

Uncovering Parents' and Teachers' Ethnotheories in Preschool Children's Learning
in Two Immigrant Communities

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Lok-wah Li

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Thesis Committee Chair:

Christine M. McWayne, Ph.D.

Thesis Committee Members:

Jayanthi Mistry, Ph.D., & Mei-Hua Fu, M.S., M.Ed.

Abstract

In the past decade, there has been a significant increase in the number of dual-language learning (DLL) preschool children. Guided by the literatures on home-school partnership and caregiver's ethnotheory, the present study explored DLL children's parents' and teachers' understanding of learning opportunities for their children. As part of the larger home-school partnership project, *Readiness through Integrative Science and Engineering (RISE)*, this study conducted Interpretative Phenomenological Analysis on 18 interviews with parents and teachers from two immigrant communities in Boston. Results confirmed with the existing literature that parents and teachers reflected upon their personal experiences in their arrangement of learning opportunities for their DLL children. Parents' sense of efficacy in using community resources, and teachers' individual interpretations of instructional guidelines were particular dimensions that informed their practices. Community-specific differences and future directions in including parents' and teachers' voices in home-school partnership research were also discussed.

Keywords: dual-language learners, immigrant, preschool, ethnotheory, parents, teachers

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Uncovering Parents' and Teachers' Ethnotheories in Preschool Children's Learning in Two Immigrant Communities

The United States is becoming a majority-minority nation: U.S. Census (2012b) projected that no single racial or ethnic group would dominate the population by the year 2043. Along with such changes in demographics, there is an increase in the number of dual-language learning (DLL) children—defined as children who speak a language other than English at home (Downer, Lopez, Grimm, Hamagami, Pianta, & Howes, 2012). More than 44% of this DLL population is comprised of children from pre-K to 3rd grade (Matthews & Ewen, 2006). These children are characterized as going through non-universal developmental trajectories as they navigated between their home culture and the U.S. culture (Mistry & Wu, 2010).

As a way to better understand and support these children's unique developmental paths, recent literature on DLL children have emphasized on understanding their parents' and teachers' views in children's education. Parents and teachers have cultural practices, beliefs, personal experiences, and trainings that shape their adaptive strategies and values as they support their children's learning (Garcia Coll, Crnic, Lamberty, Wasik, Jenkins, Vazquez Garcia, & McAdoo, 1996). The rise of the “funds of knowledge” concept is an example of the way researchers and educators acknowledge and take into account parents' culturally developed knowledge and skills in supporting DLL children's learning at school (Gonzalez, Moll, & Amanti, 2005; Moll, Amanti, Neff, & Gonzalez, 1992). Similarly, teachers' own cognitive frameworks and worldviews are also studied, as they are shaped by teachers' own culture, race, class, and personal history (Achinstein, Ogawa, & Speiglman, 2004). There is a pressing need for research to include more of these DLL children's parents' and teachers' voices, so as to provide actual examples of what they do and say in their real world scenarios (Doucet, 2008).

The present study, therefore, aimed at illustrating the way parents and teachers determined learning opportunities for their DLL children. This investigation was conducted by examining a subset of data from the larger multi-year research project, *Partnerships for Early Childhood Curriculum Development: Readiness through Integrative Science and Engineering* (RISE). RISE is a community-based research project that saw the United States' increasing focus on science, technology, engineering, and math in current pre-K education as an opportunity to incorporate strategies that would support DLL children's school readiness (McWayne, Mistry, Greenfield, Brenneman, & Zan, 2011). RISE endorses a teacher-parent partnership model that places a high value on teachers' and parents' respective expertise in raising their children, and fosters a co-construction of an ecologically valid and culturally relevant hands-on science, technology, and engineering (STE) curriculum for DLL children.

The data set used for this study was collected prior to the implementation of RISE. It involved interviews with parents and teachers from two preschool programs in two distinct immigrant communities. Analysis was done through an interpretative, phenomenological method in order to leverage participants' voices in uncovering their cultural and context-dependent values that shaped learning opportunities for their DLL children. This study could also inform the larger project on parents' and teachers' values and beliefs on learning opportunities for their DLL children, so as to assist RISE researchers in the next phases of the project (Phenice, Griffore, Hakoyama, & Silvey, 2009).

Literature Review

Constructivist theory and developmental ecological systems theory are relevant in helping researchers and educators foster an understanding of the relationship between DLL children's unique experiences and their early learning. Constructivist theory highlights the way

humans generate knowledge and meaning from their experiences (Piaget, 1967). This perspective supports the importance in understanding DLL children's non-universal experience growing up in the United States, especially when the population is increasingly diverse.

Developmental ecological systems theory considers a child as the center of nested and intertwined contexts, which exerts multiple influences that shape the development of children (Bronfenbrenner & Morris, 1998). This perspective gives value to home and school, the two proximal contexts of a young child as parents and teachers have beliefs and practices that shape DLL children's learning experiences.

One's cultural contexts provides an entry point to access beliefs, as cultural contexts play a major role in influencing one's meaning making process, as seen from the way meanings "have origins and significance in the culture that they are created" (Bruner, 1996, p. 3). Culture provides tools, or models, with which people can organize, understand, and communicate about their worlds (Bruner, 1996). Such cultural models offer mental schema that allow people to make interpretations such as what events are valued, what activities to enact or avoid, who should participate, and how to act (Gallimore & Lopez, 2002). Since individuals' interpretation and meaning making are shaped by cultural contexts, people from diverse backgrounds are not only informants but also subjects who can offer insights in analyzing their situations (Oliver, Botton, Soler, & Merrill, 2011).

Hence, in order to facilitate successful connection between parents and teachers, it is essential to understand the specific beliefs and experiences that these adults undergo as they decide what meets the needs of their DLL children's learning.

The Role of Parent Beliefs in DLL Children's Development

Parents' ethnotheories. In the context of home-school connection, scholarship (e.g. Hill, 2010; Mapp & Hong, 2010; Super & Harkness, 1986; Weisner, 2002b) has shown the way one's values, beliefs, and practices are closely related to the individual's understanding of children's development and education. These beliefs and values, highlighted as "ethnotheories" within the Developmental Niche framework developed by Sara Harkness and Charles Super (1996, 2005), are culturally shared parental conceptions about children's development and care, the family, and their roles as parents. Ethnotheories refer to the culturally constructed theories that are embedded in parents' daily life experiences, which help them to define their children's developmental stage and their arrangement of children's settings for learning (Harkness & Super, 1986, 1992). Departing from the decontextualized, universal framework on understanding child development, Developmental Niche highlights the combined influences from one's physical and social settings, the customs of childcare, and the psychology of caretakers in describing and explaining child development (Harkness & Super, 1986). The psychology of caretakers, in particular, is informed by examining one's ethnotheories that are embedded in daily lives.

Parents' ethnotheories influence the way children's daily life settings are shaped and facilitated, as well as the way meanings are given to the experience and customs of care (Harkness, Super, Sutherland, Blom, Moscardino, Maviridis, & Axia, 2007). It is evident that parents' beliefs, expectations, and their sense of agency exert influences on the parents' own involvement and feelings of self-efficacy in their children's education (Hoover-Dempsey, Walker, & Sandler, 2005). A study on parents' instruction to toddlers showed that ethnic differences did manifest in parents' teaching strategies (Tamis-LeMonda, Sze, Ng, Kahana-Kalman, & Yoshikawa, 2013). Parents pass their beliefs and values to children as a way to ensure the young's survival in society (Harrison, Wilson, Pine, Chan, & Buriel, 1990). Hence,

parents' ethnotheories are valuable, cultural-specific perspectives that have the potential to offer the best information about their family culture, methods in raising children, and their children's behavior (Zayas & Rojas-Flores, 2002).

Ethnotheories as illustrating unique strengths within a family. Acknowledging the fact that the youngest generation of our population will be increasingly diverse, it is necessary to understand their parents' ethnotheories as they shape the way children survive in the society. The urgency of focusing on the DLL population is exemplified by the fact that in 2011, almost 50% of the children under age five were from minority groups (U.S. Census, 2012a). The home languages and practices of these DLL children, however, are often neglected or rejected as a valuable foundation to start formal learning (Hill, 2008). Immigrant parents who are new to this country may not necessarily share the language or culture of the DLL's teachers. These parents of DLL children may have little experience to guide efforts to support their children's school learning; their support also may not manifest in the same fashion as that displayed by the non-immigrant parents. Thus, these DLL children's families' specific worldviews and practices can make them seen as to be "uninvolved," "hard to reach," or "don't care" (Doucet, 2009; Mapp & Hong, 2010).

Such home-school miscommunication and disconnection can have direct effects on DLL children's school success, as Hauser-Cram, Sirin, and Stipek (2003) found that teacher ratings of kindergarteners' academic abilities were related to teachers' perceptions of congruence between their own educational values and those of parents from different cultural backgrounds. Leading organizations in the field of early childhood education, such as the National Association for Education of Young Children (NAEYC), had made public statements urging programs and educators to capitalize on and respect the diversity among families and children (2009). There is

a need to increase research that explores how parents' beliefs relate to the ways they think about their children's development, as well as how their beliefs are related to their organization of children's every day environments (Parmar, Harkness, & Super, 2004).

