

A Whale of an Interest in Sea Creatures: The Learning Potential of Excursions

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Abstract

Excursions, or field trips, are a common component of early childhood programs, seen as a means of enriching the curriculum by providing experiences with people, places, and things in the community. Although excursions have been used as a framework for research on children's memory development, research on the efficacy of excursions in terms of their potential to extend young children's learning is rare. This article discusses 4-year-old children's knowledge and inquiry resulting from an excursion to an "Antarctic Encounter and Underwater World." Children's knowledge and interest in sea creatures and penguins, features of the excursion setting's construction, learning orientations toward science and technology, and further inquiry stimulated by the excursion are illustrated. Dialogue opportunities and children's and teachers' subject content knowledge are highlighted as contributors to meaningful learning resulting from the excursion experience.

Introduction

Excursions in the Curriculum

Excursions, or field trips, are perceived as a means of enriching the curriculum by providing firsthand experiences with people and places in the community to support children's learning (Van Scoy, 1995). *Te Whāriki*, the New Zealand early childhood curriculum (Ministry of Education, 1996), views learning in early childhood settings as occurring through responsive and reciprocal relationships with people, places, and things. An excursion provides such a learning opportunity. Yet, rather than emphasizing their educational potential and ability to broaden children's experiences and perspectives (e.g., Matthews, 2002), much of the literature available about early childhood excursions is advice about places to visit, practical tips for planning and undertaking the trip, and suggestions for activities (e.g., Jackman, 2001).

Excursions in Research

Studies of children's prior knowledge (Dilkes, 1998; Wellman & Gelman, 1992; 1998) provide evidence that children bring applicable and effective knowledge to new learning situations and that revisiting knowledge is an essential component of the knowledge-building process. Genuine opportunities to contribute meaningfully and recall and reflect on learning experiences are also in keeping with a sociocultural view of children as capable learners (Watson, 1996).

Previous research has established an excursion as a mechanism to investigate children's memory development. Butler, Gross, and Hayne (1995) researched children's memory of an excursion to a fire station one day and one month following the experience. Children ages 3 and 4 in this study recalled accurate information after both time intervals. Hamond and Fivush (1991) investigated the retention of information by 3- and 4-year-old children who visited Disney World with their families. Children were interviewed either 6 months or 18 months after the visit, with the length of time proving to be insignificant. All children recalled accurate information. Such studies provide evidence that undertaking meaningful excursions may also provide opportunities to enhance children's learning. However, research on the efficacy of excursions in terms of children's learning is rare. DeMarie (2001) reported on children's experience of a trip to the zoo. The 3- to 5-year-old cohort of DeMarie's study did not mention any more animals in post-excursion interviews than pre-excursion interviews. Instead, the children reported more interest in everyday aspects of the environment such as cracks in the concrete and other children's shoes. Furthermore, the children were reported as unable to offer a meaningful reply to the

question "What was the most important thing you learned at the zoo?"

DeMarie's findings suggest that what constitutes meaningful learning and the educational potential of an experience perhaps need to be examined from the child's perspective. Perhaps the importance of focused pedagogical interactions between adults and children in relation to an excursion, and providing opportunities for children to recall and explore new learning and thinking, are also highlighted by these findings. Further, the studies cited were limited by their use of structured interviews (DeMarie, 2001; Hamond & Fivush, 1991) and children's drawings (Butler, Gross, & Hayne, 1995) to assess recall. These notions led this researcher to consider additional complementary data-gathering techniques in a study that used an excursion as a framework to explore beliefs and practices about subject content knowledge (Hedges, 2002a). This article discusses the children's learning resulting from the excursion. Children's knowledge and interest in sea creatures and penguins, features of the excursion setting's construction, learning orientations toward science and technology, and further inquiry stimulated by the excursion are illustrated.

Method

Participants

The participants were teachers, parents, and 4-year-old children from a half-day kindergarten. Ethical principles of voluntary participation, informed consent, and minimizing harm were considered, particularly in relation to children's participation (Hedges, 2002b). The children's choice of personal pseudonyms largely as names of sea creatures and animals was likely to have been influenced by the research focusing on the excursion. Respect for the children's choices of pseudonyms has been maintained in reporting the study.

