

“Hanging Out in the Schoolground”: A Reflective Look at Researching Children’s Environmental Learning

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Abstract

The authors take a reflective journey to explore the research methodology utilised in a multi-method, multi-site research study of children’s environmental learning in schoolgrounds in Australia. Informed by an extensive literature review and dialogue with researchers around the world, the study constructed a research design and procedure that could be utilized by practitioner researchers and academic researchers as the foundation for further research on children’s learning in schoolgrounds. This paper has the specific task of sharing our research story and lessons learnt as a conversation to those who intend to conduct future research with children on schoolground greening projects.

Résumé

Les auteurs prennent un séjour de réflexion pour explorer la méthodologie de recherche utilisée dans un projet multiméthodes, un projet de recherche réparti sur plusieurs emplacements, un projet de sensibilisation des enfants à l’environnement dans les cours d’école en Australie. Éclairée par une recension exhaustive des écrits et par un dialogue avec des chercheurs du monde entier, l’étude a échafaudé un plan de recherche et de procédures qui pourrait être utilisé par des chercheurs praticiens et par des chercheurs académiques comme le fondement d’une recherche future sur l’apprentissage des enfants sur les cours d’école. Cet article a la tâche spécifique de partager nos textes de recherche et les leçons apprises en conversant avec ceux qui ont l’intention de mener des recherches futures avec des enfants sur des projets d’écologisation de cours d’école.

Children’s environmental learning in their local environment has been a key area in the multi-disciplinary field of children’s environments (Hart, 1979; Moore, 1986). Building on this tradition, our schoolground research project, *Children’s Environments*, applied research methods from the UNESCO *Growing Up In Cities* project (Malone, 1999; Malone & Hasluck, 1988) alongside methods adapted from “playground research” projects to develop a multi-method approach to researching children’s experiences of their school environment.

Children's opportunities to engage in environmental experiences in their local neighbourhood are becoming circumscribed (Satterthwaite et al., 1996; Tranter & Doyle, 1996; Tranter & Pawson, 2001). Hence the significance of schoolgrounds for children's environmental learning is increasing. While having green schoolgrounds has intrinsic aesthetic value and educational potential, the researchers believed this potential was unlikely to be fully realised unless children were supported to engage in free play in schoolgrounds. While schoolgrounds can be used for formal teaching activities (e.g., science, mathematics) and our study did consider the use of the schoolground for such teaching/learning—the formal educational curriculum—the main focus of the study was on situations where learning through environmental interaction occurred via unregulated exploration and play. Titman (1994) has referred to this as the “hidden” or “informal” curriculum. An important component of the research method involved the categorisation of play behaviours and the identification of behaviours that were of most value in environmental learning, or in what we refer to as “cognitive play.”

Our paper explores and reflects on the research methods used to examine whether schoolgrounds included “space for creative self-development” (Ellis, 2004, p. 96), and whether school policies encouraged playful learning opportunities in the environment.

Literature on Research on Children, Play, and Schoolgrounds

To build a framework for our research, a literature review on current thinking on children's play and schoolground design was conducted. Themes explored in the literature review included: children and environmental quality, children and play, schoolgrounds as learning environments, and schoolground design. Several studies showed that child learning, especially through play, is strongly influenced by the nature, the design, and the policies informing the use of schoolgrounds (Barbour, 1999; Moore, 1989; Moore & Wong, 1997; Titman, 1994). Takahashi (1999) found that a preoccupation with “neat” schoolgrounds restricts children's opportunity to engage with environments.

As part of the literature review process a short synopsis of the project was sent out internationally through the variety of listserves on children and the environment to elicit the response of international researchers. A number of research papers and programs on children and schoolgrounds were provided through this mechanism, including the invitation to share research methods with the research team. After constructing the behaviour mapping categories and the observation schedule instruments these were sent out to the international research community for comment. The comments were instrumental in fine tuning the research design.

The review of literature informed the research in two ways. First, it helped frame the multi-method design used at each school site. Second, by

analyzing different types of research methods used in previous studies (for example, the categorization of play and activities for the observation schedule) we were able to develop and modify these for our own study.

