definitions.

Further, their development of environmental understanding expanded beyond the immediate environment to larger, more social environments.

While Australian children's preference for the outdoors increased, by contrast, the Singaporean children's preference for the indoors increased during the research. This would suggest that the bond with the natural environment and these children needs to be ameliorated, particularly as these children will grow up to be nature's caretakers. Thus through the multimodal, real-life activities of sending postcards, children in Australia and Singapore increased their understandings of, and empathy toward their natural environments, particularly the Australian children. Increased understanding and bonding with children's environments may assist them in valuing it and acting sustainably toward them.

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