Procedure

Interpretivist Case Study. An interpretivist case study methodology was adopted in the research design and data-gathering procedures. This approach enables a focus on understanding how people make sense of their experiences within a framework of socially constructed, negotiated, and shared meanings (Hughes, 2001; Merriam, 1998). Researchers have established the value of studying learners within their natural learning environment, a key tenet of interpretivist methodology (Hughes, 2001). Merriam (1998) states that case study research focused on "discovery, insight, and understanding from the perspectives of those being studied offers the greatest promise of making significant contributions to the knowledge base and practice of education" (p. 1). A case study was therefore appropriate for this research because it accounts for realism and naturalness in the context and involves social and cultural processes. In addition, findings may relate more directly to practice than other research approaches.

An interpretivist approach suggests that knowledge is valid if it is authentic, that is, the true voices of the research participants (Hughes, 2001). However, several data-gathering techniques were used as a conventional means to assist and validate interpretation of research findings. Data-gathering techniques included focus group interviews, parent and teacher diaries, documentary evidence of curriculum planning and evaluation meetings, and field notes of participant observation over the 7 weeks spent in the setting. Data analysis and presentation of findings draw across all data sources.

Focus Group Interviews. Focus group interviews (Morgan, 1997) were used as the primary data-gathering technique. Three teachers, eight of the twelve parents accompanying the excursion, and nine children were interviewed in three separate participant groups the week before and the week after the excursion. The parents' and teachers' interviews were of 1-hour duration each time; the children's four 15-minute interviews were spread over 4 days each week. Each

interview was guided by a list of questions or issues to be explored in an un-predetermined order, allowing flexibility as to the order and flow of discussion. Using a guide allowed the researcher to respond, probe, and explore emerging viewpoints expressed, rather than restricting the researcher to a fixed order of questions. Children's prior knowledge and experience of the excursion venue and sea creatures were also ascertained during pre-excursion interviews with the children.

Photographs. Seventy-two photographs taken by the researcher were displayed in an album available during the post-excursion interviews. These photographs of events, places, people, and sea creatures were researcher-chosen artifacts designed to capture significant occurrences during the excursion experience (see Fasoli, 2003). The teachers and parents had access to these photographs during their interviews but did not refer to them. Because of technical difficulties, a time delay occurred before conducting the children's post-excursion interviews. Research indicates that although children have good memories for events that they have personally experienced, they also benefit from support to facilitate their narrative accounts (Aldridge & Wood, 1998). The researcher therefore chose to make children aware of the album at the beginning of each post-excursion interview. Seven of the nine children held it and perused it at their own pace during at least one of the interviews. The album was therefore used successfully as a stimulated recall item in this study for the follow-up interviews with children. However, children's recall was not limited to the photographic evidence. Individual children also spontaneously raised other matters of personal significance to them during the interviews.

Curriculum. A child-initiated, integrated, play-based curriculum was offered for the majority of each kindergarten session. The basis of curriculum planning in the kindergarten, consistent with *Te Whāriki*, was children's interests, that is, domains of children's spontaneous, repeated, self-initiated play, discussion, and investigation. The research had no influence on the choice of the excursion venue. The teachers chose the venue because several children had demonstrated a prior interest in sea creatures.

Prior to the excursion, the teachers offered preparatory experiences to the children, including reading a story about an aquarium, discussing and drawing pictures of sea creatures and feeding fish, and bringing in a diver's suit and equipment to show children. Fiction and nonfiction books were available to children to read and initiate further discussion and inquiry with adults. Teachers, as well as the researcher, sought children's prior knowledge of sea creatures and their expectations of the excursion.

The Excursion. Kelly Tarlton's Antarctic Encounter and Underwater World is a tourist venue in Auckland, New Zealand, with two main attractions: the "Antarctic Encounter," where penguins are viewed in a simulated natural habitat, and an aquarium with a viewing tunnel ("Underwater World"). Sea creatures are in a large aquarium above a see-through glass tunnel. People stand on a "travelator" to view the creatures. The impression is of being within the aquarium itself, as creatures swim directly alongside and above the glass tunnel. The name and brief descriptions of the creatures are included on small well-lit boards at regular intervals.



Figure 1. Lucy and Penguin 2 in the viewing tunnel.