The Role of Teachers' Beliefs in DLL Children's Development

Teachers' ethnotheories. While the education field reminds educators to leverage families' funds of knowledge in shaping children's learning, teachers' own worldviews and implicit beliefs are also relevant in shaping their instructions. Teachers' perceptions about education are shaped by their own implicit theories, which are influenced by the child development theories from their professional training, as well as from their own values and traditions (Spodek, 1988). For instance, teachers' instruction styles can vary according to their satisfaction in teaching and their wider life challenges (Bullough Jr, Hall-Kenyon, & MacKay, 2012), their array of professional, practical, and personal knowledge (Adair et al., 2012; Friesen & Butera, 2012), and their own learning experiences and cultural backgrounds as they teach children from their own or different cultural groups (Delpit, 2006; Kern, Roehrig, & Wattam, 2012).

Within the teaching population, there are teachers who are themselves of multicultural backgrounds. These multicultural teachers may have unique experiences as multilingual learners and are therefore conscious of a shared identity with the DLL children in the classrooms. In turn, they are able to intuitively recognize the unique needs of these children (Flores, 2001). These teachers may rely on instincts in their instructions, such as trial and error and personal awareness (Schwartz, Mor-Sommerfeld, & Leikin, 2010). Adair, Tobin, and Arzubigi (2012) regarded such *instincts* and *intuitions* in teaching as valuable expertise that had positive effects on

immigrant children's learning. The present study refers to both parents' and teachers' culturally constructed, implicit theories rooted from their life experiences as "ethnotheories."

Researchers' Role in Uncovering Parents' and Teachers' Ethnotheories

Parents and teachers can both be resourceful, well-educated experts, but that requires researchers to listen with the intent to change and reflect on their existing, valued ideas from their professions (Adair, Tobin, & Arzubiaga, 2012). It is essential that educators, researchers, and any people involved in the DLLs' lives learn the best way to teach by seeking the advice of DLLs' parents and teachers who share a similar culture with the DLL students (Delpit, 2006).

Challenges in researching individual's beliefs and practices. In reality, however, parents' and teachers' ethnotheories about DLL children's education are embedded in daily practices, to the extent that they are not easy to discern. Daily actions are done in an automatic fashion and are not derived from explicit theories (Bruner, 1996). The cultural models that shape parents' support of children's daily learning are familiar and mundane, which in turn, makes it hard for one to notice (Gallimore & Lopez, 2002). It is worth mentioning the need to give voice to these parents and teachers, in light of the increasing societal attention paid to the subtle and pervasive forms of modern racism. The act of excluding, negating, and nullifying the lived experiences and psychological thoughts of ethnically diverse individuals is a form of microaggression (Sue, Capodilupo, Torino, Bucceri, Holder, Nadal, & Esquilin, 2007, p. 274). Hence, there is a need not only to include parents' voices in the literature, but also to provide actual practices and examples from their lived experiences in what they do and say in the real world scenario (Doucet, 2008).

Similar to the parents' seemingly invisible daily practices in shaping children's learning, teachers' expertise, own personal theories, and practical knowledge are often absent from teacher

education programs (Delpit, 2006; Korthagen & Kessels, 1999). There seems to be limited opportunities for teachers to share their success stories, as well as to learn from teachers “who are quietly going about the job of producing excellence in educating poor and culturally diverse students” (Delpit, 2006, p. 178). Just like the risk of engaging in microaggression by nullifying parents’ lived experiences, the act of keeping teachers’ narratives and reflections from their fieldwork experiences would also be a type of injustice (Gupta, 2006). There is a need to include more accounts of minority teachers’ expertise in instructing children of immigrants so that non-minority teachers can get a sense of other voices and the other realities (Adair et al., 2012; Delpit, 2006). Immigrant teachers also have “fresh perspectives” that they can contribute to schools (Adair et al., 2012, p.28). The failure to give voice to immigrant teachers’ experiences and strategies may risk excluding a valuable knowledge base from the education curricula (Delpit, 2006).

Strategies in Accessing Parents’ and Teachers’ Implicit Beliefs

In order to access parents’ and teachers’ beliefs that shape their behaviors and decisions in supporting their DLL children’s learning, research methods must be attuned to the implicit understandings that participants undergo on a daily basis. Researchers can gain access to the embedded beliefs through the narrative approach on a purposefully selected sample that matches with the scope of the research study.

Accessing daily routines through interviews. Routines are made up of cultural activities and lived experiences that make them meaningful units of analysis (Savage & Gauvain, 1998; Weisner, 2002b). As one describes his or her own daily routines, the narrative is both a mode of thought and an expression of his or her culture’s worldview (Bruner, 1996). Researchers or educators can get a glimpse of interviewees’ own agency and the ecocultural influences that

shape interviewees' beliefs and actions (Gallimore & Lopez, 2002). The study of one's narratives about routines, therefore, can allow researchers to not only access examples of the actual things that are done or said in real life, but also gain insight into the participant's worldview and meaning-making processes.

In particular, in the context of studying caregivers' narratives of routines, semi-structured interviews such as Weisner's (2002b) Ecocultural Family Interview (EFI) access parents' values and beliefs by probing their description of daily routines. This interview structure is based on the ecocultural perspective that "actors use connected, schematized, shared knowledge of this everyday cultural world to adapt and make complex decisions to survive in their local community" (Weisner, 2002b, p.277). Asking parents to describe their daily events with children not only helps researchers facilitate the interview according to their focus under study, but also enables parents to recall information in a way that aligns with their ecocultural contexts, and share ideas that may not be accessible in other forms of interviews (Weisner, 2002b). The study on caregivers' narratives on routines has helped researchers access complex and context-dependent beliefs about child care, whether across (e.g. Parmar, Harkness, & Super, 2004) or within (e.g. Tuli, 2012) cultures.

The use of routine as a basis for analysis can also provide insights into how best to support children's school readiness. Wildenger, McIntyre, Fiese, and Eckert (2008) studied snapshots of family routines of children who were transitioning to kindergarten. They found that family routines might help to explain the reason some children were more adequately prepared to meet the demands of the new kindergarten environment than others (Wildenger et al., 2008). In another study, Fuligni, Howes, Huang, Hong, and Lara-Cinisomo (2012) studied the relationship between Head Start classroom's activity settings and daily routines for 3- and 4-year-olds who

are from low-income families. The authors found that the two patterns of classroom routines found in the study (“high-free-choice” and “structure-based”) help to differentiate the opportunities those children have to engage in various activities and receive different forms of instruction (Fulgini et al., 2012). The studies demonstrated the way caregivers’ narratives of routine in home and school settings can help to increase our understanding of children’s learning.

Moreover, the flexible nature of semi-structured interviews can also help researchers avoid establishing a one-way, hierarchical relationship with the participants (Adair & Tobin, 2008). Educators, researchers, and practitioners, however, tend to justify, explain, or correct, rather than adopt a non-condescending and non-marginalized attitude towards parents and teachers who may not share the same background or status (Adair & Tobin, 2008; De Gaetano, 2007). A reciprocal dialogue in research, therefore, is essential in checking and balancing the power dynamics between researcher and participants (Fantuzzo, McWayne, & Childs, 2006). Therefore, semi-structured interviews that are shaped by ecocultural approaches can respect the interviewee as the “experiential expert” (Smith & Osborn, 2003, p. 59).

Purposive sampling in gaining target population’s perspectives. Purposive sampling is an intentional recruitment of a small number of participants so as to provide insights on their specific lived experiences that inform the topic under study. Samples are recruited not from random or representative sampling, but are from populations with closely defined profiles (Smith & Osborn, 2003). The intentional selection of participants keeps the sample more or less homogenous, so that the themes that surface from analysis can more meaningfully and significantly answer the research question (Smith, Flowers, & Larkin, 2009). When exploring the lives of DLL children’s caregivers, considering their population-specific ecological and cultural contexts helps to direct attention away from a universal-child perspective on child development

(Weisner, 2002a), to a focus on the specific influences and processes that characterize an individual's understanding.

As shown from existing research with immigrants and underprivileged or minority participants (e.g. on immigrant women's perception of health care service: Dias, Gama, & Rocha, 2010; on ethnic differences in beliefs in health and diabetes: Hjelm, Bard, Nyberg, & Apelqvist, 2005), purposive sampling has often been used as a way to access participants' beliefs and perspectives (Smith et al., 2009). Hence, in this study, recruiting homogenous groups of parents and teachers from communities that had a large proportion of DLL children served as the entry point to gain insights into their ethnotheories and expertise.

Within the scope of the larger RISE project, this study acknowledged the significance and challenges of understanding parents' ethnotheories and teachers' intuitions. Specifically, the study attended to first-person narratives from participants to explain the way their worldviews and ethnotheories shaped their actions, explored the properties of their respective ecocultural contexts, and identified adaptive strategies from daily routines that participants used in facilitating preschool DLL children's learning.

Method

Data Source

Participants included in this study involved parents and teachers from the two preschool programs that participated in the larger research project, RISE. Interviews were mostly conducted prior to the implementation of RISE, with the purpose of gaining foundational information on DLL children's early science understanding, family routines, and activities specific to the two programs. In this study, the interviews are mentioned as "pilot interviews."

The two participating preschools were Head Start programs in Boston, Massachusetts. They served a high proportion of DLL children and immigrant families. In particular, these programs served the two fastest growing pan-ethnic immigrant populations in the United States – Latino and Asian immigrants (Cabrera & Ethnic and Racial Issues Committee, 2013; U.S. Census, 2011b). Since these two programs, Program A and Program B (alias), had expressed interest in developing STE curricula, they were invited to participate in RISE.

