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Early years curriculum: funds of knowledge as a conceptual framework for children's interests

HELEN HEDGES, JOY CULLEN and BARBARA JORDAN

Children's interests are frequently cited as a source of early-years curricula. Yet, research has rarely considered the nature of these interests beyond the play-based environment of early-childhood education. This paper reports findings from a qualitative, interpretivist study in two early childhood settings in Aotearoa/New Zealand. Using participant observation, interviews, and documentation, the study examined children's interests and teachers' engagement with these in curriculum interactions. Evidence suggested children's interests were stimulated by their 'intent participation' in family and community experiences and encapsulated in the notion of 'funds of knowledge'. The concept of funds of knowledge provides a coherent analytic framework for teachers to recognize children's interests and extend teachers' curriculum planning focus beyond that of a child-centred play-based learning environment.

Keywords: funds of knowledge; early-years curriculum; early-childhood education; children's interests

Introduction

Curriculum is a highly contested construct. In the case of early-childhood education, there is little agreement internationally as to the nature and goals of early-years curricula. However, much literature advocates that curricula for children aged birth to 5 years ought to focus on children's interests and needs (e.g. Bertram and Pascal 2002). Interests-based curriculum and pedagogy are highly participative and interpretive. Yet, existing research has rarely investigated children's interests, nor teachers' knowledge and decision-making in creating curriculum from these interests. This paper reports the first author's study of interests-based curriculum in Aotearoa/New Zealand.¹ The paper presents findings relating to children's interests and teachers' engagement with these interests. Specifically, it addresses the following two questions from the study:

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- In what ways do teachers recognize and engage with children's interests in relation to children's experiences and funds of knowledge?
- How do teachers choose whose and which interests will be engaged with in building a sociocultural curriculum during both planned and spontaneous teaching and learning interactions?

The paper presents data from a qualitative study in two early-childhood settings. In part, the study explored the nature of children's interests and the ways that teachers draw on their professional knowledge to construct curriculum through recognizing and engaging with children's interests and inquiries. The findings suggested that teachers need to look beyond the tradition of the well-resourced, child-centred, play-based environment to interpret and respond to children's interests. Teachers also need to engage with families and communities in multiple ways in order to gain deeper understandings of the nature and origins of these interests. The paper argues that using 'funds of knowledge' (González *et al.* 2005a) as a theoretical framework to ascertain children's interests provides a more analytical way to respond to these interests than present approaches based on recognizing children's choices of play activities.

Context of the study

In New Zealand a diverse range of early-childhood services co-exist, from sessional to full-day, in a range of home-based and community settings. The New Zealand early-childhood curriculum, *Te Whāriki* (Ministry of Education 1996), is designed for children aged birth to 5 years. It values children as competent learners, highlights play-based learning environments as best for children, and identifies children's interests as a major source of curriculum. It is a highly regarded document (Soler and Miller 2003), valuing learner autonomy, exploration, and a participative style of pedagogy.

Principles (relationships, empowerment, holistic development, and family and community) are woven with strands (well-being, belonging, contribution, communication, and exploration) to construct curriculum. *Te Whāriki* is non-prescriptive in relation to content, leaving this to the interpretation of teachers. In operationalizing assessment related to this curriculum, Carr (2001) has linked children's interests to the disposition to inquire within the strand of well-being (see Ministry of Education 2004, 2007, 2009).

Literature review

Children's interests and their sources are likely to be varied and diverse. In early-childhood settings, a focus on children's interests enables children and teachers to explore ideas in both planned and spontaneous interactions. Teachers' engagement with learners' interests strengthens learners' motivation, effort, memory, and attention (Dewey 1913, Wade 1999, 2001). The role of pedagogical relationships in determining the quality of children's experiences has been strengthened by evidence in recent studies of effective

pedagogy (e.g. Siraj-Blatchford *et al.* 2002, Farquhar 2003, Siraj-Blatchford and Sylva 2004). However, the notion of teaching through play has never sat comfortably alongside learning through play (Hedges 2000, Wood 2009). So, while provision of abundant resources and space, organized well to promote integrated learning experiences, has been a focus of child-centred teaching and learning environments, pedagogical aspects such as how teachers identify and interpret children's interests, or ascertain ways in which play is representative of children's interests, have not been comprehensively investigated. Further, it is widely accepted that children learn from a range of experiences they are exposed to in various settings. Literature about children's informal learning, particularly in family and community contexts, also informed the study.

Children's interests

In the professional literature there is much advice to teachers and exemplars of good practice, particularly in relation to children's spontaneous interests that arise during their play. The dominance of play in early-childhood education may, however, have discouraged teachers from more analytical interpretations of children's interests. The term 'children's interests' may have simply become an under-theorized 'catch phrase' (Birbili and Tsitouridou 2008: 143).

