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Exploring Children's Environmental Understandings using the Arts

Abstract

The last several decades have seen an abundance of research examining the growing disconnect between children and their local, natural environments. This divide has been labelled with terms such as 'biophobia' (Wilson, 1984), 'extinction of experience' (Pyle, 1993) and 'nature deficit disorder' (Louv, 2005, 2008).

Crook (1985) argues that the content of children's drawings may provide valuable insights into their thoughts and feelings about the world (cited in Barazza, 1999). Visual mediums of data collection have often been overlooked because of traditionally favoured written and spoken modes. Indeed, the visual aspects of early literacy in particular and graphical forms of representation in general are under-valued, under-researched and under-represented (Anning, 2003: 5, cited in Kendrick & McKay, 2004, p.126).

Qualitative methods have been found to capture children's experiences in a more accurate and child-friendly manner (Benson, 2009). This paper explores ways of collecting and analysing data using drawings alongside other art forms such as drama and storytelling. We discuss methods we have trialled for both data collection and analysis in research with young children about environmental sustainability and our reasons for supporting the use of the arts as research tools.

Introduction:

The future

is not some place we are going to,

but one we are creating.

The paths to it are not found

but made.

And the activity of making them

changes both the maker

and the destination.

(John Schaar).

The last several decades have seen an abundance of research about children's environmental understandings. Unfortunately, the results have not all been positive, with many researchers

discovering a consistent and recurring pattern, indicating children's growing disconnect with nature. This divide has been labelled with terms such as 'biophobia' (Wilson, 1984), 'extinction of experience' (Pyle, 1993) and, more recently, 'nature deficit disorder' (Louv, 2005, 2008). There are many factors contributing to this disconnect including: 'stranger danger', insect-borne diseases, pollution and the harmful effects of the sun (White, 2004), homework, organised sports (Ginsburg, 2007), and the domination of sedentary, indoor activities related to the computer, television and other gaming devices (Pyle, 2002, cited in Blizard & Schuster, 2007).

It is important that these factors are addressed because findings suggest 'the window of opportunity for the formation of bonding with and positive attitudes towards the natural environment develops sometime during early and middle childhood and requires regular interaction with nearby nature' (White, 2004, p.6). Klassen (2010) notes it is feared by many researchers that if this connection with nature isn't encouraged and established, then the future generation might not deem the protection of the environment a necessary cause.

'A primary purpose of qualitative research is to describe and clarify experience as it is lived and constituted in awareness' (Polkinghorne, 2005, p.138). Additionally, qualitative methods have been found to capture children's experiences in a more accurate and child-friendly manner (Benson, 2009). Therefore, qualitative research appears to be a useful tool for revealing children's thoughts, feelings and experiences with and towards their environment.

Sorin & Gordon (2009) explain that children, particularly young children do not always have the words to describe what they see, think or feel. Arts-based research is an alternative qualitative method that can involve using the arts as a method, subject, form of analysis or all of the above (Huss & Cwikel, 2005). The arts 'are viewed as indispensable sources of cultural and historical information, givers of diverse perspectives and values and remarkable tools to make meaning' (Cornett, 2007, p. 2). Images of art have been found to transcend beyond words and consciousness to 'embody and communicate emotions, ideas, beliefs and values; to convey meanings through aesthetic forms and symbols; and evoke emotive responses to life with or without words' (Russell-Bowie, 2006, p.3).

In the last decade we have witnessed an 'explosion' of art-based forms of research, evident in the qualitative literature (Mullen, 2003). Existing literature relates mainly to the art forms of drawing (Alerby, 2000; Barazza, 1999; Bowker, 2007, Kendrick & McKay, 2004) and photographs (Benson, 2009; Kyle & Chick, 2007). Barazza (1999) notes 'it is widely

recognised that the content of children's drawings may provide insight into their thoughts and feelings about the world' (p. 49). Collage, a visual art technique, has also been found to reflect the ways in which our world is experienced (Butler-Kisber & Poldma, 2009). However, it is important to note that despite these art forms' innate abilities to tap into a child's subconscious, the visual alone may not communicate the full meaning. Sorin & Gordon (2009) note that storytelling, another arts form, enhanced children's expression and researchers' understanding of their ideas.

Unfortunately, due to the general assumption that anything people think, feel or sense can be said or written in language (Kress, 2000) visual forms of representation have been undervalued, under-researched and under-represented (Anning, 2003). Even now, as the amount of published visual research increases, there remain remarkably few guides on how to do visual research methods and, more importantly, how to interpret the visual (Rose, 2007).