The excursion occurred on the Friday at the end of the fourth week of the study. The venue was approximately 20 kilometers from the kindergarten. A half-hour bus journey was the travel mode

employed, and the group spent 2 hours at the excursion venue. Participants first saw a puppet show, incorporating songs, that introduced them to the sea creatures they would see. Children were then given an opportunity to observe and hold turtles. The group then proceeded to the "Antarctic Encounter" and traveled in mechanical "snow cats" (similar to train carriages) around a track to see penguins, including recently born baby chicks, a mechanical orca whale, and a seal. The children also experienced a simulated snowstorm. From there, the group progressed to the glass viewing tunnel in the "Underwater World." Many species of fish, including sharks, are among sea creatures that are in the aquarium. Most children and accompanying adults went around the tunnel twice. The complete journey takes about 5 to 10 minutes. To conclude, the group went to an education area. Children could handle starfish in a rock pool and saw at close range an octopus with its tentacles climbing the glass of its tank.

Follow-up Experiences. During the week following the excursion, the program included a range of follow-up experiences. A video on sharks was available. One corner of the kindergarten was draped in blue and white materials for children to engage in dramatic play and display their drawings and models of sea creatures. Children used plastic sea creatures to re-enact their excursion experiences and reinforce knowledge of identification of species. The nonfiction books were browsed more frequently. By 2 weeks after the excursion, most children's interest had been exhausted. These experiences provided rich opportunities for dialogue, inquiry, recall, drawing, construction, exploration of ideas and concepts, and revisiting of prior experiences.

Results

Some events children recalled the week after the excursion were not recalled spontaneously during research interviews over the following 2 weeks. The two notable exceptions to this observation were Orca and Penguin 2. Orca's recall of the excursion remained detailed and consistent 3 weeks following the excursion. Penguin 2 recalled the event and continued to initiate further inquiry with adults long after other children had moved on to other interests. These two children had visited the venue previously. This result lends support to DeMarie's (2001) finding that the number of prior trips to the zoo directly correlated with the amount children recalled during follow-up interviews and further justifies the use of the photographs as stimulated recall items.

Of the nine children in the study, four indicated that they had enjoyed the experience, but they were not greatly interested in exploring new learning. Five, including Orca and Penguin 2, became deeply absorbed in aspects of the excursion learning that occurred. They initiated dialogue with teachers, parents, and the researcher about their thinking and understanding. These children's pre- and post-excursion knowledge is highlighted in the findings.



Figure 2. The video on sharks plays in the corner of the kindergarten room, which has been draped in blue and white materials for children to engage in dramatic play and display their drawings and models of sea creatures.

Orca's Knowledge of Sea Creatures

Orca's knowledge of sea creatures was extensive. Prior to the excursion, he named and described in detail six species of sharks, five types of whales, and eight other sea creatures he expected to see at Kelly Tarlton's. This child provided evidence that children's knowledge can be more comprehensive than teachers, particularly when it is domain- or discipline-specific. He also explored preparatory knowledge with other children and became recognized by them as a source of knowledge. Orca's mother, Jo, and teacher, Catherine, researched information primarily through the use of books and the Internet to support interactions with Orca. He and Catherine compiled a list of questions he wanted to find answers to during the excursion. In particular, he repeatedly posed questions about "how do (species of sea creature) get babies?"

As a result of the excursion, Orca's knowledge of sea creatures was further reinforced and extended. Prior to the excursion, he had learned that the wobbegong was difficult to see. His mother, Jo, said after the excursion that "he was buzzed about seeing the wobbegong swimming..." In his post-excursion interview, Orca was animated:

Orca: I found the wobbegong shark! [looking at photo]

Researcher: How did you find it?

Orca: Well, I saw it. It came dangling up.

In addition, Orca had found out answers to his questions about reproduction and expressed his understanding in ways characteristic of a young child:

Researcher: How do sharks make baby sharks?

Orca: From eggs.... And some get them out of their tummy [noises and demonstrations].

Researcher: [They] get them out of their tummy, and some got them out of eggs.... Do you remember what that was? Where the eggs were?

Orca: A mermaid's purse.

Researcher: ...And you also wanted to know how whales got babies....

Orca: Their tummy.

Researcher: And what about penguins? ...

Orca: Nests.