An extensive search using two universities' databases revealed little academic literature about curriculum built on children's interests. Further, while some studies have shed light indirectly on some children's interests, few have focused directly on investigating the nature of children's interests themselves. Of the relevant studies located (Renninger and Wozniak 1995, Cremin and Slatter 2004, Johnson *et al.* 2004, Gmitrova *et al.* 2009), all defined children's interests as activities or objects in the play environment (e.g. playdough, blocks, dolls, trains, trucks).

Consistent with Cremin and Slatter (2004), I defined the term 'children's interests' as 'children's spontaneous, self-motivated play, discussions, inquiry, and/or investigations that derive from their social and cultural experiences' (Hedges 2007). However, I argued that the notion of curriculum emerging from children's interests from a play-based perspective invites a low-level interpretation. Therefore, I sought to go beyond a play-based understanding of children's interests in ways consistent with theoretical perspectives of the social and cultural nature of learning, and the informal nature of many of the everyday experiences that children willingly and enthusiastically engage in.

Children's interests in their families and communities

Children's interests are stimulated by the experiences they engage in with their families, communities, and cultures. Evidence of the primary influence of families in establishing and supporting children's interests is strong (e.g. Johnson *et al.* 2004). Tizard and Hughes' (1984, 2002) seminal study of

children's language in England drew attention to children's interests in their homes, showing that everyday experiences at home were valuable learning opportunities.

Recent studies also demonstrate the role of everyday experiences in families and communities as authentic learning opportunities that children eagerly engage in. Cumming (2003) studied children's experiences and understandings about food. The most common contexts for conversations about food were mealtimes and during food preparation and cooking. Dunst *et al.* (2000) focused on the learning experiences and opportunities in family and community life of children participating in early-intervention programmes. Findings suggested that family and community settings offer a rich mix of situated everyday learning opportunities for children, such as playing games, and socializing experiences, such as picnics and visits to zoos, which may later be represented in self-chosen interests. Tudge and Doucet (2004) observed children for 20 hours over the course of 1 week in the children's home, in someone else's home, in early-childhood centres, and in public places such as supermarkets or parks. The authors concluded that community experiences added richness and variety to children's learning.

Of further relevance, some literature suggested there was disjuncture in children's experiences between their homes and early-childhood centres. In Brooker's (2002) study, the rich social and cultural capital of Bangladeshi children's family and community environments had little transfer value to the educational setting. Teachers were not ignorant of the children's backgrounds, but believed creating a play-based learning environment allowed children to follow their interests. Fleer (1997) studied 3–5-year-old children's experiences of technology in the home and noted that the children's teachers were oblivious to the range and depth of children's understanding of technology. Similarly, Cumming's (2003) study concluded that children learn much valuable information about nutrition and food technology from family and friends, and that teachers perhaps unwittingly overlook this in their teaching practices. Aubrey (1997) investigated the mathematical knowledge 5-year-old children had before starting school, also concluding that teachers were unaware of the richness of such prior knowledge. Such a link between children's interests and early conceptual or domain knowledge (Johnson *et al.* 2004) in educational settings might be an important consideration for teachers.

Teachers who fail to capitalize on children's learning gained in informal settings would therefore appear to ignore a rich source of children's prior knowledge, experience, and interests. Furthermore, as Brooker's (2002) study highlighted, teachers need to develop knowledge of the diverse experiences children gain in their homes, families, communities, and cultures, and view these positively.

Funds of knowledge

Contemporary interpretations of *Te Whāriki* are underpinned by sociocultural theory. Sociocultural theory, in particular social-constructivist perspectives (Rogoff 1998) and views of learning as occurring through

‘intent participation ... a powerful form of fostering learning’ (Rogoff *et al.* 2003: 176) and emergent inquiry (Lindfors 1999) underpinned the research. Rogoff *et al.* describe how humans learn by observing and listening in on others as they collaborate in shared tasks, in flexible and complementary roles. Observation of others’ activities, as an important way in which children learn, is neither incidental nor passive. Further, Vygotsky (1986) described how children learn ‘everyday’ or ‘spontaneous’ concepts and gradually, through play and language, develop and recontextualize these into ‘scientific’ concepts. Vygotsky believed that children’s informal daily interactions provide a bank of experiences to draw on to develop more formal, scientific, conceptual knowledge in later schooling.

Consistent with sociocultural perspectives, a positive view of the diverse knowledge and experiences found in families was located in the notion of *funds of knowledge* (Moll *et al.* 1992, González *et al.* 2005a). Moll *et al.* (1992) defined funds of knowledge as the bodies of knowledge, including information, skills, and strategies, which underlie household functioning, development, and well-being. These may incorporate information, ways of thinking and learning, approaches to learning, and practical skills. Examples include economics, such as budgeting, accounting, and loans; repair, such as household appliances, fences, and cars; and arts, such as music, painting, and sculpture (Moll 2000).