Program A was located in East Boston and its predominant languages and cultures were Spanish/Central and South American, with about 73% of families identified as Latino. A large proportion (40%) of teachers were Latino and bilingual, with about 40% speaking Spanish and English and 12% speaking other languages in addition to English. The majority (68%) of the teachers had more than five years of teaching experience. The demographics of Program A participants matched with the overall demographics of East Boston at the time of data collection: East Boston's Latino population was about 52.9%, which was the highest percentage among all 26 areas in Boston (Lima, Melnik, & Borella, 2014). According to Boston Redevelopment Authority (2014b), East Boston had the highest percentage of foreign-born population, with over half of the population being immigrants from Colombia and El Salvador. East Boston was in the vicinity of Logan International Airport (Boston Redevelopment Authority, 2014b).

Program B was located near Chinatown and downtown Boston. The predominant culture and language was Cantonese. About 98% of the children were Chinese American. Almost all Lead and Assistant Teachers were Chinese American, fully Chinese/English bilingual and had over 10 years of experience teaching in the program. The demographics of Program B participants matched with the overall demographics of Chinatown at the time of data collection: Chinatown's Asian population was about 76%, which was the highest percentage among all 26

areas in Boston (Lima et al., 2014). While 50% of the Chinatown area was occupied by family residence, the area was also a popular sightseeing destination with an array of shops, restaurants, and historic buildings (Boston Redevelopment Authority, 2014a).

Recruitment

The recruitment of interview participants involved posting flyers in the two preschools (see Appendix A), contacting center directors for referral of potential participants, and holding information sessions. In the information sessions, RISE researchers introduced the goal of the interviews to parents and teachers. RISE researchers also prepared recruitment scripts for Family Service Workers at each program to share with parents during parent meetings (see Appendix B).

19 individuals were recruited and participated in the one-on-one interviews with RISE researchers. At least four individuals represented the parent or teacher group for each program. The intentional recruitment of individuals for the four identities (Program A parents, Program A teachers, Program B parents, Program B teachers) aligned with purposive sampling method, so as to allow emergent themes to meaningfully answer the research question (Smith & Osborn, 2003).

Participants

Prior to data analysis, one teacher interview from Program A was removed due to missing transcripts and audio recording files of the interview. Therefore, the present study analyzed a total of 18 interviews ($N=18$). For confidentiality purposes, parents and teachers would be identified by code names: Program A parents as AP, Program A teachers as AT, Program B parents as BP, and Program B teachers as BT.

Among the 18 participants, there were four Program A parents who all happened to be mothers. Two individuals emigrated from El Salvador, one from Honduras, and one from

Morocco. Two mothers self-identified as single parents. Program A parents had two to four children per household, with two parents reporting the way some of their children remained in their home town, and did not reside in the United States with them at the time of the interview. Three parents reported Spanish as their main home language, while one parent stated English as the home language.

There were five Program B parents, featuring four mothers and one father. They were all immigrants from China and reported Cantonese as the home language. One parent self-identified as a single parent. Program B parents had one to two children per household. Four parents reported working full-time or part-time, with one parent receiving government subsidy at the time of the interview.

For the teacher participants, there were four Program A teachers, and they participated in interviews in English. They were all Lead Teachers, with one individual teaching a full-day program and three teaching half-day programs. One teacher mentioned living on the same street as some of her children in the class.

As for Program B, there were five teacher participants. Four teachers participated in the interview in Cantonese, and one participated in English. There were three Lead Teachers and two Assistant Teachers. Four teachers belonged to full-day program, and one teacher belonged to a half-day program. Four teachers self-identified as Chinese immigrants with DLL children, and their years of residence ranged from 14 to 30 years. One teacher self-identified as native U.S. citizen.

Procedure

Interviews were semi-structured, with researchers asking participants pre-determined set of open-ended questions (see Appendix C for interview questions for parents, and Appendix D

for interview questions for teachers). The questions designed to access participants' daily routines with DLL children, and their understanding about how DLL children approached STE-related concepts. Interviews were conducted over the span of two calendar years, between May 2011 and May 2013. In early summer of 2011, RISE researchers conducted interviews with Program A teachers and Program B parents. In the spring of 2012, RISE researchers conducted interviews with Program A parents, and one teacher interview at Program B. In May 2013, the remaining teacher interviews at Program B were conducted. All interviews were conducted in interviewees' preferred languages by six multi-lingual graduate-level students who were fluent in English and Cantonese/ Mandarin/ Spanish. For instance, the author conducted interviews with four teachers from Program B in their native language, Cantonese.

With the participants' consent, all interviews were audio-recorded. RISE research assistants who were fluent in Spanish/ Cantonese/ Mandarin, and English transcribed the recordings verbatim and translated them into English. Both transcription and translation were then verified for accuracy by multilingual graduate students. In regards to confidentiality, all identifiers such as names and classroom numbers were replaced with code names or omitted. This study used the verified English translations of all interviews for analysis. Therefore, unless otherwise specified, "transcripts" in this report referred to the English translations of all interviews.

Data Analysis

Methodological Approach

The goal of analysis in this study was to access parents' and teachers' ethnotheories from the interviews so as to reveal their understanding of learning opportunities for DLL children. Hence, Interpretative Phenomenological Analysis (IPA; Smith et al., 2009) was chosen as the

method of analysis, as it respects participants as experts of their experiences, and regards their words as illustrating their implicit values, beliefs, and meaning-making processes (Smith & Osborn, 2003; Reid et al., 2005). IPA builds upon participants' input, hence, its bottom-up approach counteracts with the influence of researchers' own expectations or bias (Griffith, Totsika, Nash, Jones, & Hastings, 2012). Moreover, IPA has been used for small, selected samples of interview participants so as to enable in-depth analysis (Reid et al., 2005). The interpretative analysis approach has been typically used to research populations that are less known (Griffith et al, 2012), such as studying fathers' and daughters' experiences in parent-child relationship when the daughter had eating disorder (Hooper & Dallos, 2012); and the coping experience of parents with children who had eye cancer (Hamama-Raz, Rot, & Buchbinder, 2012).

The procedures in implementing IPA typically involve first-cycle coding and pattern analysis, but depending on the nature of an individual study, the steps are flexible and can be adapted (Smith & Osborn, 2003). Note that the present study adopted a secondary data analysis: in which data collection occurred prior to the research question and plan of analysis. Hence, it was necessary to adjust the steps in conducting IPA. In order to ensure the adherence to IPA principles, the author adjusted the procedures along IPA's three theoretical foundations as discussed by Smith, Flowers, and Larkin (2009): phenomenology, hermeneutics, and idiography. Phenomenology seeks to understand an individual's personal relationship with his or her context, and focuses on the individual's attempts in making meanings out of activities. Hermeneutics refers to researchers' interpretative process in understanding the participants, such as undertaking the hermeneutic circle. The hermeneutic circle highlights the way in order to understand a given part, one needs to understand the whole; and in order to understand the whole, one needs to look

into the parts. Idiography refers to the thorough examination of unique facts or events in each single case, so as to minimize one's habitual tendency to make generalizations. In the present study, the author modified the IPA procedures for this study to meet the three foundations while conducting secondary data analysis.

In sum, the IPA method was a tool to enable the author to access participants' lived experiences, personal views, and meaning-making processes, while also taking their respective ecocultural contexts into account. IPA guided the author to understand the conceptual ideas of a phenomenon that were beyond the explicit narratives of the participants, and at the same time, highlighted the fact that the analysis was subjective as it was shaped by one analyst's interpretation.

Reading and Note Jotting

Data analysis began with reading and note jotting on all 18 transcripts. The author's notes included personal reactions, inferences on the participants' underlying meaning, and mental notes on areas for further investigation and cross-referencing, as recommended by Miles, Huberman, and Saldana (2014). The notes were revisited from time to time so as to direct the author's attention towards the underlying issues, highlight connections within and across interviews, and guide the constant redefinition of the coding manual (Miles et al., 2014). Such practice of reading and jotting, prior to and throughout the data analysis, was to counteract one's tendency to overly focus on topics that were appealing for research analysis (Smith et al., 2009).

First-cycle Coding

In general, an IPA study seeks to answer the question: "how do people in situation *y* understand process *x*?" The research question for analysis in this study, therefore, was: *How do DLL children's parents and teachers in Program A and Program B understand learning*

opportunities for their children? This study adopted IPA's first-cycle coding and pattern analysis.

The main goal of first-cycle coding was to organize and sort all interviews. The author adopted an inductive open-coding approach of identifying the smallest meaningful unit, namely a "chunk," that answered the focal research question (McWayne, Melzi, Schick, Kennedy, & Mundt, 2013). The selected chunk could be words, phrases, and sentences that included interviewees' "descriptions, assumptions, sound bites, acronyms, idiosyncratic figures of speech, emotional responses" (Smith et al., 2009, p.84). Using the qualitative analysis software, ATLAS.ti (version 7.1), each chunk was labeled with a descriptive "code" that highlighted the chunk's core idea (Saldana, 2013). In this study, a code represented two pieces of information. For instance, in the code "PB: safety concerns," "PB" indicated the *code family* of the chunk as related to Parent Beliefs, and "safety concerns" was a *description* of the chunk as related to comments on children's safety. The same codes were applied to ideas that recurred within and across interviews.