Research Aims and Design

The aim of conducting research into children's use and perceptions of their schoolgrounds was to gain an understanding of the way children engaged in environmental learning in schoolgrounds, and how school staff managed and used schoolgrounds as learning environments. The historical notion of play as time to "let off steam" or use up "surplus energy" was the dominant conception held by teachers and school staff. This notion of play told only one of the potential stories of children's activities (Evans & Pellegrini, 1997; Lambert, 1999). We believed children also sought opportunities to engage in other forms of play to satisfy their innate desire to discover nature and be creative. The literature review indicated that children required more than a monotone environment to do this. Therefore our interest was in the relationships between the physical design of the schoolground and its capacity to provide a variety of opportunities for children to engage in the many different dimensions of play.

Schools who were invited to participate in the project showed a keen interest to utilize the research findings to guide their own schoolground initiatives. Five urban primary schools took part: Albert Park and Frankston Primary schools (Melbourne), and Aranda Primary, Charles Conder Primary, and Orana Schools (Canberra).

Typically, when reading about research conducted on any topic, the methodology or research design section reads smoothly, as if researchers began with a set research design, and set about implementing this in a rigorous and systematic way. Other papers by the authors of this paper tend to oversimplify the description of the research procedure (Tranter & Malone, 2004). While we attempted to be systematic, any method is open to biases and subjective interpretation. Therefore, rather than rely on one approach, a multi-method approach was seen as appropriate. To ensure we had baseline data for comparison and for issues of validity and reliability, key data collection methods were consistent across all sites.

The multi-method approach adopted involved three broad themes of research in each school. The methods used in each theme are listed below.

Children

- Behaviour mapping
- Children's drawings of their schoolgrounds
- Interviews with children

- Photography
- Research journal

School Community

- Interviews with staff and parents
- Minutes of staff meetings
- Observing classroom activities
- Surveys with children
- Research journal

School Environment

- Environment observations
- Photography
- Mapping
- Document analysis
- Research journal

The behaviour mapping involved 10 children at each school aged 8-10 years. Play activities, social behaviour, and spatial location were recorded at set intervals during recess and lunch. Each child was observed over one day, totalling 50 days of observation. Children taking part in the behaviour mapping were selected by teachers, using criteria provided by the researchers. The researcher (or research assistant) met with each child on the morning of the observation and interview. Prior to the observation and interview, each child was asked to draw two pictures of their schoolgrounds, first as it exists now, and second as they would like it to be. An important aspect of the research process was the “research journal” in which we recorded personal reflections about the schoolground, the children’s play, and the school community.

Reflections on the Research Design

Our reflections on the research design begin with an examination of issues of school and child selection, ethics issues, and the use of a journal as a key researcher’s tool in the fieldwork activities. We do not examine each research technique in detail. Instead, we focus on issues likely to be of most relevance to assessing children’s responses to schoolground greening projects. The majority of our reflections concern the broad themes of “Researching with children,” “Researching with the school community,” and “Researching the school environment.”

Selection and Ethics

When we were planning the school selection, we decided we would sample four government schools, two from Canberra and two from Melbourne, with schools from each city providing a contrast in the level of “affordances” provided for children’s play (Kytta, 2004). However, in an example of an opportunistic change of research strategy, we decided to also include the Canberra “Steiner” school, Orana School: a non-government school that had a distinctive wild and green schoolground and policies that supported children’s use of the grounds.

After considering possible options for selecting children from each of the classes, we decided to hand the selection process over to teachers. Previous research on children’s use of place has often focussed on articulate children who can effectively verbalize explanations of issues such as their favourite places (Ellis, 2004). Because of the array of research methods used in our schoolgrounds study, we were able to have a range of children, some active, some inactive, some very articulate and some less so. Teachers were asked to provide a range of children in terms of their play activities (active or passive) and gender. This may have introduced bias if teachers chose not to select certain children (e.g. schoolground bullies). However, the data indicate that teachers were successful in selecting a range of children. It was interesting to note that in some schools, students expressed a strong interest in being “selected” to be a part of the study, and several children asked if they could take part.

There are several ethical issues in this research, many of which were addressed in the ethics approval process. However, this formal approval process did not prepare us for some ethical dilemmas that arose during the research. On several occasions, children were witnessed behaving in ways that were clearly outside the “rules” of the school. On one occasion, children were playing in long grass when a teacher arrived on the scene. The researcher was asked: “Did you tell them they could play there?” We were careful not to be seen as pseudo teachers particularly when approached by children to intervene in a fight, or bullying. Children were supported to find the appropriate teacher on duty.