González *et al.* (2005b: 18) describe types of household activities and routines in which children were involved:

car repair, gardening, home improvement, child-care, or working in a family business or hobby. ... [W]e asked about music practices, sports, shopping with coupons, and other aspects of a child’s life, which helped us develop a competent and multidimensional image of the range of possible funds of knowledge.

Riojas-Cortez (2001) extended the term funds of knowledge to include cultural traits such as parents’ language, values and beliefs, ways of discipline, and the value of education. Research in the Home-School Knowledge exchange project (see Hughes and Pollard 2006) found the concept of funds of knowledge useful in altering teachers’ perceptions and positioning of families.

Further, Rogoff (1998) noted the need for research to identify ways in which children use their expertise to influence each others’ actions or engage in shared thinking. While there is a considerable literature on children’s peer cultures (e.g. Corsaro 1985, 2003), this literature has not been interpreted in relation to funds of knowledge, nor has the influence of peers been explored in the existing literature on funds of knowledge. So while most previous research on children’s informal learning had focused on adult–child interactions, I also sought to incorporate ways children’s interests were enacted with peers.

Towards a stronger interpretation of children’s interests

Anning *et al.* (2009: 21–22) suggested that, in relation to current approaches to early-childhood curriculum and pedagogy in New Zealand:

The strong free-play tradition of New Zealand's early-childhood programmes has meant that practitioners have been slow to move away from a narrow interpretation of 'interests' as children's self-selection of activities to the stronger sense of interests reflected in project approaches.

My review of the literature suggested that a theoretical framework through which children's interests might be recognized, engaged with, and extended was required to encourage teachers' deeper analysis of children's interests. This paper contends that the notion of funds of knowledge provides one such framework for a stronger interpretation of children's experiences and interests.

Methodology

This study used an interpretivist methodology (Flick 2006) because of its potential to generate rich data and acknowledge my involvement in the study.² Qualitative approaches were appropriate for the study in order to build research relationships and ascertain patterns and themes in children's interests and teachers' engagement with these.

The main data-generation techniques involved ethnographic procedures such as participant observation in children's natural learning settings for an extended period of time. In González *et al.* (2005a), the voices and experiences of children and families were not heard directly, but reported through teacher interpretation. In this study, children's and parents' perspectives were incorporated through interviews in family homes. This strengthened the validity of the research and the notion of funds of knowledge, and highlighted the pedagogical relationships in which these were developed.

Ethical principles according to the criteria of the approving university guided the conduct of the study throughout, alongside attention to the complexities, sensitivities, and nuances of engaging with human participants, particularly children aged less than 5 years (see Cullen *et al.* 2009), over an extended period of time.

Participants and data generation

The study's case settings were one sessional (half-day attendance) public kindergarten for 3 and 4 year-olds, Takapuna Kindergarten, and one full-day early-education and care centre for children aged 6 months to 5 years, The No 1 Kindy, in Auckland, New Zealand. Ten teachers and 35 children across both settings were participants in the study. The parents of 11 children were interviewed together with their children in their family homes.³ Table 1 provides information about the participants. The age of the children interviewed, as at the beginning of the fieldwork, is included in parentheses.

Throughout the year-long field work, I generated field notes and photographs about children's interests and teachers' engagement with these by way of weekly half-day attendance in each setting, primarily in the mornings. In total, 164 hours of participant observation occurred at No 1 Kindy and 165 hours at Takapuna Kindergarten. I undertook individual teacher and

Table 1. The study's participants.

Teachers at No 1 Kindy	Teachers at Takapuna Kindergarten	Children at No 1 Kindy who were also interviewed at home	Children at Takapuna Kindergarten who were also interviewed at home	Other child participants in both settings
Angela	Christine	Lucy (4:9) and	Ben (4:4)	Gianni, Luca, and
Barbara	Louise	Billie (1:7) (siblings)	Caitlin (4:2)	Marcella (siblings),
Claire	Theresia	Olivia (4:10) and	Tom (4:4)	Jansen and Finn
Kylie		Imogen (2:0)	Greta and Leah	(siblings), Isabel and
Ruth		(siblings)	(twins; 4:5)	Ronan (siblings),
Vicky		Meg (4:9)		Danyela, Amelia,
Wendy		Jack (2:5)		Safiya, Jayde, and
				Aidan (No 1 Kindy)
				Gina, Harry, Zach,
				Alex, Trent, Bella,
				Shannon, Qing Qing,
				Valerie, Elliot, and
				Maya (Takapuna
				Kindergarten)

teaching-team interviews, along with interviews with children and parents in family homes. Additional sources of data were teachers' curriculum documentation and six group discussions among the teachers, facilitated by me.