This paper explores the journey of a research team investigating children's environmental conceptualisations using qualitative, arts-based methods. We document methods we have trialled for collecting and analysing data using drawings and collages alongside other art forms such as drama and storytelling, within an Action Research Approach, and advocate our support for the Arts to be used as research tools.

Arts-Based Data Collection:

In total, five different Action Research strategies of data collection were trialled by the researchers. An action research approach involves researching a practical issue using a cyclical process, with the implications of this approach being that the research process is ongoing and changes to methods occur to improve results, thus improving its applicability to real-world situations (Denscombe, 2007). Sorin & Gordon implemented the initial four trials, which were drawing-based and involved over 100 children aged from 5-9 years in urban, rural and remote schools. The fifth was completed by Brooks' and involved trialling a collage-making strategy, in an Independent, urban school, with a class of fifteen children aged from 7-9 years. Each of the Action Research strategies is described below.

Action Research Strategy 1: Drawing, Children's Picture Book, Window Frame and Voluntary Storytelling



Figure 1: 'Window' Storybook (Baker, 1991)

Strategy 1, Sorin and Gordon's pilot study, trialled a 'drawing-telling' approach. Cox (2005, p.123, cited in Wright, 2007) describes this approach as a mutually transformative process where drawing and talking interact parallel to one another.

Participants were a year 2 class, aged 6 – 8 years. This early childhood age cohort was selected based on research findings that suggest that childhood experiences of nature are a significant factor impacting on adult attitudes to nurture and care for the environment (Chawla, 2007).

Participants received a half-hour introduction to the task, which involved the researchers sharing the wordless picture book, *Window* by Jeannie Baker. In this book, each page is presented as a window frame, showing the changing environment during a period of over 20 years. Upon completion of the story, children were asked to construct two drawings: one of their present-day environments and one depicting how they thought this environment would look in 20 years. One hour was allocated to complete both drawings and children were provided with materials including: a small cardboard window frame, 2 sheets of A3 paper, drawing pencils, coloured pencils, crayons and felt-tip pens. The option was provided for children to volunteer stories about their drawings and the researchers and the classroom teacher acted as participant observers

during the task, circulating the classroom and taking notes and scribing children's comments throughout the drawing activity.

A number of issues arose from this initial data collection trial. The first involved the use of the window frame. It appeared that children took the researcher's instructions to draw what they saw through their cardboard window too literally; depicting the inside of their classroom, rather than their own, outdoor environment. The researchers decided to exclude the cardboard window in future studies. Drawings were not collected from all children at the end of the session and it was noted that those children who received extra time for completion had significantly more detail in their drawings. The researchers acknowledged that there was a possibility that children who had more time to complete their drawings may have been influenced by outside sources.

Features of this strategy, researchers attributed as positive and decided to maintain in the next research strategy included: introducing the task through the *Window* picture book, A3-sized paper, the drawing materials, and the age of the focus group.

Action Research Strategy 2: Drawing, Children's Picture Book, Voluntary Storytelling

Children aged 5-8 years from a rural state school and an urban private school were recruited to participate in the second Action research strategy. The school sectors and locations varied to ensure variety in the research participants and also to assist in measuring the transferability of results. The process of completing the task remained much the same, with children receiving a half-hour introduction, using the story, *Window*. Children were allocated 45 minutes to complete their present and future drawings, although this time all drawings were collected, whether or not they were finished. This was to avoid any outside influences, which may have occurred in the previous strategy. Stories to accompany drawings remained voluntary.

Upon reflection of the second strategy the researchers (now including Brooks as a research assistant) identified several weaknesses with the research process. First, it was recognised that many of the children's drawings had a strong correlation with the storyline of *Window*. The researchers concluded that the children were choosing to replicate the story rather than representing their own conceptions, so the decision was made to exclude the book in future

strategies. It was decided that voluntary storytelling become compulsory, as those picture without an accompanying story were difficult to interpret or understand.

Time constraints meant that some children were unable to finish their drawings. For example, some children depicted very vivid, detailed images for their first drawing whereas their second lacked detail and utilised only one colour. It was difficult to ascertain whether this was a result of the child's intended meaning or simply a case of not enough time, oversized paper or small drawing materials in comparison to large paper.

According to Piaget, children aged 4-8 years are in a stage of 'intuitive thought', categorised by a short attention span (Borgers, Hox & Leeuw, 2000). This was evident in this second strategy as some children went off-topic, choosing to draw their interests (such as Thomas the Tank Engine) rather than the task they were assigned. This could have been a result of too much time allocation for the task.



