

PARENTS' INVOLVEMENT IN EARLY YEARS MATHEMATICS LEARNING: THE CASE OF JAPANESE IMMIGRANT PARENTS

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A meaningful collaboration between schools and homes can enhance students' opportunities to learn mathematics. The goal of this study is to understand how parents experience their involvement in children's mathematics learning and how they describe their relationships with schools and teachers. This study utilizes the data collected from semi-structured interviews with Japanese immigrant families in Canada. Findings identified active parental involvement in children's mathematics learning among this population. At the same time, findings also suggested the invisibility of school mathematics learning for those parents. This study proposes creating boundary objects that can meaningfully bridge homes and schools.

Keywords: Equity and Diversity, Informal Education

Background and Literature Review

Parents can influence mathematics education, especially in a child's early years and in elementary schools. For example, in Canada, which is the context of this study, a group of parents recently organized a petition to the Alberta government to push mathematics curriculum "back to basics" (Tran-Davies, n.d.). Understanding parent's discourse surrounding mathematics learning is important for mathematics teaching.

This study investigates how parents experience their involvement in children's mathematics learning and how parents, particularly immigrant parents in this case, describe their relationships with schools and teachers. Previous research tells us how certain forms of parental involvement affect students' academic achievement in school (Galindo & Sonnenschein, 2015; Organisation for Economic Co-Operation and Development, 2012). According to those studies, influential forms of parental involvement include engaging in discussions that facilitates critical thinking and setting a good example for academic engagement. Because parental involvement can affect students' academic performance, it is important to identify how parental involvement at home is promoted or hindered.

The current study focuses on Japanese immigrant families living in an urban city of Canada. Previous studies on the topic of immigrant parents' engagement in mathematics learning shed light on immigrant parents' mathematics knowledge and resources embedded in their cultural practices (Civil, 2007; Willey, 2008). This line of research has also highlighted the conflicts and struggles that immigrant parents experience in their relationships with schools (Abreu & Cline, 2005; Civil & Bernier, 2006; Crafter, 2012). This study adds a new cultural and historical context to this body of literature. Based on the experience of Japanese immigrant families, I will explore possible ways to facilitate a meaningful collaboration between homes and schools.

Theoretical Framework

In order to investigate the relationship between schools and homes/communities for students' mathematics learning, I will examine the presence or the lack of boundary objects. The concept of boundary objects was proposed by Star and Griesemer (1989) and defined as:

Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. (...) They have different meanings in different social worlds but their

structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is a key process in developing and maintaining coherence across intersecting social worlds (p.393).

Boundary objects can connect communities together for a common goal (Wenger, 1998). Boundary objects allow us to examine how collaboration among different parties become possible without a prior consensus (Star, 2010).

Method and Methodology

The data are derived from the ethnographic study I conducted with Japanese immigrant families in an urban city of Canada. Here I focus on findings gained from the interviews with 14 Japanese parents, first generation immigrants to Canada. All the parents were raising school-aged children. Each interview lasted approximately 60 minutes and elicited backgrounds of the parents (education, language, and immigration), involvement in children's school education, education at home, mathematical cultural practices in which parents were involved in Japan and in Canada, and sense of belonging and social networks in Canada.

For the current analysis, I focused on the following two aspects described in the interview: 1) how parents were involved in their children's mathematics learning at home and 2) how parents described their relationships with their children's schools and school teachers. The following findings section is organized around these two aspects and I will first describe how the participants in this study were involved in their children's mathematics education. Subsequently, based on the concept of boundary objects, I will discuss whether and how boundary objects existed between schools and homes for immigrant families.

Drawing from the framework of Discourse (with a capital D) proposed by Gee (1990), my analysis focuses on identifying common threads that characterizes the collective discourse of Japanese immigrant parents living in Canada. Discourse recognizes that people's ways of talking and acting signifies their involvement in certain social groups. By using Discourse as an analytic tool, I tried to shift my focus from individuals who speak, to socially and historically defined discourses identified in Japanese parents' accounts on mathematics teaching and learning.