In a study focusing on children's interests, my participant-observation field notes were designed 'to gain insight into *what mattered most to them*' (Corsaro 1985: 28; emphasis in original). Observations were sometimes of individual children, but more frequently, 'interactive episodes' (Corsaro 1985: 22) between child peers and teachers and children. Field notes recorded evidence of children's interests and inquiries and the ways in which children's interests were enacted, recognized, and engaged with by teachers. Apart from one occasion when I followed a toddler for an entire morning, what I participated in and recorded depended on where I was positioned at the time. In the main, this was where a large group of children and teachers were; but, increasingly over the year, my positioning responded to children's requests to participate with them. On occasion, I focused my observations on activities teachers introduced that were planned to engage with or extend children's interests.⁴ Multiple activities occurred simultaneously. I recorded only one of these at a time, with occasional general notes of what was happening elsewhere. Field notes were triangulated by discussion with teachers, interview data, and curriculum documentation of children's interests and learning.

Data analysis

Systematic descriptive analysis occur first in order to inform theoretical interpretation. The research questions were used to guide a descriptive analysis through continuous reading and re-reading of the data in a constant comparative technique (Miles and Huberman 1994). This was followed by

coding of the data according to repeated ideas and topics. Three iterations of this data reduction and summarizing occurred through construction of summary tables, with the last iteration being shared with teachers for member-checking and validity.⁵

The descriptive analysis led to identification of repeated key ideas to inform a theoretical analysis. Two sets of theoretical constructs were used to explain the study's findings: (1) funds of knowledge experienced in pedagogical relationships; and (2) key notions from a community of inquiry (Wells 1999). This paper reports on the findings related to funds of knowledge. Ways in which teachers recognized and engaged with children's interests in relation to children's experiences and funds of knowledge, and indications of whose and which interests were chosen to build curriculum are included. The two research questions are also addressed explicitly in the summary.

Findings

The framework for reporting the findings draws on the idea of funds of knowledge developed in pedagogical relationships. The first four categories drew on and developed the existing literature where the children's relationships were with parents (Riojas-Cortez 2001, González *et al.* 2005a). The next eight were derived from the data. First, these broaden the analyses of González *et al.* and Riojas-Cortez from (primarily) parents to the range of adults and children in children's lives. Further, my interpretation takes an extended view to include knowledge gained through other social and cultural experiences. Data supported these categories for several children in multiple ways. The examples chosen represent frequently occurring funds of knowledge-based interests in children's play across both case settings.

Family-based funds of knowledge

Families were powerful primary sources of influence on children's funds of knowledge-based interests and inquiries.

Participation with parents in household and domestic tasks. Children learned much about the responsibilities of adults through participation with parents in household and domestic tasks that underlie household functioning and well-being. Many children enjoyed baking and cooking at home. For example, Olivia and Imogen's mother revealed their shared interest in food preparation during the home interview. The family enjoyed socializing with and hosting their friends and wider family and the children participated intently in the preparation. This interest was later enacted in the centre environment with friends with similar interests.

When discussing the data in relation to whose interests create curriculum, teachers identified that it was children who connected with teachers who were first likely to be noticed. Olivia was a child who readily approached teachers. Claire recognized Olivia's interest was shared among a number of

children and frequently baked biscuits with children. However, on only one occasion were Olivia's funds of knowledge almost called upon:

'Do you cook at home with your Mums and Dads?' Lots of yes responses, who they cook with and what they make, but Claire is focused on the ingredients. (Fieldnotes/No1Kindy/66)

Olivia often acted out baking and cooking in sand and water play. However, through such examples, the primacy of the play environment as No 1 Kindy's teachers' focus on understanding children's interests was highlighted. Teachers often appeared to attribute interest in cooking to sand and water play itself rather than as a link to her funds of knowledge. This perception demonstrated the prominence of play and the learning environment in teacher thinking disclosed during teacher interviews about interests-based curriculum rather than what it might represent as a context for real-life learning and as an opportunity to practise and represent funds of knowledge.

Parents' occupations. The potential of parents' occupations for influencing children's interests and knowledge-building is demonstrated in the following example. Olivia's mother's home office was a site of great interest and intent participation for Olivia. Her expertise was enacted at No 1 Kindy when the environment was set up with a computer keyboard among the literacy tools. During her play, Olivia demonstrated knowledge of office-work responsibilities and technical equipment, but her activity was not recognized by teachers as relating to her funds of knowledge.

A widely-shared interest among children of all ages derived from observing the activities of parenting. This interest was represented repeatedly in family and dramatic play with dolls and was one commonly recognized and extended by teachers in both centres during their interactions with children.