Figure 2: Thomas the Tank Engine Drawing

Finally, conceptualisation of the future seemed to be an issue, particularly with the younger children. The researchers tried to provide examples to help the children's imaginative process (e.g. when you're 26) but this didn't seem to work with some children as evidenced in the following anecdote from a 5 year old student, who drew 5 small squares and wrote the following story about the future: "*I have no I dey [idea] no*". It appeared as though the concept of the future was too abstract for some of these young minds.

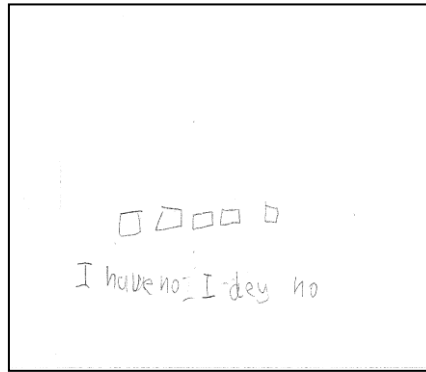


Figure 3: 5-Year Olds Conceptualisation of the Future

Moving forward with arts-based methods, required several changes to the Action Research strategies including: removal of the *Window* storybook, changing the time allocated for drawing tasks, putting the task about future conceptualisation on hold, and requiring children to tell stories to accompany their drawings.

Action Research Strategy 3: Drawing, Storytelling and Dramatisation

In the third Action Research strategy the researchers adopted a different approach, deciding to trial a dramatic scenario. Within this scenario, the researchers played the roles of tourists interested in learning about the children's local environments and wildlife. This was possible because the researchers are from other countries (Canada and Scotland). Participants were a composite Preparatory to Year 4 class (aged 5-9 years) in a small, remote state school.

Drawing materials from previous strategies were implemented, and distributed to the children so they could complete drawings and stories of their local environment and wildlife. The children were engaged throughout the activity, with some even using extra paper and paint supplies from the classroom to help complete the task. Stories accompanied all drawings in this task.

Once completed, the researcher's collected the children's drawings and stories (some with instructions on where to find the local wildlife) and went on a "hunt" for local wildlife with the completed artworks. The researchers returned with recounts of wildlife they had seen – although a little disappointed that they hadn't found any frogs. The children were eager to show the researchers the native frogs so they took them to the school toilet area, where frogs could be seen in the drains. This outdoor tour prompted many children to complete further, voluntary drawings and stories, of the frogs in the drains.

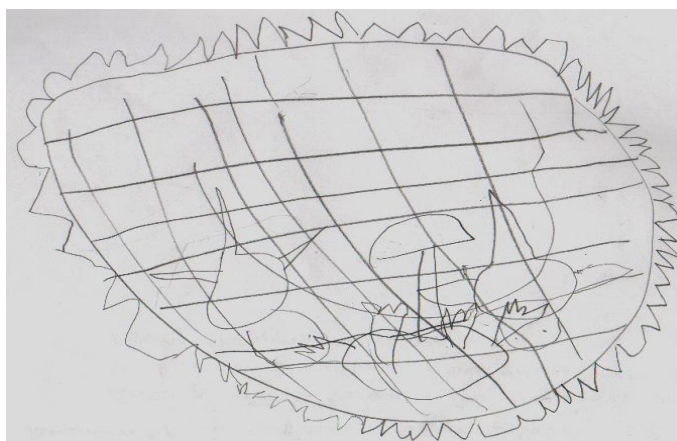


Figure 4: Drawing of the Frogs in the Drains

Changes to future strategies based on Strategy 3 reflections, related to drawing materials provided for the task. Examination of children's drawings demonstrated that the paper distributed was too large, and hard to fill unless paintbrushes were used. Smaller paper, sourced from the classroom (A4-sized) was easily filled with vivid pictures and the children showed a clear preference for this size.

Requiring children to accompany their pictures with stories made a significant difference to the researchers' abilities to understand the drawings. As a result of the stories, rich and detailed data were generated. Additionally, the dramatisation seemed a successful way to introduce the task, with the only issue being that any future interactions with this class would require the researchers to maintain their roles as tourists, in order to ensure credibility with the children. This would be a small sacrifice, as the dramatisation generated genuine student interest, through the use of an engaging, 'real-life' situation.

Action Research Strategy 4: Drawing, Storytelling, Dramatisation and an Authentic Task

Strategy 4 was developed as a continuation of Strategy 3. After completing the task with the children identified above, the researchers promised to keep in contact. One of the researchers did so by sending a postcard, describing the Scottish landscape and wildlife. The children were excited to receive this and responded with postcards of their own, featuring detailed pictures and considerable verbal descriptions.