Research Journal as a Reflective Tool

The research journal was an important tool in the research design across all domains. First, because it was a prescribed part of the research method used in all the schools, it allowed the researchers to share our findings in a personal way. Second, it provided an avenue to record any insights that, although they seemed obvious at the time, may have been overlooked during the interpretation and writing up stages of the research. Third, it

prompted us, as researchers, to be reflective: to constantly ask ourselves questions about “why” children were playing a certain way, or why teachers at one school had different attitudes to teachers at another school. Fourth, questions posed in the Research Journal prompted further questions (and suggested answers) from other researchers, which supported more depth in analytical discussions during the writing up stages of the research.

The research journal allowed for the recording of observations of teachers’ interactions with children. At one school, the non-verbal behaviour of the teachers indicated that they did not want to be “involved” with the children: their main role seemed to be ensuring children played in a “responsible” way. Some teachers walked quickly around the schoolground and observed children from a distance. In contrast, at another school, teachers took great interest in children’s play, and this was sometimes matched by an invitation from children to be involved in a game. The journal allowed for the recording of these subtle cues that illustrated different cultures of teacher-student interaction.

Children reacted to our presence in a multitude of ways. Some children ignored us, some invited us to play with them, others wanted to be “chosen” to be part of our research, and some asked us to intervene in bullying or fighting. The different reactions added to information about each school. At Orana (the Steiner school), children were familiar with visitors coming to the school to observe children at play in the schoolgrounds. Hence, we (as researchers) held no particular interest. In contrast, at another school, we provided some novelty in an otherwise relatively uninspiring schoolground. Several children repeatedly asked to be included in the observations.

There was a range of other challenges faced during this research project. One child, interviewed by the Canberra research assistant, was excessively shy and withdrawn, to the point that the interview process was almost impossible. While this finding supported the data from the schoolground observation it did bring our attention to the need to be attentive to children’s needs when engaging in research with them.

Researching with Children

Photography

Photography was used in two ways in this project. First, a systematic photographic record was made of schoolgrounds. Second, more spontaneous photographs were taken of children. Sometimes these photographs were taken to record a specific observation (e.g., a child in her “peace garden”). At other times, photographs were taken more randomly to capture the general feel of the activities. The photographs allowed for a reflexive post-fieldwork exploration of some details overlooked while being “in” the space. For example, in one photograph, it was evident that children were neatly lined

up waiting to use play equipment—a factor not noticed while in the school-ground. In another photograph, a close inspection revealed a child crawling through a fence into an “out of bounds” zone. Another option for our research could have been to give disposable cameras to children: a possibility for future research.

Behaviour Mapping

A critical component of our research design was the categorization of children’s play activities into different types of play behaviours (“social activity,” “cognitive activity,” “physical and motor skill activity,” and “other”). The play behaviours that were of most interest from a schoolground greening perspective were “cognitive activities”: *constructing activity* (CO) (e.g., building “cubbies” or “dens”); *close interaction with the natural environment* (IE) (e.g., collecting leaves or beetles); *exploring the environment* (EE) (e.g., wandering through gardens or forest); and *imaginative activity* (IA) (especially if this involves use of the natural environment or materials, such as pretending a shrub represents a ship). These activities were identified after a trial of the behaviour mapping schedule to be the most significant for identifying play that was likely to lead to environmental learning (Malone & Tranter, 2003). They each had an important cognitive element, rather than being predominantly social or physical activities.

In practice, the behaviour mapping schedule proved more demanding than expected. Apart from the difficulty of filling in the form and recording the spatial pattern of play on a map of the school, simply keeping track of “our child” among 400 children, who all looked remarkably similar in their uniform and hats, proved to be extremely challenging. After practicing a few times the team came to feel confident with the recording procedure and its reliability.

In our role as researchers, we attempted to be as unobtrusive as possible and not interfere with the “natural” phenomena we were observing. However, staying too far behind our children meant running the risk of losing sight of children before it was time to make the next observation. Different schoolgrounds and different children posed different challenges. The decision to spend recess and lunch observing only one child’s play behaviour meant the study had a small sample size (10 children from each school). The small sample allowed for depth rather than breadth in observation, with the other research methods of data collection providing contextual data to supplement, support, and extend the analysis of the observations. We were aware that at times children may have played up to our presence and changed their normal routine behaviours. Using a triangulation process we were confident that this had less impact on the final research results than if we had depended on observation as our only form of data collection.