The main purpose that coding served in this study was to organize interview content from 18 individuals. Hence the list of codes should be able to accommodate recurring chunks. In order to develop such list of codes that could consolidate all interview data, the author selected at least two interviews from parents and teachers for each program ($n=9$). The intentional selection of half of the total number of interviews was to generate an initial list of codes that could capture the recurring ideas pertaining to this sample of 18 participants. Through creating and applying codes for the first 9 interviews, codes representing similar ideas or yielding low frequencies were mostly merged to other codes that had broader definitions. New codes were not created unless the chunk represented a unique story or perspective that no other codes or combination of codes

could capture. As an attempt to maintain the consistency and rigor of the coding process, the author defined each code with a description that explained the rule for inclusion, and an actual quotation from data if needed (Saldana, 2013). The author compiled a coding manual that was frequently updated as the coding process progressed (see Appendix E).

Once the list of codes was finalized, the author restarted first-cycle coding by coding all interviews only with the codes in the list. Upon the completion of organizing the data with first-cycle coding, the author sought to extract specific chunks of the pilot interviews that would offer insights pertaining to the research question. Since the pilot interviews were not conducted specifically for the purpose of the present study, the author selected chunks of interviews, referred to as “domains” in this study, which focused on some combination of codes that were most relevant to the study (see Appendix F). In contrast to code families, which were organized by dividing the existing list of codes into groups, for the purpose of contrasting teacher and parent beliefs from other chunks, domains were organized by purposefully selecting certain codes to create a scope that could offer insight into the research question. The selection of codes was based on their similarities, differences, frequencies, sequences, correspondences, or causations (Saldana, 2013). For instance, the codes “Activity: park” and “Activity: beach” shared the same code family “Activity.” However, they belonged to the domain “Outdoor activities in nature” as they both shared a similar property of being activities that occurred in outdoor settings. In other words, the domain served as a lens that directed the authors’ attention to the depth, rather than just the breadth, of participants’ inputs. Five domains were created for this study:

- “Educational outings”: Activities that involved visits to institutions that provided family-oriented, intentional learning experience for visitors. Examples included going to museums or zoos.
- “Indoor activities”: Activities that one performed indoors for particular purposes, such as gaining a skill or spending leisure time. Examples included reading, writing, or using the computer at home.
- “Home routines”: Activities that one performed on a daily basis at home, for the sake of maintaining order in the living environment and personal well-being. Most home routines adhered to a specific time of the day.
- “Outdoor commercial activities”: Activities that involved the consumption of goods and services, particularly for entertainment purposes, such as going shopping, taking public transportation for fun, and going to arcades like Chuck E Cheese.
- “Outdoor activities in nature”: Activities that one performed outdoors, with opportunities to have direct interactions with resources that were mostly organic and unchanging. Examples included going on local walks, and going to the park and/or beach.

Pattern Analysis

The goal of pattern analysis for the researcher was to engage in the interpretative process: which was to move away from participants' explicit claims and focus on their “overarching understanding of the matters that they are discussing” (Smith et al., 2009, p.88). By using the five domains and two code families related to beliefs (i.e., Parents Beliefs [PB] and Teachers Beliefs [TB]), data was organized into a manageable scope for pattern analysis. In this study, pattern analysis was conducted by extracting parents' and teachers' beliefs within the scope of a certain domain.

Quotation Reports: interpretation separated by roles, programs, and domains. First, the author sought to understand participants' quotations relevant to the research question. The author used the "Query Tool" function from ATLAS.ti to generate the lists of participant quotations that met the criteria of having the code family "Parent Beliefs (PB)" or "teacher beliefs (TB)" co-occurring with a specific domain. Quotation reports were generated by combining roles (parents/teachers), and by programs (Program A/ Program B). For instance, one report was generated by setting up the co-occurrence relationship between the code family "PB" and the domain "Outdoor activities in nature" within Program A. Then the Query Tool generated a report that listed Program A parents' belief utterances that were related to their use or experience in parks, beaches, and on local walks. The similar query would then be repeated for Program B parents, as well as teachers from both programs. Therefore, the domain "Outdoor activities in nature" was associated with four quotation reports: PB from Program A, PB from Program B, TB from Program A, and TB from Program B. See Appendix G for an example of Quotation Reports.

At the end of the process of generating Quotation Reports, there were a total of 20 reports. The goal was to go beyond their descriptive comments by taking their contextual information and interpreting their narratives at a conceptual level. Hence, in each report, the author analyzed each quotation by taking into consideration of participants' individual profile, and commented on the descriptive, linguistic, and conceptual aspects of each quotation (Smith et al., 2009). The author also commented on recurring themes, and noted any surprising or interesting contents as reference for later analysis.

Conceptual Memos: Interpretation separated by roles and by domain. Following the in-depth interpretative analysis on individual quotations, the author sought to assess patterns by

grouping Quotation Reports. In this study, the grouped Quotation Reports was referred to as “Conceptual Memos,” separated by parents or teachers. The reason to undergo conceptual analysis by separating parents and teachers was to increase sensitivity to parents’ and teachers’ respective views.

In this study, the typical procedure in generating a Conceptual Memo was as follows: first, the author’s interpretative comments for individual Quotation Reports were extracted to a separate document. Secondly, the author organized the order of the comments by how they belonged or related to each other. Thirdly, the consolidated comments were then sorted by roles and domains (see Appendix H for a sample Conceptual Memo). For instance, regarding the domain “Outdoor activities in nature” there were two Conceptual Memos: one Memo discussed views that parents from Program A *and* Program B had on “Outdoor activities in nature,” and one Memo discussed the views that teachers from Program A *and* Program B had on “Outdoor activities in nature.” Unlike the Quotation Reports, Conceptual Memos engaged in a higher-level interpretation that considered how the narratives across program might contrast the parents’ and teachers’ perspectives. Nevertheless, during the process of consolidating comments, any nuanced program differences would be noted and later discussed in the results section (e.g., the difference in teachers’ use of neighborhood artifacts in thematic learning between Program A and Program B). Even though each Conceptual Memo mainly focused on the shared ideas across programs, it also highlighted standalone cases or developing thoughts on the study as a whole that provided insight into the research question.

The generation of Conceptual Memos was monitored by the author’s qualitative coding mentor (thesis committee member Dr. Jayanthi Mistry) due to the potential influences from the author’s personal characteristics: the author had been involved in RISE for nearly two years, and

shared the first-generation immigrant background with 14 out of the 19 participants. Hence, the mentor provided scaffolding to the author in her use of analysis to better understand the core beliefs of the participants, such that the author could take her subjectivity in data analysis into account. The use of supervision was one of the ways to increase validity in qualitative analysis (Smith et al., 2009). The higher-level conceptual analysis in creating Conceptual Memos also helped to minimize the influence of the author's preconceived notions or assumptions (Smith & Osborn, 2003).

Upon the completion of 10 Conceptual Memos, the author noted the recurring ideas as emergent themes. For instance, in the domains "Outdoor activities in nature" and "Educational outings," parents addressed conditions that made them feel comfortable, and commented on their perceptions being seen by others in public. These points directed to the emergent theme, "parents' sense of comfort as one factor when deciding children's learning opportunities." The author verified the emerged themes by confirming with the actual participant quotations (see Appendix I). Since IPA acknowledges the subjective nature of researchers making the interpretation, creating pattern reports could then make transparent how one person analyzed the qualitative data. By revisiting participants' actual narratives, the author could check on inductive interpretations to ensure that the themes were grounded in participants' narratives.

Results

Parents' Understanding of Learning Opportunities

The Use of Media

Parents' discussion of children's media use suggested that they regarded tools that complemented children's exposure to home language and/or English language as learning opportunities. Without the explicit prompts from the interviewers, most parents offered

comments and details regarding their family's frequent use of computers, television, and smartphones. The use of media was mentioned by eight out of the nine total parent interviewees.

Television (TV) programs as a way to reinforce language learning. In particular, AP03 and AP01 mentioned watching TV programs as helping their children's language learning. AP03 let her daughter watch cartoons in English and Spanish and said "from there she learned her ABCs" and their home language. AP01 subscribed to the Arabic TV channel, and even though she found the channel expensive, she believed that her children would keep using the home language with the opportunity to watch programs in Arabic.

Similar to AP03 and AP01, all five Program B parents also used media to expose children to English and home languages. Program B parents encouraged children to watch programs by borrowing DVDs from the public library (BP01), watching a subscription of China Central Television (CCTV) (BP05), and by searching videos from the internet. In particular, internet use was a popular resource for parents BP01, BP02, BP03, and BP05 to access cartoons in English, such as Barney, Sesame Street, Dora, and Mickey Mouse through video websites like YouTube. Such websites not only enabled them to watch English-speaking cartoons, but also to provide children the opportunity to watch cartoons in Chinese that were not available via the TV channels or DVDs in the United States (e.g., 鎧甲勇士 ["Armor Hero"] mentioned by BP01, and 喜羊羊與灰太狼 ["Pleasant Goat and Big Big Wolf"] mentioned by BP03).