Based on this feedback, the researchers reflected on the possibility of using postcard-sized paper, with the drawing materials from previous strategies. Postcards were identified as an authentic mode of communication, whose size would make them easy to complete with the

supplied drawing materials. With this in mind one of the researchers (from Canada) revisited the class and, staying in character explained to the children that she liked Australia so much she had decided to come back for another visit. The conversation eventually circled back to the postcard the class had received and those they had sent to the Scottish researcher.

The researcher suggested that children in Canada (particularly her nephew) might also be interested in learning about the Australian children's local environment. Based on this conversation the children decided to make postcards for the researcher's nephew. This activity appeared successful, with the children easily filling their postcard with drawings and stories for their Canadian audience, within a 20-30 minute time frame.

The researchers' reflections identified the large postcard size paper as more appropriate for eliciting detailed drawings and stories. The notion of sending a postcard to a 'real audience', generated an authentic task that encouraged the children to make drawings and share stories. Researchers noted that future studies could involve a similar-aged, overseas class, who could respond to the children's postcards (thus benefiting their participation), as well as, provide rich, cross-cultural data that could further strengthen this strategy.



Figure 5: Child's Postcard of Australia for Canadian audience

Action Research Strategy 5: Collage-Making and Storytelling

Strategy 5, required children to create collages, rather than drawings, of places they deemed 'special'. This study was completed in a composite Year 2/ 3 class (7-9 years of age), in an Independent school in Far North Queensland. Children were provided with A3 sized cardboard and a variety of materials including (although not limited to): cellophane, crepe paper, dirt, grass, sticks, paints, pencils, felt-tipped pens, metallic and coloured cardboard,

glitter, pipe cleaners and paddle pop sticks. The idea was to provide a variety of materials to allow for optimal creativity.

Children had three, one-hour sessions to complete their collages. The first session involved an introductory visualisation activity, whereby children were asked to imagine a place special to them. Children generated a plan of their 'special place' collage, including its structure and the materials they would need. The second and third hour sessions were devoted to the creation of the collages and scribing of their accompanying story. During the collage-making process, the researcher circulated around the class, interacting with students and making notes in her research journal.

Based on an initial examination of the collages, six children from the sample were purposively selected to partake in semi-structured interviews. These children were identified as information rich cases, whose study would illuminate the questions under study (Patton, 2002). Children were asked questions related to the content featured in their collages. Interviews went for 15-20 minutes, accounting for the children's ages and attention spans, and were audio taped and transcribed. Combined, the collages and interview transcripts, alongside the researcher's journal formed the data for this study.

Collages, as a visual research tool, appeared to be an engaging medium that allowed children to represent their 'special places'. Most children were creating their collage down to the last minute, writing their accompanying story in a rush at the end. The presence of these stories, as well as the interviews conducted with a few select participants served to provide a deeper understanding of children's visual representations.

For example sometimes children's stories delved beyond what was presented visually as seen in the following story from a participant who collaged a natural environment: "My speshl [special] plas [place] is my fafrit [favourite] caping [camping] plas [place]. One day I woc [woke] up. I sore [saw] tome [Tom] he was macing [making] a fiye [fire]. Wan [when] all of us woc [woke] up we went to the wota [water] hole was filld [filled] up the roks [rocks] had wota [water] on them".



Figure 6: Camping Spot Collage

Lessons learned from this strategy included the need for explanations about what ‘special place’ means before children commence their collages. ‘Special’ to children can take on a number of meanings e.g. “novel”. The study sample was somewhat limited; more interview participants would add to the depth and richness of data in future studies. Note taking during the interview, as well as taping it helps to ensure no loss of data due to background noise interference.

Group reflections on our research experiences have led us to identify a number of art-based methods we would conclude as successful to our data collection strategies and useful tools to be used in future studies. These include: use of postcards to engage participants in an authentic task and mode of communication; having an authentic audience for whom the children can draw; allowing a variety of materials to complete the drawing/ collage-making activities; participant stories to accompany artwork to allow further insight into their visual representations; and follow-up interviews alongside these stories to question children in further depth about their visual representations.

Arts-Based Data Analysis

After trialling and reflecting on various arts-based data collection strategies a new problem presented itself: What is the best way to analyse children’s artworks? Malchiodi (1998, p.8) summarised this dilemma with the statement: ‘There has been no consensus about the meaning and purpose of art expressions and no singular reliable way to interpret content’. The solution these researchers selected involved development of their own analysis procedure, which like our data collection methods has evolved and improved over time through reflection and further research. Currently a fourth member of our team, Haring, has

conducted a literature review of existing analysis techniques and identified two distinct components our data analysis focuses on: Content Analysis and Interpretive. These two components will now be described in relation to the literature and our methods.