Parents' interests, talents, and leisure activities. González *et al.* (2005a) focus on parents' domestic tasks and occupations. However, they and Carr (2001) recognize that parents' interests can also influence children's learning. In New Zealand, sports activities are viewed as important and rugby is a prominent sport with links to national identity. Tom played in a team due to his father's interest and experience as a player. Tom's experience of playing, information gained from being coached, and watching rugby on television had enabled him to develop knowledge about the sport. Tom was frequently found outside acting on his understandings: kicking, chasing, throwing, and catching balls of various types with his friends. Christine, in particular, asked Tom each week during the rugby season about games he had played or watched, and provided opportunities to develop his knowledge and skills.

Parents' language, values, and beliefs. This category drew on Riojas-Cortez's (2001) analysis of funds of knowledge related to parents' language, behaviours, and values. The language parents use in conversations and interactions with children influences their experience, information, knowledge-building, and understandings. Jack had an extensive and specialized vocabulary about a wide range of interests. This was influenced by his inquiries at home being

responded to using adult language, explanations that treated him as a competent and capable learner.

Jack's mother: We tend not to say that's just a bird but try and figure out what it is, an oyster-catcher or a peacock. (Interview)

Parental beliefs about the importance of literacy were evident in all families. This was often manifested in children's interest in books, which children also appeared to enjoy because they enabled special connections and affective relationships with people to occur as well as extending their knowledge of the world. Jack's mother commented:

If I had one [interest] that was strongest to do with children, that would be [literacy] ..., you can just see how parental interest will inevitably kind of focus where the child is at. (Interview)

This comment about the effect of parental interests on the child's interests is insightful about the stimulation and potential direction of children's interests and funds of knowledge.

Infants' and toddlers' interest in books and reading was recognized and incorporated explicitly into No 1 Kindy's planning. Young children in both settings demonstrated an interest in reading books with adults and learning the skills to later become self-sufficient readers. Developing everyday and early conceptual knowledge of literacy was an important interest of children. This focus was shared by teachers and parents in their activities with children and is an example of how culturally-valued knowledge can be encouraged and extended through children's interests.

González *et al.* (2005b: 12) acknowledged that '[t]he knowledge of grandparents, aunts and uncles, and extended family relations are also resources that go beyond the nuclear family'. However, direct links between grandparents and children were not explored in González *et al.* (2005a). My study's interpretation acknowledged the pedagogical relationships and contributions of other adults and children to children's funds of knowledge.

Grandparents' occupations, leisure activities, and interests. During the family interview I asked about people the children enjoyed spending time with. Without exception, every parent or child talked about the child's grandparents first, even when they were not living nearby.

One of Leah and Greta's two most prominent interests at home and Takapuna Kindergarten was creative arts, stimulated by experiences with grandparents. The opportunity to demonstrate these funds of knowledge competently in the centre setting occurred when mosaic tiles were created for the garden. Christine learned about their funds of knowledge related to the grandparents' interest in creative arts through provision of this activity, listening closely to the girls, and confirming their story in a conversation with their mother.

The potential of grandparents' and parents' contribution to curriculum was illustrated in the following way at Takapuna Kindergarten. Ben initiated a cape sewing project. This extended from capes to children making skirts and bow-ties for a 'disco'. Theresia was interested in handcrafts and was the teacher leading the project. As the date of the disco neared, Theresia drew

some of the community's adults in, including grandparents, to support some Asian children with their sewing. These children had been unable to act on this interest because of limited English and because other children's interest in the sewing was noticed first. This example illustrated that interests that were commonly noticed were those shared by children and teachers, how other children were drawn into peers' interests, and how teachers can work sensitively to ensure all children are catered for.

Adult relations' and family friends' interests and occupations. The funds of knowledge of family relations or parents' friends influenced children's interests. For example, Tom's focus on construction activities was noticeable early in the fieldwork and this was an activity recognized and extended by teachers:

When I comment on Tom's interest in Mobilo⁶ construction and wonder if he might be an engineer in future, [mother] comments that his uncle is an engineer. (Fieldnotes/TakapunaKindergarten/31)

Tom had another uncle who had taken him fishing. When asked during the home interview what he liked to do on the weekends with his family, he talked animatedly about his new detailed knowledge about boating and fishing.

The influence of other adults was one teachers might not recognize in children's play-based representations of their interests. It therefore highlighted the importance of teachers obtaining different kinds of information from families to support deeper understandings of children and their interests. My interpretation continued further to consider children as knowledgeable experts, to explain how children's interests and inquiries were stimulated, adopted, and noticed by peers.

Siblings' and cousins' activities, interests, and language. Children's siblings, friends, and cousins had funds of knowledge that were tapped into. Caitlin's interests in writing, spelling, and mathematics were attributed to her interest in her brother's school work. Caitlin's mother made an insightful comment that highlighted the way older siblings might determine the direction of younger siblings' interests and knowledge-building:

We tend to be driven by what Thomas is interested in at the moment ... like Playstation, dinosaurs ... (Interview).