Evaluate the use of media according to developmental stages. In general, Program B parents acknowledged the merits of media use to support children's learning. They noted the way children's generation as highly capable in navigating the use of different electronics. BP01 expressed his amazement that his four-year-old son's ability to use the computer was up to par

with eight-year-olds'. Another parent, BP05, even described her son's ability to use touchscreen smartphones as surpassing her own:

“He learned things fast as long as I taught him once or twice. My friend hid the cat and mouse app icon but he could find it out. (...) he is smarter than I am. I don't know how to use an iPhone.” (BP05)

Similar to BP05, BP04 saw young children as attuned to the use of electronics. Therefore, she believed it was unnecessary to introduce media use to children at an early age: “We didn't teach her, because she is still young. We don't want to teach her when she is still little. You don't need to worry that children can't learn computers.”

Another Program B parent, BP03, shared an anecdote that illustrated developmental stages mattered as parents used media for children's learning opportunities. BP03 recalled a time when her preschool-age son had a surgery that involved minor incisions. As was recovering from the medical procedure, he watched a Chinese horror movie with his elder sister without any adult supervision. According to BP03, the movie was about a haunted school, and the plot seemed to frighten her son as he needed adult company in order to go to the bathroom. Since watching the movie, he “had some bad memories” and questioned BP03 about his slow-healing surgery wounds: “See, you took me there and I got cut, it still hurts. What if it's rotten and I'll die?” BP03 described that her child's seemingly innocent words as heart-breaking and made her feel guilty as a mother. After the incident, she told her elder daughter “to watch the movie by herself,” and asked her younger son not to watch movies anymore so that he would not be short-sighted or have more bad memories.

From the above episode, BP03 experienced her son's unsupervised media use as negative influences to his well-being and to their mother-son relationship. In order to counteract the

temptation of media use, BP03 asked her children to play outdoors. She asked the elders in the house, who frequently babysat the children, to take them to parks or bring them to ride bicycles so that they were not able to access the computer. The act of sending children outdoors as a proactive measure against children's excessive use of media was also mentioned in AP01's narrative. AP01, whose two children were keen on playing video games, valued active play more than electronic entertainment: "I think they need to be a little more active, like running and playing better than just sitting and playing; I don't like the video game. I don't want them to use it." Video games, to AP01, merely engaged children while they sat down, which did not meet her expectations on the level of physical activity that was most important for her children.

In sum, parents were supportive of the way children used media as an opportunity to learn languages, yet they showed disdain when children used the same media in ways that did not match with parents' belief in their children's developmental needs. These views suggested that rather than seeing computers, the internet, smartphones, or video games as exclusively negative for their children, parents in the study judged them by how the media could assist their individual values and ideas of what their children needed to learn.

The Use of Community Resources

Expertise in manipulating community resources. Parents from both programs revealed had a shared experience in visiting public institutions, such as museums, libraries, aquariums, and zoos. These parents were knowledgeable and strategic in gaining access to the institutions, as seen from the way they planned their visits around the dates and methods with reduced admission fee. AP01, a parent from Program A, described her recent and upcoming visits to museums:

“Two weeks ago I took them to the Children’s Museum because they have the half price... and I have the pass I will try to take them on the 23rd to the museum of science (...) and April 1st, the aquarium which is gonna be free.” (AP01)

While price reduction was an enticing motivation, parents also took advantage of the community resources other than financial incentives. One of the most common reasons to visit neighborhood institutions was to satisfy children’s interests. AP01’s younger son enjoyed the cartoon “Thomas,” which featured various types of animated locomotive trains. She would bring him to the Children’s Museum so that the child could enjoy playing at the train table in one of the exhibits. AP01 also intentionally ran errands in the downtown area, so that her children could enjoy taking the subway train for transportation.

Coincidentally, BP04 also intentionally took the subway train with her daughter as a way to meet the child’s interest in looking at different scenery. According to BP04, there were a number of yachts parked at the docks in the river that the subway train would pass by once it emerged from underground. Her daughter enjoyed looking at the boats and the scenery by the river, hence BP04 would satisfy her daughter’s interest by taking the trains often to see the yachts in summer.

While AP01 and BP04 displayed a similar agency in deciding what public resources would be valuable for their children, just like the way they determined what kinds of media use would be most beneficial to their children. The examples about reduced admissions and the use of subway trains, in fact, added another dimension in revealing parents’ understanding of learning opportunities: the examples illustrated the way accessibility to resources and meeting children’s interests were important factors that led parents to seek opportunities.

Considerations of the personal fit with the public resources. While parents appreciated the availability of community resources, their narratives highlighted some common

challenges, which included the consideration of the pressure to practice parenting in public, as well as the need to evaluate one's comfort level in using resources.

The pressure of parenting in public. Some parents, like AP01 and BP03, provided insights on how parents felt conscious about their presence in public. AP01 shared her sense of embarrassment when her child struggled to share toys with other visitors at the Children's Museum:

“He wants to play with just himself, he doesn't want any other kids take it [*sic*] so he was crying all the time. I had to leave that place because I feel so embarrassed to have him cry, because he keep taking train [*sic*] from other kids.” (AP01)

AP01 was keen on bringing her children to museums, aquariums, and libraries, as seen from her narratives in other parts of the interview. She was knowledgeable in the methods to gain access to such institutions. The above anecdote, however, illustrated her lack of comfort in parenting in public might outweigh her desire to visit the institution. She felt self-conscious about her child's crying behavior, as seen from the way she said “I feel so embarrassed to have him cry.”

In fact, parents' uneasiness regarding their children crying in public was also evident in BP03's reasoning for *not* bringing her child to the library:

“Because people need to be quiet in the library. I, umm, his daddy said that he [the kid] had no patience, so we were afraid that he would make noise or cry out, and it would be bad to disturb others.” (BP03)

BP03 considered the expected behavior for one to be in the library was to be quiet so that others would not be disturbed. Since they saw their child as generally impatient and was likely to cry, they avoided bringing the child to libraries altogether. In both cases, parents saw themselves as responsible for their children's behavior in public. They seemed to prioritize creating the least

amount of disturbance to others over their use of the institution as a resource for children's learning.

Evaluating adults' comfort level in their supportive roles. In addition to the evaluation of how their children's temperament would fit in to a public setting, parents' reflection upon their preferences was also important as they arranged opportunities for their children to socialize with peers. As they discussed the opportunities for their children to socialize, AP04 and AP01 shared their reluctance about connecting with others in their communities.

AP04's primary concern about her children's play was safety, which was seen from her recurring narratives on the need to supervise her children. She first mentioned her reasoning in choosing enclosed play areas:

"I never let them go out on the street, only to the porch where I can sit and supervise them. Because they are very little still and there could be some kind of accident, with a car, or a person, you know what I mean, so I always only let them go where there is no danger. So, if everything is enclosed, there's no problem." (AP04)

Later in the interview she discussed her hesitance to let her children play with the tenants' children upstairs:

"From my point of view, it's not good to let them go out alone. (...) I don't feel confident letting my children go upstairs because it's not safe. I like to always be watching them, in case one of them gets hurt or anything." (AP04)

AP04 must first feel "confident" before allowing her children to experience outdoor play or interaction with peers. She said her children's main playmates were their uncles (i.e., AP04's two brothers) and children they met in the parks, mostly because she was "not very social" and did not go out often, even though she enjoyed having friendships. These two comments illustrated

the way AP04's definition of safety must be met before she would enable her children to enjoy the opportunity to socialize.

Similarly, another parent AP01 revealed her thought process when arranging children's social interactions. She was reluctant to build friendship with other parents based on the sharing of personal information:

“It's just sometimes you have to talk about your personal life and ask question about your personal life and you don't wanna get through your business and... keep it private that's why I will just keep, stay, sometimes you just want to stay away other than be uncomfortable and talk about your personal life in front of other people.” (AP01)

AP01 perceived the sharing of one's personal lives as a way to connect and sustain socializing opportunities for children. According to their narratives, both AP01 and AP04 were single parents; hence they might prioritize their own privacy when interacting with others. However, the scope of the interviews could not provide enough information to make a judgment on whether these two parents' preferences in arranging social play for their children were based on their marital statuses.

In addition to the consideration on comfort level as a prerequisite in determining children's learning opportunities, a Program B parent's comfort suggested the concerns on language barriers. BP03 mentioned her hesitance to attend activities at museums with her children because she did not feel confident about speaking English: “I would like to join in these activities. But (...) I'm not very good at English, not very good. When taking some activities here, I can't speak!” BP03 perceived her participation as essential for her child's experience at the museums. Her sense of doubt in her English ability, however, prevented her from fully supporting her child's participation in activities.

In sum, parents' discussion about their own preferences illustrated their decisions on learning opportunities as not only influenced by how children could benefit, but also how parents themselves could fit into the picture and be comfortable to support their children's learning.

Program-specific Value on Learning for Knowledge and Character Building

Program B parents' narratives about their home routines revealed shared value regarding their children's writing development. Their descriptions often included details regarding the actual practices and references to children's attitudes towards learning.

Writing practices at home. The parents often mentioned their active participation in children's writing practices at home. They provided materials such as exercise books (e.g., BP01 and BP04), or collected blank flyers for scribbling (e.g., BP04). Some parents, like BP04 and BP05, took time to instruct their children's practices in writing English alphabets. BP05 took the teacher's suggestion and customized the writing practice at home: "At home I took a piece of paper and wrote ABC, asking him to copy (...) Also I drew something for him to copy, like the tree, tree, and let him color it." Similar to BP05's initiatives, BP04 would take advantage of her days-off from work and taught her daughter at home. Even though her daughter's teacher said that the four-year-old child was still young to learn how to write, BP04 was determined in the way her daughter "must learn how to write her name." She improvised her own method by writing the 26 English letters on a piece of paper and guided her child closely.