Before the excursion, Orca and Penguin 2 had debated whether they would see king penguins or emperor penguins. Orca's knowledge of penguins was limited to knowing the names of the yellow and blue species, and he cited his mother as an "authority" to support his understanding:

Orca: Well, there's heaps of different types, well *my Mum said* [emphasized] that the only penguins you see at Kelly Tarlton's was the emperor.

After the excursion, Orca acknowledged that the penguins were king penguins and noted the difference between the species: "Emperor are bigger and the kings are smaller." His mother, Jo, admitted that she may have been the source of his initial confusion: "Were they king penguins? I thought they were going to be emperor penguins quite honestly." This example shows that adults' knowledge can be co-constructed alongside children's during learning experiences.

Penguin 2 Extends Her Knowledge and Inquiry

The children's interviews prior to the excursion, researcher field notes, and the diary of Lucy (Penguin 2's mother) revealed that Penguin 2 also had many content-related questions she wanted answered. Penguin 2 revealed her learning in the post-excursion interview:

Researcher: And did you find out how penguins breathe under water?

Penguin 2: Um, they come up for a little breath.

Researcher: ...How do fish breathe?

Penguin 2: Through their gills.

After the excursion, Penguin 2's mother, Lucy, noted in the parents' interview and her diary that Penguin 2 felt vindicated about the penguin classification argument with Orca:

Lucy: Penguin 2 was in the debate of the penguins. What kind they were, that was very important. [She] and Orca have been having this debate for a week.

Penguin 2 was emphatic in her response:

Researcher: So were they king or emperor?

Penguin 2: King penguins!

After the excursion, Penguin 2 had begun exploring further content knowledge as a result of the experience. Lucy reported that:

She wanted to know what krill look like, and what happens when ice melts ... and why the king chicks are brown ... how the [baby penguins'] feathers changed over. Why is it called a nurse shark?... And why did the leopard seals eat the penguins?

The excursion experience had led to rapid expansion in Penguin 2's interests and inquiries. From a focus on penguins, she had become interested in many more aspects of marine biology as the questions Lucy reported demonstrate (see also Hedges & Cullen, 2003).

Orca and Shark's Technology Inquiries

Orca and Shark said in interviews prior to the excursion that they enjoyed playing with construction equipment. Following the excursion, they were keen to explore theories about how the mechanical orca whale rose in the water with a replica seal in its mouth:

Orca: That part's the best part, ... when the orca whale came up. They go into the special door.

Researcher: What makes it special do you think?

Orca: Cause ... there's a spring what pops it up. Bonk! Imagine when it comes up really fast. We might get splashed.

Shark discussed his theory in relation to drawings that he had completed at home 4 days after the excursion:

Shark: They [orca whale and seal] came out of there [pointing].

Researcher: How do you think it came up?

Shark: Ah, the whale came up when the switch came on, and if the light was on, the orca whale came up and down.



Figure 3. Shark's drawing of the Antarctic Encounter (focusing on the snow cat and the orca whale eating the leopard seal).

The diary of Rose (Shark's mother) also contained evidence of this inquiry about the engineering involved. Further, in the parents' post-excursion interview, Rose commented that Shark wanted

to know how Kelly Tarlton's was built and constructed. He had both drawn pictures and constructed a model to explore his thinking.



Figure 4. Shark's drawing of the Antarctic Encounter and Underwater World.

Discussing Shark's drawing with him revealed that he had a global conception of the Antarctic Encounter building as he described different parts of his drawing:

Shark: Ah look! This is Kelly Tarlton's! ... the train is going in the snowstorm ... and the whale is eating the shark and he's coming out.

Shark also recalled constructing his model of the shark tunnel at home:

Researcher: What did you build it out of?

Shark: I tried to build it out of ah with blocks and boxes and paper, and I make lots of fish. I make a real Kelly Tarlton's at home.... I made a *real* one.

The Whale Shark—An Opportunity for Clarification

Before the excursion, Frankenstein, Shark, and Orca had wondered whether they would see a whale shark at Kelly Tarlton's. Having researched information about whale sharks, a teacher, Nicola, assisted them to find out the dimensions of a whale shark, measure out this dimension using string in the kindergarten playground, and form their own conclusion that it was unlikely one would be present. After the excursion, Frankenstein drew pictures of two different sea creatures and labeled them "whale" and "shark." Frankenstein's mother, Cara, noted that Frankenstein had accommodated the paradox in his mind of the "whale shark":

Cara: The most important thing that he learnt was that there are whales and there are sharks. The whale shark isn't a whale and a shark; it is just a shark.