Findings

Overall, Japanese parents in this study were actively involved in their children's mathematics education at home and in their community. There were forms of parental involvement described both at the community level and at the individual level. At the community level, Japanese immigrant parents were organizing space for children to learn arithmetic. Many elementary school children were learning to use the Japanese abacus in informal settings, from Japanese immigrant parents. One of the teachers (who is also a parent) of the community abacus class explained that the class started spontaneously based on the needs from parents. The teacher/parent also explained that it was a way of making a contribution to the community: "My strength I can use to contribute to the Japanese Canadian community is abacus, so...(laughter)." In addition to teaching abacus and arithmetic, parents also hoped to teach Japanese language through the abacus classes. The arithmetic children learn at the abacus class is advanced, compared to the regular school curriculum. For example, when I visited one of the abacus classes, Grade 3 students were working on 6-digit multiplication.

Similarly, at the individual level, many parents were teaching mathematics by using Japanese mathematics textbooks or workbooks that they brought back from Japan. Parents were concerned that their children might fall behind academically due to their limited exposure to English at home. They decided to provide additional support to enrich their children's mathematics learning opportunities. For example, a parent explained, "I was concerned that my children might academically suffer or might come to dislike school because their English is not strong. So, I wanted to teach mathematics

even for a bit, for them to gain confidence academically, even when they don't understand English well."

Overall, parents in this study were actively involved in mathematics teaching at home. At the same time, they expressed concerns regarding the disconnection between home and school. One of the concerns was the difference in mathematics pedagogy between what parents experienced in Japan and what their children were learning in Canada. For this issue, a parent said, "In Canadian schools, I don't think they place so much value on quick computing, because computation is just a tool. It's more important to know how to use the tool and why the particular tool is used in a particular situation."

At the same time, parents felt there were limited opportunities to learn about what children are learning at school. For all the parents in this study, school mathematics was invisible in Canada. Recalling the Japanese education system, parents named several culturally-specific practices that made Japanese school curriculum visible to parents. For instance, there were opportunities for parents to join a regular class to observe (*jyugyo sankan*). During these occasions, teachers often explained the curriculum and pedagogical goals to parents. Also, in Japan, each child receives a textbook and studies at home. Parents and children are generally able to communicate about what is learned at school, via textbooks (if parents and children have the time and capacity to do so). Most of the parents in this study were interested in supporting their children's academic success, especially in mathematics in early years. However, they felt limitations in supporting their children because they did not have a clear idea about the curriculum and pedagogy at school. All the parents I interviewed felt these culturally-specific practices were missing in Canadian contexts and the lack of these practices were contributing to the invisibility of school mathematics for parents.

Discussion and Implications

Parents in this study were actively involved at home and in their communities to support children's learning mathematics, especially during the early years. Parents' academic involvement tended to focus on number sense and computation, as represented in the community abacus classes. Some parents were concerned about the pedagogical gap between what children are learning at school and what they are teaching at home and in the community. All the participants expressed the invisibility of school mathematics due to the lack of organized practices, which could help to make school mathematics visible to parents. This finding is compelling especially that parents can have considerable impact on mathematics curriculum and pedagogy. This finding suggests the need to build a bridge between schools and homes/communities and to facilitate a dialogue between teachers and parents.

Designing boundary objects is one way of filling this gap. Parents' interviews in this study revealed some effective boundary objects they observed in Japan. For example, *jyugyo sankan* (lesson observation) can allow teachers to explain and enact their teaching philosophy and curriculum goals by going through the details of a lesson. Communicating via textbook is another example. Parents hoped to learn more about what children were learning at school so that they could provide appropriate academic support to them. As Stigler and Hiebert (1998) maintain, teaching is a cultural activity that is situated and deeply rooted in history, policy and everyday practices. It will be important to understand the history, policy and practices that surround these boundary objects. Designing boundary objects that can bridge homes, communities and schools in a meaningful way can enrich the dialogue and collaboration for students' mathematics learning.

This study examined a new context, which has not yet fully been investigated in the body of immigrant parents' engagement in mathematics (e.g., Abreu & Cline, 2005; Civil & Bernier, 2006; Civil, 2007; Crafter, 2012; Willey, 2008). Several unique issues were revealed through this study on Japanese immigrant parents living in Canada. One of the issues was discussed above and all the parents in this study acknowledged the boundary objects that could bridge homes and schools, by

referring to their experiences in Japan. Another interesting initiative observed in this community was the abacus classes that parents organized. Further examination will be beneficial to understand how these children experience mathematics learning across the mainstream mathematics classes in Canada, the community abacus classes and learning at home.

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