BP04 had clear expectations on the writing product and the process. In regards to the definition of "nice" writing, she corrected her daughter's perception of "nice" as writing in small sizes, and emphasized the need to write clearly. Hence, she improvised her teaching method as a way to guide her child in writing clearly: "Because she was a little child, she wrote everywhere. (...) I said that was not good, so I helped her with drawing lines for her." She used a ruler to

draw lines so as to provide scaffolding for the child to write clearly. Her direct interventions in writing practices at home were also seen in her comment on the process:

“If she didn’t write this one well, I erased it and asked her to write it again. Maybe her teacher let her write whatever she does, but I didn’t. I said ‘This one is not good. Erase it and write it again.’” (BP04)

BP04 considered herself as having a higher expectation of her daughter’s writing than the teachers. The way she highlighted the need to write and rewrite clearly suggested that in addition to writing well, BP04 also valued the process of repetitive practices as a way to improve one’s learning. Parents from Program B, like BP04, demonstrated their expectations on their children’s education through the way they guided their children’s writing practices at home.

Writing practices as strengthening one’s persistence in learning. Indeed, most Program B parents would make references to their children’s personal characteristics as they mentioned their children’s learning practices. For instance, BP02 and BP03 described their children as “lazy” when they mentioned their lack of motivation to study or go to school. BP03 also criticized her child as “not persistent” and having “no patience” when he was tired from “writing for a little while.” Similarly, BP04 said her daughter was “cunning” in rushing the writing practices as a way to be freed from the daily writing assignment so as to participate in other activities. These parents’ uses of descriptions with negative connotations suggested their expectations on children developing certain attitudes with regards to learning.

Within the scope of this study, Program B parents’ narratives highlighted one’s persistence as one of the valued attitudes in learning. BP01 stated explicitly that “a person needs to spend a lot of time to really get Chinese [words].” BP05 implemented a reward system in order to sustain her son’s attention span in writing practices:

“I wrote ABC with him. If he finished writing all of them once, I would give him his favorite snack, or let him watch TV. It was like a contract.” (BP05)

“After he has been writing the letters for fifteen minutes or half an hour, I would give him a sticker, or allow him to watch TV for a short while, or give him some snacks.” (BP05)

BP05 rewarded her son only if he could display persistence in writing (i.e., “writing all of them once” or writing for “fifteen minutes or half an hour”). The emphasis on investing time to learn explained why several parents criticized their children as being lazy, non-persistent, impatient, or cunning.

In sum, Program B parents revealed their values and beliefs in children’s learning opportunities through their narratives about writing practices at home. Program B parents valued repetitive practices as a way to refine a skill. Through the practice of writing, parents sought to strengthen children’s persistence in learning.

Define Learning Opportunities from Reflecting upon Personal Experiences

Parents in this study were not only the caregivers of their children, but were also first-generation immigrants to the United States. Several parents illustrated the way they identified learning opportunities as through the constant contrasts within two dimensions: parenting experiences and childhood experiences. They made judgments on the types of abilities that their children would need to achieve, as well as the methods of supporting their learning based on their first-hand experiences in their home country and in the U.S. They also addressed how they expected their children to develop based on their perspectives of their own childhood and their children’s present conditions.

Three parents, BP01, BP04, and AP01 provided narratives that illustrated how the contrasts led to their beliefs about the skills their children needed to develop, and how they, as

parents, could help children in achieving such goals. The two contrasts that parents made in determining learning opportunities are discussed as follows.

Reflection upon parenting experiences, between home and host countries. BP01 and AP01 contrasted the resources they could provide to their children as a caregiver in their country of origin and in the United States. Through illustrating the supports available to them in the respective locations, both parents concluded by deciding which location they found more appealing as learning opportunities for their children. BP01 embraced the U.S. education values and resources as better opportunities for his child, whereas AP01 believed in equipping her children with skills that were valued back in her home country.

BP01's contrasts in the resources available in Guangzhou and Boston. A number of BP01's narratives were characterized by him comparing his experience of bringing his son around in his home town, Guangzhou, China, and in the United States. Although the interviewer did not ask for information on life in his home country, BP01 repeatedly gave his opinions on how he found the two countries offering different kinds of opportunities. As he described on the experience of going to a local beach, BP01 mentioned the condition of beaches in Guangzhou: "We can also let the kids play on the beach without stress and worries, which could not happen in China since it would be too crowded on the beach and you need to pay for the tickets." Immediately following this comment, BP01 described how the playground facilities in China were different than in the U.S.:

"While there was fewer children's playground like the kind in Boston in Guangzhou, we only had playgrounds in some communities, and they just had some recreation facilities like a trampoline, and you need to pay too. However in the U.S., anyone can play in the

playground anytime, and there are more options to choose like slides, swings, etc. I think there are less people in the U.S., Guangzhou is too crowded.” (BP01)

In this excerpt, BP01 aligned his experiences of going to playgrounds in Guangzhou and in Boston. He listed the pros and cons for each playground facility, and then concluded by showing his preference for Boston because of its accessibility, affordability, and the variety of choices.

In a similar fashion, BP01 described his visits to Boston Public Library and the local library in Guangzhou. He described the latter as located in a remote and inconvenient place, and had little resources available for children. His experience at the library in his home town made him appreciative of the accessibility and family-oriented nature of Boston Public Library. At a conceptual level, the recurring patterns in BP01's thought processes regarding what were favorable learning opportunities revealed that some parents wished to offer children with opportunities that were not possible back in their home country.

AP01's contrasts in the resources available in Morocco and Boston. Similar to BP01, AP01 commented on the resources available in both her home country, Morocco, and in the United States. She described the conditions that would best support her children by reflecting upon how outdoor activities manifested in both places:

“When I grew up in Morocco we, like the weather is nice, we can play outside is very sociable, everybody like go outside, they play with the kids and like, the neighbor can take care, like pay attention to you if something happen. We, more like, go outside like have some sun, here is so cold. It's so hard; it's so hard to take them outside. And here I live in like an apartment, I don't have like a porch, I don't have anything. I don't have a backyard or anything, no I don't.” (AP01)

In this excerpt, AP01 specifically mentioned the nice weather, the norm of socializing outdoors, and the sense of safety within the neighborhood. As she described outdoor play in the United States, however, she only mentioned unfavorable conditions: the cold weather, and no access to a private play areas like porches or backyards. She seemed to be frustrated by such environmental constraints for outdoor play in the U.S., as seen from the way she had two consecutive utterances of “it’s so hard” and four consecutive utterances of “I don’t.” Her commentary, therefore, suggested the way AP01 recognized the favorable conditions for her children through contrasting the experiences in the home and the host country.

Reflection upon childhood experiences, between parents’ and children’s. AP01’s comments regarding outdoor play also provided a glimpse of her childhood in Morocco. Her childhood informed her decisions on what would be opportunities for her children to learn. AP01 believed in learning from watching: she had her children learn how to be independent and provide self-care from watching their mother perform household duties. Such belief was based upon her own childhood experience in learning how to be independent:

“I start cooking like when I was 7 years old. I start cleaning the house and everything. You know, it’s different than here, than in America. Where in our country you need to cook, you need to clean, you need to do everything even when you go to school. (...) I was responsible, so I want my kids be responsible too. And they need to do a lot of things by themselves. Because that’s how I used to it.” (AP01)

In this excerpt, AP01 regarded the skill of being independent as a quality that was still applicable to her own children, even though they were living in the United States at present. She explicitly stated that if her children were in a situation where they could not afford to dine out, like her

brother who was studying abroad in Germany, she hoped they could still provide care to themselves with the skills they learned from her.

Similar to AP01's thought process, BP04 also contrasted her childhood experience with her daughter's present context, as a way to determine what valuable learning opportunities were. In response to her daughter's fascination in martial arts/ "kungfu," BP04 considered enrolling her child into classes that officially taught the art. She explained that it was not because she wanted to please the child, but for the bigger goal of supporting the child's ability to face challenges:

"I think [learning kungfu] can exercise her body and strengthen her will, so that she can bear hardships. Children nowadays have an easier life than when we were little, as they don't have to do many things to make a living. Children nowadays don't have much to do, just doing homework, eating and walking around. There is no chance for her to exercise her body and her will." (BP04)

In the excerpt, she contrasted her own childhood experiences and her perception of her daughter's present condition, as a way to illustrate the lack of opportunities for children to develop resilience. Hence her decision to arrange kungfu learning for her daughter was informed by contrasting childhood experiences from her home and the United States.

Manifestation of the thought process. The above illustrations of BP01, AP01, and BP04 revealed their thought processes in recognizing learning opportunities for their children. Their beliefs did shape their actual practices and had direct influences on their children's development in the United States. This section discussed the way these parents' thought processes were manifested in the way they shaped their children's learning opportunities.