After the study we have reflected on whether our research necessitated the systematic observation using the behaviour mapping schedule: would general schoolground observations have given us the same understandings? A trained observer, particularly one who knew the history and subtle nuances of the schoolgrounds, might be able to discover as much about children's cognitive play by using a less systematic approach. However, if a research project involves outside researchers, and particularly if there is a specific aim to the research, as there was in this case, then the systematic approach is clearly beneficial. One obvious advantage of the systematic recording of children's play was in the presentation and analysis of the data. While it would have been obvious to any observer that children were playing differently at Orana School than they were at the other schools, having data on the types of play and the areas used in the schoolgrounds enabled us to illustrate and quantify the differences. Maps showing the spatial patterns of children's play clearly illustrated the contrast in play patterns between various schools. Similarly, tables showing the types of play (e.g., cognitive versus physical activity) showed marked contrasts between the schools (see Tranter & Malone, 2004).

Interviews

The microgeography of schoolgrounds is an important issue in schoolground greening research for at least two reasons. First, the location and circumstances of the interviews within the schoolgrounds could influence the responses of children (Kylin, 2003). Children interviewed in "place-expeditions" (e.g., showing the researcher around the schoolground) identify more places involving activity than children who are interviewed at school (Hart, 1979). Second, one important theme in the interviews was "favourite place analysis." Part of the understanding of children's favourite place involved their role in the process of place making and place naming (Ellis, 2004). Schoolground greening programs can be made more meaningful for children if children have a role in creating and naming their own places.

Interviews with children posed particular challenges. Finding a place with auditory privacy, where children feel comfortable, and where others provide passive observation, is often difficult. Each school provided different possibilities. In some, children were interviewed under a tree, or on seats outside classrooms. In one school, children were interviewed in a corner of the staff room. We did not conduct "place expeditions" during the formal interviews with children. There were, however, many spontaneous brief "place expeditions" in some schools, when children wanted to show us a special place.

Children's Drawings

An important component in the children's interviews involved their drawings of the schoolground: as they existed now, and as they would like them to be.

The discussion of these drawings helped to develop rapport with the children, when the researchers showed a particular interest in finding out more about the children's drawings. Our experience with children's responses to their drawings supports other research that indicates such drawings "have the potential to evoke narrative accounts both through what is present in the image and the child's response to what is in the image" (Ellis, 2004, p. 94). The drawings of the children at Orana school were particularly evocative. Most Orana children drew the forest as part of their two drawings, and interviews evoked excited discussion about opportunities for cognitive play in the forest, particularly with their own play constructions. Allowing children to comment on their own drawings provided a richer understanding of the potential for children to interact with their schoolground environment. For example, several children enjoyed playing in a place they had named the "Zig Zag Café," a real place constructed in the forest from branches, stumps, and other materials, and a place that had special meaning developed through children's imaginative play stimulated by a natural setting, in much the same way as did the children's dens discussed by Kylin (2003).

Analysis of children's drawings also allowed the researchers to reflect on what was not present in the drawings or in children's descriptions of them. For example, the lack of identified special places (particularly places that had been given special names by the children) at one school supported the view that the naming and use of places were all evidence of a positive or negative sense of attachment and ownership of the schoolground.

Researching with the School Community

Interviews with Principals and Teachers

Adult perspectives are often necessary to support interpretation of children's play and their responses to schoolground greening projects. An obvious example of this related to policies on the schoolgrounds, particularly relating to "out of bounds" areas or to activities that were not permitted in the schoolgrounds. As Ellis (2004) explains: "adults' perspectives are needed to analyze the macrostructures that determine the material conditions that shape children's everyday lives" (p. 93). The information and understanding gained from talking with staff was vital in providing a more complete picture of the schoolgrounds and children's play. For example, even if we had noticed the "little white marks" on some trees in the forest at Orana, we might not have guessed that these marked the area that was "out of bounds." We might also not have known (unless staff told us) that children's cubbies are sometimes constructed (and re-constructed) over periods of several weeks, and that each section of the schoolground is unofficially set aside for children from particular years. Staff and parents also provided useful information on the history of the

schoolgrounds, the changing policies and management issues, and the rationale as to why these were developed. Interviews with staff also provided a clearer understanding of the school ethos regarding schoolground greening and the possibilities for future planning and redesign.