Cara remarked that Frankenstein also reinforced this personally significant piece of learning by discussing it with his father and brother. It seemed clear that this was the most critical learning that occurred for Frankenstein.

Experience and Inquiry about the Glass Viewing Tunnel and Travelator

Several children had knowledge of the excursion venue through previous visits with their families. Bunny revealed her prior experience of the travelator in the viewing tunnel:

Researcher: Bunny, you said you've been there before.

Bunny: Yes.

Researcher: So can you tell us a little about it?

Bunny: Um, I didn't saw any of the fish. All I was interested about ... was that thing that looked like an escalator but it was a slide.

Researcher: It wasn't an escalator, it was a slide....

Bunny: But it can move in steps....

Researcher: Right. So did you stand on the slide/escalator thing?

Bunny: Yes, and you and the slide moves.

Researcher: And what do you see on it? What do you see while you're on it?...

Bunny: And that thing goes around. It was the only thing I was interested about.

Researcher: And it goes around where?

Bunny: It goes around it only goes around and you can see you can only see nothing.

Bunny's mother confirmed Bunny's memory independently in the parents' interview:

Eve: We took Bunny 2 years ago, she wasn't interested really. All she was interested in was the escalators, going round and around and around.

Bunny's focus on the travelator was in keeping with DeMarie's (2001) finding that some children may be more interested in environmental aspects of an excursion rather than the planned focus of the excursion experience that adults may have in mind. The complex learning and thinking that occurred for Bunny about the travelator was arguably just as valid as potential learning about sea creatures on that occasion.

The viewing tunnel and the travelator also fascinated many children on this excursion. Their conversations, writing, and drawing afterward revealed how powerful the glass tunnel was as a firsthand experience, but also how the tunnel did not appear to fit their prior knowledge of the world. One child drew a close-up picture of a stingray and said, "the stingray kissed me." Several children drew pictures that reversed the placement of the tunnel with people above the tunnel rather than surrounded by water. The children's experience perhaps appeared inconsistent with their prior understanding of the world but may also have been affected by their representational ability.

As noted, Bunny's prior experience of the travelator had dominated her experience of the viewing tunnel to the point where she said she had seen "nothing" on that occasion. After this excursion, she and Frankenstein expressed anxiety about the tunnel:

Researcher: What did you think about being in the tunnel?

Bunny: Scared.

Researcher: Why were you scared?

Bunny: Because I thought the wobbegong and the stingray could get, I thought it could open its mouth and eat the glass and sting me.

Researcher: ...If you look at the glass in the tunnel, do you think the water could really get through?

Bunny: No.

Researcher: Why not?

Frankenstein: What if there was, what if there was heaps of water?

Researcher: There is heaps of water there isn't there?

Frankenstein: What if there was even more? ... But what if it blasted right out?

Shark had also asked his mother how the glass could be thick enough to hold all the water. Reflection and dialogue with a knowledgeable adult or peer may further assist Shark, Frankenstein, and Bunny's learning, assuming that sufficient inquiry occurs into the principles of engineering to explain the tunnel's construction, and that the dialogue is at the children's level of understanding.

Stimulating Children's Knowledge

The excursion extended many children's knowledge and interest in sea creatures. For example, classification of different species of shark was a shared learning interest among several children. One teacher, Catherine, wrote in her diary that while children were watching a video of sea

creatures after the excursion without an adult present, they negotiated and co-constructed their understanding of sharks and whales and their food preferences. Another teacher, Nicola, supported this observation, noting that the children initiated use of small-scale plastic accurate reproductions of sea creatures as tools for classification, lining these up in front of the television screen to assist identification. In addition, Catherine commented:

Afterward, it did spark a lot of discussion with some of the children, When they came back, and we looked at the photos, ... they were more aware of what was what. They were able to tell me [names of species]... and they actually could describe to me what it was like to hold a starfish. They described that it was prickly and rough.



Figure 5. Shark and Penguin 2 prepare to touch a turtle.