Caitlin was happy to acknowledge and act on interests stimulated at home in the kindergarten setting. In contrast, Tom and Ben enacted family and dramatic play at home with their sisters, such as playing with dolls' houses, dressing up, playing babies and pets, and enacting school roles where the older sister was the teacher. Yet, none of these interests were acted on at kindergarten. It was beyond the scope of the research to investigate the gender-related or other issues that may lie beneath this finding; what was relevant was that this was evidence of funds of knowledge-based interests not known by teachers.

Several families also raised the influence of peer-age friends and cousins on children's interests. For example, Caitlin had cousins who lived nearby and came to stay at her home. They particularly enjoyed playing doctors and riding bikes together. Tom spent time with cousins each week at his

grandparents' home while their parents worked, and enjoyed a range of activities with them. Siblings at the centre were recognized by teachers as a source of interests, but teachers knew little about older siblings unless they had taught them, and, less, if anything, about cousins.

Holidays and other community experiences. Family affordances such as dancing classes, access to swimming pools, and family holidays and outings created sources of funds of knowledge. Confident and articulate children shared stories of these experiences on their morning arrival at each centre or at news time during group sessions. Quieter children rarely did so. Therefore, teachers' knowledge of children, and whose interests were noticed and chosen to co-construct curriculum, were affected by how outgoing children were and the efforts that teachers could make, constrained by their myriad of roles, to engage less forthcoming children and parents in conversation.

Centre-based funds of knowledge

Funds of knowledge-based interests and opportunities were evident in the centre setting through pedagogical relationships with peers and teachers.

Peers' interests and activities. Discovering the value of friendship is an important step in children's social development. Friendships enabled children to extend each other's learning, thinking, and interests by drawing on each other's experiences and funds of knowledge. An example was when four girls (each the youngest child in a family) washed dolls, demonstrating their interest in caring for babies. This activity was led by a popular 2-year-old child:

Imogen notices rain water that has collected on the [table outside]. She puts her doll into the water. 'I wash baby's hair.' ... Safiya, Danyela, and Billie join her. Imogen describes her actions and the others copy. 'Wash your face bubba, wash your tummy ... and your legs and your arms and your face'. (Fieldnotes/No1Kindy/165-166)

Supportive, child-initiated peer-tutoring was common in both centres. This enabled children to demonstrate knowledge of how they themselves had experienced being encouraged to learn something new. For older children, friendships also provided a way to act on and test expectations of others about turn-taking, sharing, leadership, and fairness, also important knowledge and skills for family and household functioning and well-being.

Teachers' interests, language, experiences. Teachers were very positive in their language and interactions with children. They often asked children genuine questions related to their own interests to promote children's thinking skills and collaborative knowledge-building. For example, children drew on their funds of knowledge to theorize how Christine could solve the problem of birds eating the tomatoes growing in her garden. A shared interest developed around gardening at the kindergarten that was extended into a long-term project related to gardening, cooking, and nutrition, involving all three teachers' interests.

Of greatest significance in relation to the two research questions, children's interests that were chosen to create curriculum were often those that aligned with teacher interests and priorities. This was evident in the examples of literacy, sewing, and gardening. Further, my analysis identified that teachers' interests constituted the basis for many of the curriculum experiences provided, but they often went undocumented as teachers felt this conflicted with an espoused child-centred curriculum. For instance, Kylie and Louise were both interested in *te reo* and *tikanga Māori* (Māori language and culture), Christine in dance, Barbara and Theresia in horticulture, and Louise in health, fitness, and cooking. These were notable contributions to the curriculum. Teachers' interests create ways in which children can have interests stimulated and be exposed to further knowledge, including that also valued by communities and cultures.

Community-based funds of knowledge

Outside the family and centre settings, children participated in a range of social and cultural events. Sometimes funds of knowledge were recognized and extended in the centres. However, other experiences and/or what children revealed in conversations that occurred during these events were not always appreciated and acted on by teachers.

Cultural events. A repeated theme in children's news topics, conversations, and play was the knowledge and actions of medical practitioners and observing or experiencing accidents. Children frequently used sociodramatic play as a medium to act on their understandings about doctors' responsibilities and actions. Other cultural events and celebrations were also important. Children were particularly knowledgeable about regular events with ritual status such as birthday parties and farewells from the centre. Cultural celebrations such as Chinese New Year and Diwali were acknowledged by teachers; however, other celebrations, such as Valentine's Day and Hallowe'en, were not, despite children's interest in them. As another example, my presence enabled children to develop new funds of knowledge. The child participants demonstrated some clear understandings of research roles, activities, processes, and tools different from the roles and activities of other familiar adults.