Minutes of Staff Meetings

At a number of school sites (particularly in Melbourne) the researchers were invited to participate in staff meetings to support the development of a shared dialogue around the issues emerging from the research. These staff meetings were documented and became useful for developing relevant recommendations for the schools to use for their future planning. At Albert Park Primary school, for example, the researchers were invited to present their findings to the staff and school community, and again to landscape architects who were employed to design a concept plan for the future development of the school site.

Researching the School Environment

Two types of map were used to represent the data on children's play in the schoolgrounds: "freeze-frame" maps indicating the numbers of children in different parts of the schoolground at a specific time, and maps depicting the spatial play patterns of the ten children observed in the behaviour mapping. A surprising outcome was the impact that the "freeze frame" maps of high and low use areas of the schoolground had on staff. These maps helped to debunk misconceptions held by teachers about the importance of open spaces to children's play and reiterated the importance of designing spaces which allowed for a diversity of play behaviours.

The maps showing the spatial patterns of children's play were effective in demonstrating the extent to which children made use of natural or green spaces. For example, the map of children's play during lunch at Orana School showed how children played freely in green areas of the schoolground that were out of bounds at other schools (forest and gardens). Teaching staff could perform such mapping at various stages of a schoolground greening project.

The results of the behaviour mapping were tabulated and manipulated to enable the researchers to make comparisons between children, sites, and categories. The tables were then used as the basis for developing graphs. With over 2000 observations made across the sites these tables were invaluable in allowing us to draw conclusions and to manipulate the research data so we could graph specific elements.

Final Reflections

The research design for our project evolved in situ. Rather than being rigidly systematic, we were often opportunistic and responsive to individual research sites and participants by varying or adding to the research tools whenever possible. Enthusiasm for the research project (in part due to its immediate capacity to contribute to school policy and schoolground management issues) meant that many teachers and children outside the core groups asked to be involved. This was accommodated by extending the children's drawing exercise, and at some schools a simple survey was conducted across the entire school, where children were asked to provide one answer to each of the following questions: If you could make one change to the schoolgrounds, what would it be? What is your favourite place in the schoolgrounds?

Our experiences in this project supported the importance and value of triangulation of research methods as being integral to developing reliability and validity in research design. The understanding of children's play would have been limited if we had used only one method of data collection. The interpretation of the behaviour mapping would have been inadequate without interviews, or without discussions with staff. Too often research about children's play is told as a partial story without the input of children's explication of why and what they were doing. How for instance can you observe or understand children's imaginative or creative play without asking them to share this experience with you? One example relates to "out of bounds" areas. In most cases, children stayed out of these areas. However, in many cases, children expressed disquiet about limits to their play activities, arguing that they would have played in these areas if the restrictions were not in place (something that would not be evident from observing the children). Triangulation of research methods also helped to limit the influence of the researcher's presence, and the possible impact it had on children's behaviours.

Another important outcome from this research was the way it illustrated that research could be conducted by teachers, children, or parents at any school. By using child-centred research methods and in-classroom activities such as surveys and children's drawings (normal activities in school curricula) we were able to encourage school staff that doing their own schoolground research was possible, feasible, and valuable. Indeed, teachers and parents are likely to have some significant advantages over academic researchers in this process, by examining children's particular play needs and the distinctive features of their schoolgrounds over a longer period of time. Outcomes from this research have already had some practical outcomes. At a number of the schools, steps have been taken by staff to encourage environmental learning through the use of the schoolground by children during formal classes and in general playtime. These changes were in the form of policy and curriculum changes or large scale changes, as was evident at one school in

Melbourne, which embarked on a whole school participatory redesign of the schoolground based on the study recommendations.

By sharing our research and providing a set of research methods that are both participatory, child-centred, and user friendly we hope we have shown teachers, parents, and children that they can engage in their own research to address issues and concerns they have in their schoolgrounds. Rather than responding to old ways of thinking based often on myths (like the surplus energy theory) they can use research as a means to develop policies, programs and schoolground designs that are more responsive to the specific cultural, social, and physical needs of the children who will spend many hours of their day in them.

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Notes on Contributors

Karen Malone is an environmental educator and researcher whose key research interests include children and youth environments, participatory research, child-friendly cities, and children's rights.

Paul Tranter is a geographer whose research interests include the creation of child-friendly environments and links between child-friendly and sustainable cities.

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