The opportunity to hold turtles and starfish were specific examples of firsthand experiential learning opportunities. In post-excursion interviews, while looking at photographs, children recalled and described this experience, drawing on their existing knowledge and language:

Researcher: Do you remember what the turtle felt like?

Shark: It felt like yucky.

Researcher: Did you touch it?

Shark: Yeah.

Researcher: What did it feel like on your hand when you touched it?

Shark: It felt like a jumping frog.

Researcher: And what did the turtle feel like?

Bunny: Hard at the bottom.

Frankenstein: It feeled like concrete.

Researcher: It felt like concrete did it?

Bunny: It was hard at the top and the bottom.

Researcher: Hard at the top because it had a big shell on top? But you thought it was hard at the bottom too, Bunny? Did it sit on your hand?

Bunny: Yeah. I didn't know what it feeled like, but now I know.

Bunny also drew on her newly acquired knowledge of turtles to respond to further questions.



Figure 6. Bunny holds a starfish.

Researcher: And what did the starfish feel like when you touched it, Bunny?
Bunny: It feeled like a turtle.
Researcher: And what did you think the turtle felt like? Tell me again?
Bunny: ...The starfish was hard on the top and hard underneath too, but I saw its mouth when I tipped it upside down.
Researcher: Oh yes, what did its mouth look like?
Bunny: It looked like a [makes grumpy face with upturned lips] maybe it was sad.
Researcher: A grumpy look with its lip up?
Bunny: No, because I saw little drips because I saw tears over its face so maybe it was sad.
Researcher: Oh okay, maybe it was wet because you'd picked it up out of the water?
Bunny: No, cos I heard it go [crying noises].
Researcher: Oh, did it make sad noises too, did it?
Bunny: Yeah, so maybe it was sad.

Bunny has interpreted the water dripping from the starfish's face as tears, ascribing to it human qualities. She will need time and further experiences to challenge and address this misconception. Social interactions play an important role in children's development of scientific concepts (Watson, 1997).

Discussion

Experiential Learning

The children's dialogue with the researcher emphasizes the critical role of firsthand experience in their learning. It also reinforces that children are active participants with their own agendas in excursion experiences and the social construction of knowledge, supporting the findings of DeMarie (2001) and Fasoli (2001). Focusing on children's learning through people, places, and things highlights that excursions have the potential to enrich the early childhood curriculum and respond to, stimulate, and extend children's interests and inquiry. The excursion undertaken as a feature of the present study was an example of experiential learning in an authentic context that also stresses the importance of prior preparation and the social construction of knowledge. Teachers' careful planning of meaningful excursions includes ascertaining children's prior knowledge and experiences, providing preparatory and follow-up experiences and meaningful discussion opportunities, involving parents in the knowledge construction process, accessing subject knowledge to support children's learning, and documenting children's learning.

A Learning Community

Contemporary theories of learning and teaching have involved the notion of a learning community (e.g., Rogoff, Matusov, & White, 1996). The excursion was a collaborative, authentic, shared experiential learning opportunity for the kindergarten community. One teacher, Nicola, described the excursion thus:

It's an extension of our curriculum. It's a way of reinforcing learning. It's also a way of involving parents in their child's learning....

One parent commented that the excursion was an opportunity to be seen as a learning community:

Lucy: It is a real community view isn't it? Like when we're all out there together, we're Oaktree Kindergarten, apart from what they [children] see and learn in the actual place.

Wenger's (1998) concept of a community of practice sites learning within contexts of social experience. Active participation in meaning-making through participation in the experiences and practices of knowledge communities results in a sense of personal and community identity. The excursion was an example of a meaning-making social experience for members of the kindergarten community. Nicola and Lucy's comments reflect Wenger's (1998) idea that an outcome of a community of practice is a sense of identity.

A Community of Inquiry

A significant finding of the wider study was that adults need subject knowledge and appropriate pedagogical strategies that enable children to restructure their existing knowledge to take account of new experiences and information. In relation to the excursion, Catherine commented, "It's been a learning thing for me too." Specialized knowledge, such as that related to this excursion, was seen as able to be researched by adults before being taught. Books, the Internet, television, signs at Kelly Tarlton's, and the knowledge of other adults were identified as resources to assist learning. Teachers and parents frequently extended their own knowledge by researching material based on children's interests. Anning and Edwards (1999) point out that teachers who are confident in subject knowledge are more likely to recognize and maximize potential learning in children's experiences. Further, to be effective, it is suggested that teachers need both an understanding of how to work with young children's knowledge and interests and confidence with their own subject content knowledge (Cullen, 1999).