Popular culture. Children's references to popular culture interests were the most numerous in the data. In conversations, children revealed these sources as including television programmes, movies, technology-based games, and fast-food restaurants. A close examination of the data revealed that the children's interest was not always in popular culture *per se*, but about the funds of knowledge-related actions, behaviours, and values gleaned from popular culture and represented in their play, learning, and relationships. These included risk-taking, danger, good, evil, and helping others. Popular culture in the form of varying artefacts provided opportunities to learn about physical and emotional well-being, identity, and making sense of the world and people among other things. Testing knowledge about strength, roles,

acceptability of social norms/rules, values, and behaviours were commonly enacted through the use of popular culture as an element of play.

However, popular culture was a contested site of curriculum co-construction. At the centres, children's use of or reference to popular culture was viewed as an activity in and of itself and often deflected or diverted by teachers to affirm social mores as children tested boundaries. Popular culture was therefore, in some respects, undermined as a source of co-constructing curriculum reflective of children's interests in developing knowledge about human responsibilities and behaviours. Teachers noted this in the data themselves and later began to consider its potential for building curriculum. For example, Theresia developed Tom's literacy knowledge and skills using his interest in the Ninja Turtles.

Summary

The notion of funds of knowledge, that is, knowledge about household functioning, development, and well-being, provides an analytical way to assess children's interests, respectful of their lives in their families, communities, and cultures. The major findings were that children's interests and inquiries were stimulated by their funds of knowledge constructed during participation in everyday life experiences. The findings highlighted a number of significant pedagogical relationships that children engage in. Spending time with parents, grandparents, siblings, cousins, friends, teachers, and peers provided opportunities for children to develop funds of knowledge. These opportunities occurred in the contexts of family homes, early-education settings, during other family and community activities, and through the affordances of family social capital such as holidays, cultural celebrations, and technologies. Further, through children's funds of knowledge-based interests, culturally-valued conceptual knowledge such as literacy, mathematics, and science begin to develop, as children engage with teachers and families, without the need for didactic teaching approaches.

However, in relation to the first research question, the findings suggested that, while both centres had warm and positive teacher-parent relationships and despite their best efforts and among many examples of high-quality curriculum interactions, teachers' recognition and engagement with children's funds of knowledge-based interests and experiences occurred in a piecemeal fashion. In short, interests and inquiries that were not recognized or extended often seemed to be because teachers were unaware of the connection to family and community experiences and/or the nature of the relationship with individual children.

In relation to question 2, the findings suggested there was a somewhat serendipitous nature to the way teachers chose whose and which interests would be engaged with during both planned and spontaneous interactions. Many learning and teaching interactions were spontaneous and some children tended to dominate these. Assertive, popular, and verbal (often, but not always, older) children who attended regularly received most attention. Play remains a vital way for children to represent, express, and explore interests. Yet, significantly, some teachers' understandings of children's interests as

largely play-based, that is, activity-based, clouded recognition of deeper interests and inquiries and their sources. Further, as noted, children's interests that were chosen to create curriculum were often those that aligned with teacher interests and priorities. In addition, constraints such as centre routines and priorities, group size, or teacher-child ratios impacted on the ability to recognize and respond to interests.

Discussion

Exposure to a wide range of experiences built children's funds of knowledge. Play in an early-childhood centre acts as a context where children observe, participate, practise, and build on their knowledge (Vélez-Ibáñez and Greenberg 1992, 2005) in reciprocal and responsive pedagogical relationships with peers and teachers. The dynamic, ongoing way in which children made connections between experiences and the repetition of themes and ideas reinforced the argument that funds of knowledge provide a critical lens to explore the notion of interests.

A funds-of-knowledge perspective on children's interests is proffered to encourage teachers to take a more analytical interpretation of the term 'children's interests' in early-years education. This perspective also positions parents and families centrally in early-years curriculum, consistent with *Te Whāriki* and established international philosophies and practices. Moll *et al.* (1992) suggest that teacher-child relationships are lightweight if only built on knowledge of the child in the educational setting. The findings of the present study suggest that teachers should be encouraged to develop other authentic ways to get to know children and families, alongside common methods such as informal dialogue in the centre setting and assessment portfolios as conduits between home and centre. Making parents and wider family welcome in centres in various ways, is important.

Moreover, home visits provide valuable insights for teachers and researchers into children's lives, experiences, and family resources within their communities and cultures. Hensley (2005) noted that, even through the experience of visiting one home, teaching practice may be transformed in ways that benefit all children. Methods might also include the 'shoebox activity' (Hughes and Greenhough 2006) where children place items of personal importance in a shoebox to bring to and talk about at the centre, or children taking photographs of family and community events to bring to the centre (Feiler *et al.* 2006). González *et al.* (2005a) also suggest parent evenings and teachers visiting community events.