BP01's thought process was to contrast his parenting experiences in Guangzhou and in Boston. He was appreciative of the resources and education values of the United States, which

suggested the reasons why in reality, BP01 was keen on giving “constructive suggestion[s]” to his son and avoiding judging whether his son did something right or wrong. His thought processes also provided nuances and justifications for him to embrace a different perspective on raising children:

“In China, parents raise children, and then children are also responsible to raise the parents. (...) but there is no such concept [in the US]. Here, [the parents' goals to the child are] to give him a healthy environment, to guide the thoughts, and to let him grow up healthy. [Parents] never expect the child what he will be in the future don't have expectations for the child in the future. As parents, we must, just guide the child enough so they can be independent, that's it! (...) I respect his passion, ah, and what he thinks about.” (BP01)

AP01's thought process was seen from the way she contrasted the availability of resources in Morocco and in the United States, as well as the way in which her own and her son's childhood experiences differed. She seemed to treasure her childhood experience back in Morocco, for this reason she was proactive in arranging learning opportunities that preserved the essence of home culture for her sons. She directed her children's participation in household duties such as cooking and vacuuming, and she enforced the rule of speaking only Arabic at home. She also invested in the relatively expensive Arabic TV channel to support her son's learning of the home language, and planned to have them study the formal Arabic dialect in language school. AP01's desire to replicate the qualities of the home culture that would benefit the children served as a motivation in her arrangement of the learning opportunities.

Finally, BP04's thought process involved a contrast in her own and her daughter's childhoods as a reference in determining learning opportunities. By aligning both childhood

experiences, she took note of the learning opportunities that were lacking in her daughter's generation, and then offered her own perspective on how to make up for the loss of such opportunities. BP04's response to improve her daughter's learning environment was characterized by her unconventional use of community resources. For instance, BP04 considered taking public transportations and going to places in the community as methods for immigrants to understand the U.S. society:

“We are not native people here, we are just new immigrants. So now if I have time, don't need to work, I'll take her to the subway, to go around, (...) To get to know more about here (...) Actually my daughter and I are both trying to accommodate to the new life here, in United States. There're a lot of things which I don't quite understand, so I always ask others. If there's someplace nice, I will take her to the place.” (BP04)

In this excerpt, BP04 saw the need for her family to learn about the host country. She listed proactive ways to create opportunities that could increase their understanding of the U.S. society such as going to places and asking people questions.

The way BP04's thought processes were reflected in her childcare practices was also exemplified in her arrangements for social skill and literacy learning opportunities. The first example was about BP04's regular visits to the local church. BP04 would let her daughter participate in the church's child-oriented activities, even though the mother claimed that she had no religious beliefs:

“A lot of people go to the church here, but it's just for adults, kids can't understand, so there's a place just for kids. But I don't go to church, I don't listen to that. I know there are some activities in the church so I take her, to play with other kids, it's free, you know.” (BP04)

The church's "place just for kids" seemed to be a free-of-charge childcare service, which was primarily provided for families who attended that church. However, to BP04, the service provided free opportunities for her child to socialize with peers. Hence the church was not seen merely as a religious venue, but also as an accessible resource that her daughter could benefit.

The second example was related to the way she visited grocery stores with her daughter. BP04 and her daughter would frequently visit supermarkets like Star Market, which was large in scale and had "a lot of things to see" (BP04). Prior to purchasing products, BP04 and her daughter usually took time to browse the array of printed materials like cards and books: "Since she can't read, sometimes I would look at the cards with her. Also we read some books, for there are books in the supermarkets. After she reads the books we would do some shopping" (BP04). BP04 described her daughter as being keen on looking at greeting cards in the supermarket, particularly those that played music when one opened them. BP04 saw her child's interests, in conjunction with the array of cards and books that were available, as opportunities for literacy activities. Therefore, in addition to grocery shopping, she read cards and books with her daughter in the supermarket. These two examples illustrated the way BP04 took advantage of the convenience of community resources to support her arrangement of learning opportunities for her daughter.

BP04's own interpretations of using community resources aligned with her thought process. In the thought processes, she saw herself as providing learning opportunities that might not be readily available in her daughter's generation; in her actual practices of using church and supermarkets, BP04 provided her daughter with learning experiences through her purposive manipulation of the community resources.

In sum, these three parents featured in this section provided insights on the process and dimensions as DLL children's parents identified and implemented learning opportunities. These parents had unique perspectives on living in two or more settings, which enabled them to reflect upon their own childhood experiences and their parenting experiences in both their home country and in the U.S. Their reflections served as important sources of information, as seen from the way their childcare practices were highly associated with their thought processes.

Teachers' Understanding of Learning Opportunities

Teachers in this study generally perceived children as curious and attentive to their environments. BT02 would describe her children as talkative like "chirping birds" and enjoyed talking about their lives: "The children are very naïve. Their living environment is about themselves, right. Then what else do they talk about? (...) they are very straightforward."

Of the array of comments that children made, teachers particularly discussed the ones that were related to the five senses. A teacher from Program B, BT03, said children would imitate the sounds made by animals they often encountered in the street, such as dogs and seagulls. A teacher from Program A, AT04, described the way children talked about the presence of horses as they smelled the air near a lawn during a local walk. Another Program A teacher, AT05, highlighted children's tendency to comment on things they saw:

"So when we go out, and then they start talking about leaves, they start talking about flowers, and it's just whatever is visual – more visual for them – that's what they start talking about." (AT05).

AT05's narrative illustrated the way children noticed and responded to visual cues. Among the five senses, children seemed to comment the most on things they could observe with their eyes.

Learning as Manifested in Structured Weekly Themes

As children shared their keen visual observations from their neighborhoods, teachers assessed their comments to see if children could recall the core ideas they learned from classroom themes. The following excerpt showed how a Program B teacher, BT03, perceived a previous group discussion on birds as enriching children's conversation during a local walk:

“They say they see some birds flying. (...) since we talk about birds early on, those birds, which ones are seagulls, pigeons, they see things like that then they tell you (...) As we talk along those themes, those that we usually talk about, the theme teaches them where can bird nest be built, then they willingly [say], ‘sometimes at the house, at the tree’ like that... They learn more as they talk.” (BT03)

BT03 considered the classroom theme on birds as *teaching* the children, hence enabling them to discuss in more depth about birds' properties. BT03's excerpt provided insights on the importance of using themes to drive the momentum in preschool children's learning. Indeed, other teachers like AT04 and BT02 also shared the view of using themes as a “study topic[s]” which was, in the span of about one week, teachers would “focus on such issue then the children will follow and talk about it” (BT02). Therefore, to teachers, themes functioned as a gravitating force that united all daily classroom activities and verbal communications to a single topic.

Thematic learning in group and individual settings. Teachers' narratives revealed that themes were used consistently throughout the day, whether in group or individual settings. Teachers' use of themes was most noticeable during circle time—a daily, approximately 15 minute gathering with all adults and children in the classroom, where the Lead Teacher introduced a specific topic of interest for the week. This was illustrated by AT05's narrative:

“For instance, like ‘springtime,’ and we learned about life cycle of a butterfly or a caterpillar. So we order caterpillars and then we observe the changes in the life cycle of the caterpillar. We also read books that go along with the theme.” (AT05)

The use of theme was also evident in small group or independent activities, as seen in the way teachers purposefully arranged materials related to the theme for children to explore. For instance, most Program B classrooms had the routine for children to read books by themselves during the transition from breakfast to circle time. Teachers selected and changed books according to the weekly theme: “when we talk about animals, we find books about animals, and read with them” (BT01); “They read books and we just prepare for the morning activities which are centered on the theme for that week” (BT05). When children engaged in small group activities, teachers selected multiple objects so as to extend children’s exposure to the theme: “I have games that I’ve made, games that I’ve purchased, that go along with the theme” (AT01); “Just like this week we are talking about farm animal, so our small group activity... we have some stencils, you can draw what you know about farm animals” (BT03). As a whole, it was evident that teachers from both programs arranged thematic learning in both group and individual levels.

Thematic learning through verbal scaffolding. In addition to the selection of materials related to the theme, teachers also directed children’s learning through asking guided questions. For instance, BT05 asked open-ended questions in order to “get them to think beyond (...) what they see.” The use of verbal scaffolding was associated with teachers’ narratives about their classroom routines and local walk routines. During circle time, teachers asked questions so as to gradually direct children to ponder on the theme. BT03 first let children share freely about their knowledge related to the theme. Then she began teaching the theme with open-ended questions,

and letting children ask questions or share their opinions. Another teacher, BT01, specifically described the types of questions that teachers asked were based on a teaching practice called “know, want to know, learned (KWL)” questions. In the context of learning about zoo animals, the KWL questions would manifest as the following three questions: “what do you know about the topic,” “what do you want to learn about the zoo animal,” and “review what the children have learned” (BT01). With the help of the KWL questions, children could follow teachers’ words, as well as the “train of thought” (BT02). Last but not least, towards the end of the circle time children were asked to respond to teachers’ questions before they transition to the free-play time: “once they give us the answer, then they’re ready to, you know, play” (AT05).