Dewey (1938) placed inquiry at the core of meaningful curriculum. The community of inquiry concept (Wells, 2001) arose from researchers observing the importance of children's real questions and ways in which these questions were responded to through dialogue to determine meaningful learning. This notion supports the importance of pedagogical relationships in order to create and sustain a community of inquiry. Supporting children's inquiry and understanding of the excursion experience required teachers and parents to draw on and access subject knowledge. Preparation included adults taking responsibility for their knowledge. As Cara noted, "At least to know what the fish are called."

Teachers' beliefs supported this view of preparation for the excursion. Catherine explained:

You can't go somewhere and not have any idea about where you're going and ... what's going to be there.

This emphasis on subject knowledge was further validated by the children's beliefs about what teachers should know:

Penguin 1: To know about what we're seeing.

The learning related to this excursion provides evidence of children's active inquiry while in the process of constructing and building knowledge. Children were also developing the learning orientations and social identities that Carr (2001) might describe as "being a scientist" or "being a technologist." Penguin 2's post-excursion questions and Shark's drawing and building of a model of Kelly Tarlton's also illustrated that in providing opportunities for children's knowledge to develop and extend, further interests and learning are stimulated.

Responding meaningfully to children's curiosity and interests is a focus of communities of inquiry. The potential of the Project Approach (Helm & Katz, 2001; Katz & Chard, 2000) for learning from excursions as curriculum events is highlighted by this study. Projects are based on children's prior knowledge, interests, and questions and are co-constructed by children and teachers for their duration. Projects take cognizance of children's perspectives, which, as the present study and DeMarie's (2001) suggest, may have different priorities than adult perspectives and planning. The possibilities for children's learning resulting from a project responding to the children's real and serious questions about the structural engineering of the

underwater glass viewing tunnel and the mechanical engineering of the orca whale and seal model at Kelly Tarlton's were immense. Further, a wider perspective of documentation may encourage group documentation (Helm & Katz, 2001) of shared community experiences such as an excursion. The potential of photographs to record group experiences and learning and tape recorders to record children's dialogue and learning in their authentic voices was evident in this study. These are consistent with sociocultural views of learning as socially constructed and collaborative.

The Presence of the Researcher

In any study, the impact of the researcher requires consideration with regard to the validity of the findings. Teachers expressed some concern that there had been the potential to let the excursion dominate the whole kindergarten program. However, the research coincided with a change to session routines, incorporating small group teaching that allowed more sustained and focused interactions:

Julie: And probably the lead up to it ... was a bit more than what we normally would have done.... But then on saying that, it coincided with us starting our small group time.... we had the opportunity to do it. And to be more focused.

All children, including those in the research group, clearly saw the researcher as a teacher. As the researcher took on responsibility for some preparatory experiences during the pre-excursion interviews, this confusion was understandable. However, children were not compelled to spend any more time than they wished to in the research interviews. Furthermore, the excursion experience did not dominate the interactions between the researcher and children over the 7 weeks of the study. A range of other interests and inquiries were evident (see Hedges, 2003; Hedges & Cullen, 2003). Children appeared to appreciate spending sustained time in dialogue with an adult who they perceived as a teacher, but one they recognized as not subject to the constraints of role and routines as the other teachers.

Conclusion

From a sociocultural perspective, the contribution of the authentic social and cultural contexts in which children participate, and the role of experiential learning events such as excursions, become prominent in considering how children's learning can be enhanced. Children's knowledge and interest in sea creatures, learning orientations toward science and technology, and further inquiry stimulated by the excursion have been illustrated. The importance of preparatory and follow-up dialogue and inquiry opportunities; sustained, meaningful pedagogical interactions; and children's and teachers' subject knowledge are highlighted as contributors to optimal learning and the social construction of knowledge. The Project Approach provides sound principles for maximizing excursion learning. The excursion was a powerful, shared experiential learning opportunity for the children, parents, and teachers in this kindergarten community.

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