In addition, limited opportunities to be part of the world of adults may restrict children's understandings of the mature roles of the community (Rogoff *et al.* 2003). From the perspective of learning through intent participation, children in New Zealand may often not be part of adult settings such as workplaces, making it difficult for them to understand aspects of these activities they are interested in. In keeping with Brennan's (2007) argument that early-childhood environments lack the authenticity and challenge of the adult world, the physical structure and activities of an early-childhood centre could be reviewed to be less institutionalized and separate from the adult

world. With a focus on relationships, and family and community funds of knowledge, the environment could be arranged to represent authentic aspects of children's home lives, and adults invited more frequently to offer expertise in learning experiences. Teachers could also engage publicly in relevant work activities that children may be interested in. For example, in the present study, Theresa's presence at a sewing machine, coupled with children's interest in making capes, skirts, and bow ties, enabled this to become a long-term authentic project at Takapuna Kindergarten. No 1 Kindy's small group trips to the supermarket, veterinarian, and garden centre also supported children's funds of knowledge interests to develop further. Children may be interested in other teacher activities such as completing the roll, writing shopping lists, and buying new equipment. These would provide additional development of funds of knowledge that could then be represented in the play environment.

Implications for teaching practice

Funds of knowledge, as a conceptual framework, provide a way to recognize and respond to children's interests and inquiries.

First, teachers' participation in sustained interactions with children will support genuine interests-based learning. A teacher's role becomes that of listening carefully to children, supporting, extending, and challenging their ideas and thoughts. Teachers may need to look at ways to manage their roles and daily routines to enable such uninterrupted learning to occur. Nevertheless, Jordan (2009) also argues that teachers' increased awareness of their interaction strategies will enrich the quality of interactions, no matter the length of them. Further, teachers might consciously encourage and highlight peer-tutoring in their pedagogical practices to employ these relationships usefully.

Second, teachers might carefully consider how children's funds of knowledge-related interests are represented in their play. Teachers could think insightfully about the possibilities that the everyday play environment provides for children, and observe closely children's interests and experience with these to interpret them beyond the provision of well-resourced activities in traditional play areas. As children find ways to represent their understandings in the educational context through play, teachers also need the knowledge and skills to identify and support deep-seated interests. Most significantly, an interests-based curriculum provides a way for teachers to lead children to conceptual learning and culturally-valued knowledge, without using formal teaching approaches, in ways that empower children with positive identities as learners.

Future research

In other settings, the funds of knowledge-related findings and teaching practices might demonstrate various ways of reflecting the values and goals of the relevant culture and community. Attention to the funds of knowledge of

diverse children and their impact on an interests-based curriculum is worthy of future research attention. In addition, a post-structural lens might reveal some power differentials in analysing whose and which interests are used to build and extend curriculum experiences.

Further, Hedegaard and Chaiklin (2005) note that there is no conceptualization in González *et al.* (2005a) of how to relate local content (i.e. funds of knowledge) to academic concepts. Vygotsky's (1986) conceptualization of everyday and scientific knowledge and the findings of this present study particularly in relation to literacy suggest future research could usefully investigate the relationship between local and academic content.

Conclusion

Curriculum for young children is highly participative and interpretive. Yet, teacher curriculum decision-making is not impulsive; it is a conscious process that draws on understandings about children, curriculum, pedagogy, and context (Hedges and Nuttall 2008). The concept of funds of knowledge, as a theoretical framework for understanding and engaging with children's interests, provides a positive way for teachers to acknowledge the richness of children's lives, collaborate with parents in children's learning, and reduce the disjunction between homes and centres cited earlier.

Further, engaging genuinely with children's interests involves commitment from teachers. A funds-of-knowledge approach provides a framework for understanding children's lives and the potential of their families, communities, and cultures to influence their interests, inquiries, and knowledge-building. It also invites recognition of children's interests, inquiries, and knowledge-building in a deeper way than a surface-level examination of their play activities in an early-childhood centre affords. The importance of teachers recognizing and responding to children's funds of knowledge-based interests is highlighted as one key argument for moving early-childhood education towards a deeper understanding and interpretation of the term 'children's interests' as a major source of curriculum.

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Notes

1. See Hedges (2007); the second and third authors were the supervisors of Hedges' dissertation.

2. Many of the teachers, but not all, were previously known to me through my university role. I adopted the role of a critical friend (Costa and Kallick 1993) with research and theoretical knowledge (Goodfellow and Hedges 2007).
3. These children were New Zealanders principally of European descent and most were from two-parent households.
4. Graue and Walsh's (1998) emphasis on the researcher as the primary data-generation agent was highlighted.
5. This study modified an approach used by Cremin and Slatter (2004) and developed a matrix for the children who had been interviewed to analyse their individual interests. This clearly illuminated the nature of children's interests in the home and centre settings.
6. *Mobilo* is a building and construction toy for children 3–8-years-old.

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