Content Analysis:

Content analysis is a process, usually quantitative in nature although sometimes mixed, which involves counting the frequency of particular visual elements within a sample of images and then analysing those frequencies (Rose, 2007). Psychologists used content analysis to design tests measuring motivational, mental or personality characteristics, as well as intellectual development in children, such as the Goodenough-Harris (1963) “Draw-A-Man” test. Social researchers including Barazza (1999) used content analysis to interpret children’s drawings of the environment. In her study thematic categories were developed based on emergent patterns inherent in the drawings and scores were issued for features such as houses, water, plants and animals.

Our study applied content analysis in much the same manner Barazza (1999) implemented it. First categories were developed that encompassed the items present in children’s drawings and collages such as trees, houses, animals etc. These categories were counted and tallied to note the presence and absence of particular features. Frequently occurring categories were identified as meaningful to children’s conceptualisation of the environment or their ‘special place’.

Mirriman & Guerin (2006) affirm that content analysis contributes to the interpretation of drawings because it allows for both a qualitative exploration of what is drawn and a quantitative consideration of how often particular themes or categories appear. Schirmacher (2002) opposes content analysis arguing that applying normative approaches, such as content analysis to non-verbal expressions often neglects individual differences such as ‘experiences, motivational, attitudinal, and environmental factors that can either foster or inhibit concept formation’ (p.116).

Interpretive Analysis

Interpretive analysis is a technique used by researchers to tap into the thoughts and feelings concealed in children’s visual representations. Kenney (2009) highlights that visuals are loaded with ‘latent content’ (subtle), requiring researchers analysing drawings to use interpretative processes such as abduction (inferences).

Interpretive modes of analysis have been used by many researchers including: Lewis & Greene (1983) who examined children's drawings explicitly in order to identify key aspects of their personality; Fury, Carlson & Sroufe (1997) who investigated the impact of children's attachment in infancy on their perceptions of self and family, based on drawings; and Gross & Clemens (2002) who analysed a drawing activity to elicit children's thoughts and feelings about the September 11 tragedy, to name just a few.

The interpretive components of analysis in our studies included Sorin and Gordon's examination of the mood present in children's drawings and all researchers' open-coding of participant stories and interview transcripts to glean their impressions of environment and 'special place'. This involved the identification of categories, emerging from stories and interview responses. For example, a brightly coloured drawing of clouds and butterflies was accompanied by the story "I have fun with my friends and at home. I find butterflies and I smell the flowers." This indicated to the researchers that the child is very positive about her environment, which is rich with nature.

Those in support of interpretive approaches stress the necessity of discussing the artwork with the child to ensure that the artwork is interpreted to represent the child's meaning and interpretation, rather than the researchers (Benson, 2009). The key dispute against interpretive analysis is that it remains a largely subjective process. Golomb (2004) proposed that in order for interpretive analysis to be considered a viable assessment tool, features such as compositional strategies, drawing systems, figural and size differentiation, the use of pictorial space and colour, including themes and the child's personal associations to his own drawing must be considered.

Critical reflection on these analysis techniques highlight that content analysis allows us to see basic presence and absence of features in children's artwork, while interpretive analysis allows examination of these variances in further depth, unveiling the multiple meanings present in children's artwork. It remains largely apparent that our analysis techniques require further refinement, through the inclusion of further components e.g. developmental and contextual aspects.

Conclusion:

In this paper we have described a research journey in both data collection and data analysis, using an Arts-based methodology. We have identified several successful strategies for

collecting data using the Arts such as: use of postcards to engage participants in authentic tasks and modes of communication; having an authentic audience for whom the children can draw; allowing a variety of materials to complete the drawing/ collage-making activities; participant stories to accompany artwork to allow further insight into their visual representations; and follow-up interviews alongside these stories to question children in further depth about their artwork.

Additionally we have examined two components for analysing children's artwork: Content Analysis and Interpretive Analysis. As we look to the future we begin groundwork for re-trialling the Postcard Approach, this time between an Australian and Canadian school. Plans to expand on our data analysis approach are also being implemented with Haring currently in the process of applying a variety of existing analysis techniques onto drawings. Findings of her study will impact on our analysis approach, with successful analysis techniques being integrated into our approach in an attempt to make it a holistic analysis tool.

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