In regards to outdoor walks, teachers used prompts to prime children in what to observe as they went to walks in groups:

“Before we go out, if we have talked about... talk about this theme, then we will tell them (...) ‘We are going out, then you will observe according to the questions, then tell us about it later’.” (BT04)

“So, we go outside and then we let them, you know, listen, you know, different kinds of sounds outside. (...) So it’s all different open-ended questions, and then we make a chart and see how many police cars did you see.” (AT05)

Both teachers provided verbal scaffolding before, during, and after the walks. They incorporated children’s observations from local walks during group discussion. These examples illustrated the way teachers regarded learning occurred when children’s observations were deepened with intentional and focused instructions. Teachers valued their children’s ability to make connections between what they saw in their daily lives, and what they learned from classroom themes. Hence teachers took advantage of children’s natural ability to enrich what they already know.

Program variations in thematic learning. Although teachers in this study shared the notion of deepening children's understanding of their daily experience, there was a difference in the aspects of learning that each program emphasized. As teachers described the way they incorporated elements of the neighborhood in their classroom instruction, Program A teachers often mentioned collecting and bringing back materials to the classroom for further explorations. For instance, AT01 did seasonal discovery boxes that featured items collected from outdoors, such as seed pods, sticks, branches, rocks, and worms; AT04 collected pinecones and leaves for arts and crafts projects, and obtained a log for a nails and hammer activity. The teachers encouraged children to engage in hands-on explorations with the materials. AT01 said she dried up the big seed pods and broke them apart so as to explain to children about the cycle of plant growth: "they could see what's inside it, and we compared it to a bean, and compared it another seed. And then I explained the process." Program A teachers like AT01 created learning moments by first encouraging children to explore actual objects, then followed by the teachers' explanation of the conceptual ideas of the theme.

Even though Program B teachers also brought neighborhood objects (like snow) for children to explore in the classroom, they were hesitant in encouraging children to touch or collect neighborhood artifacts. For instance, BT03 acknowledged the way her children were able to recall the previous theme on insects as they encountered ants during local walks. However, she reminded the children not to touch them, as they were "very dirty" and "have germs." BT03's example might suggest that some Program B teachers had a different perspective on the use of objects from the neighborhood.

Instead of gathering objects from outdoors, Program B teachers engaged children in conversations as they went on local walks. BT04 described the routine after neighborhood walks

was to ask children about the things they noticed: “When you return [to classroom], ‘What did you see outside just now?’ (...) they will tell you what they saw just now.” BT01 used children’s observations to make a case on why they needed to study hard:

“when they see those homeless people, they know that, ‘this person doesn’t have a house to live in, so this person has to sleep in the streets.’ Then we say, ‘Yes, so you need to study hard, and be a good person, don’t be like that.’ So we need to explain to them why they sleep over there, and don’t have food, like that.” (BT01)

BT01’s response suggested a causal relationship between what one did at present and the happenings in the future. BT03 and BT01 emphasized on children’s cognitive ability to think abstractly and hypothetically.

In general, Program B teachers delivered themes in ways that required children’s cognitive abilities. These abilities included noting their observations in mind, retaining such observations until later, recalling their observations and adding comments during discussion time, and making connections with information discussed from previous themes. The abstract thinking that was prioritized in Program B was seen from BT02’s description on children’s evolution in block play:

“It’s like they use blocks to build highways, and then they say it’s a building, and then they say that’s a parking lot. (...) When we talk about animals and zoo, then they say [the block structure] is a zoo. (...) These kinds of things they can imagine...use their imagination to make connections.” (BT02)

The account she provided reflected the way she saw children’s ability to think and imagine independently as a sign of learning and growth. In sum, Program B teachers’ emphasis on mental

processes suggested their view of thematic learning was to engage their DLL children at a conceptual level.

Challenges in Facilitating Thematic Learning

Time investment on themes for children and teachers. Teachers from both programs valued the use of themes to guide children thinking beyond their visual observations. The intentional selection of materials and verbal scaffolding were evident in both programs, acting as essential components in teaching. Despite the embedded nature of thematic learning in these classrooms, some teachers expressed concerns related to the limited time:

“We actually talk about one theme for one week, it’s very fast, very fast, sometimes we feel like, ‘Is it set in their minds yet?’ (...) So for the things to be learned or exposed, we also need to take into consideration of their interests and such. It seems that they don’t have much chance to have them sink-in into their minds.” (BT02)

BT02 noted the reality for teachers to also accommodate children’s interests in learning. Another teacher BT05 pointed out that such accommodation was necessary in establishing a trusting relationship with children:

“During circle conversation they want to talk about something else, I try to bring it back, but I do try to spend like a few minutes talking about what they want to talk about, I mean I guess it really is a part of like NAEYC’s guidelines about encouraging children and gaining their trust.” (BT05)

By allotting time for children to express their opinions and then guiding them back to the theme, it is inevitable that a portion of the 15-minute circle time was spent managing children’s attention. BT05’s narrative confirmed with BT02’s comment on the inadequate time for children to take full advantage of themes during circle time.

The issue of limited time for learning and instruction in the DLL classroom could directly impact children's learning opportunities. BT05 explicitly stated that she was not a fan of science, but she was eager to explore STE activities with her class. However, her preparation time was limited:

“I am the Lead Teacher in the classroom and I already do a bunch of things like in and out of the classroom and supporting the supervisor, so a lot of the planning. It's just a lot for me to put like an extra step into something...” (BT05)

BT05 had to negotiate her limited time for the multiple roles she played: such as planning a weekly curriculum as the lead teacher, promoting English as the only native English speaker, and providing assistance to the supervisor. In BT05's words, science-related themes then became an “extra step” which was “a lot” for her. Without the time to invest in designing the themes, it might be hard for busy teachers like BT05 to find motivation and feel prepared to foster learning opportunities for children.

Teachers' negotiation between regulations and beliefs. In addition to time constraints, teachers also described the way they had to consider institutional guidelines as they implemented learning opportunities for the children. For instance, teachers had to navigate multiple regulations as they brought children outdoors. Program B teachers said they could only use certain areas in the nearby park due to safety concerns and age limits. Program A teacher AT03 described the way safety evaluations were determined by the Central office, which issued guidelines for Head Start programs. Teachers were expected to observe the regulations in order to ensure children's safety. Another Program A teacher, AT01, described the need to obtain permission regardless of the property of the field trip: whether it be going to a nearby grocery store or to museums or zoos. Teachers also needed to be considerate in sharing the play space

with other classrooms in the school. BT03's example illustrated the complexity in arranging outdoor play for her class:

“For now we are limited to certain areas as we go to the park, there are a lot of places that we can't go. There is only a small playground at [name of community park] for us to go, but usually there are a lot of people when we are there. (...) you know there are 8 classes upstairs, and there are 6 classes with us downstairs, so there are not enough places to play.” (BT03)

Since all classes at Program B shared similar classroom routines and observed the same protocol, the outdoor walk timing and location for all classes overlapped. Therefore, sometimes teachers might decide not to offer outdoor activities as a learning opportunity, as a result of negotiating all factors. In sum, while teachers acknowledged the way children were keen in learning and applying the classroom themes, teachers also needed to consider the institutional regulations before they implement what they perceived as learning opportunities for the children.

Teachers' individual resolutions for the scarcity of resources. In addition to the institutional regulations, teachers also discussed their negotiations with the classroom budget. AT01 expressed her frustration on being unable to provide specific learning opportunities for her class:

“We haven't had too many opportunities for field trips this year with the budget. So that's why I try to bring as much as I can into the classroom, so that they're not missing out. I mean, only a few classrooms did butterflies. I'm the only one who did ladybugs because I bought it myself. Come on, 8 bucks, give me a break, 'you can't...?' Whatever, it just gets me crazy.” (AT01)

AT01 noted the size of the budget as determining the opportunities to go on field trips and getting hands-on learning kits. Her word choice of “missing out” reflected the value she had on providing children with such experiences. She was frustrated with the insufficient monetary available for her to implement her instructions, and in the end she attempted to resolve with her own ways. The way teachers initiated actions to resolve the inadequate teaching support was also illustrated by BT05. BT05 felt constrained with the limited choices of books she could use for teaching:

“I pick books for the theme to read and I get them from the supervisor, I get them from me going to the library if I can’t find them in the classroom, so it’s been hard to find some books to go with the theme, so I just go to the library and choose what I need.”

(BT05)

As seen from BT05’s narrative, teachers needed to sometimes reach out to community for resource in order to implement thematic learning. These teachers’ narratives showed their desperate measures in overcoming institutional limitations that were preventing them from supporting children’s learning.

Thought Processes on Learning as Based on Experiences in Private Life

Four out of the five Program B teachers shared the same Chinese immigrant parent status with the Program B parents. From their interviews it was evident that those teachers reflected upon their parenting experiences with their own DLL sons and daughters, to inform their understanding of how DLL children learned in the classroom. For instance, Program B teacher, BT01, also commented on the practice of probing children during mealtime from the perspectives of Chinese and U.S. cultures:

“When we eat, we can’t just sit there and eat, we need to introduce ‘Ah! Today we are

eating such-and-such.' Sometimes you need to encourage them to talk more. But for us Chinese, we say that we don't talk when we eat, but it's different here, right? It's different in the U.S." (BT01)

According to BT01's role as a teacher, mealtime was not only for food consumption but was also an opportunity for children to practice verbal communication. BT01's description of "encouraging them to talk more" echoed with BT03's description of how children's talk was a learning opportunity: "they learn more as they talk." Here the school expectation was that children would deepen their learning through talking, particularly having verbal exchange beyond the designated circle time. BT01's narrative, however, highlighted her cultural consideration, that talking during mealtime was going against Chinese families' meal-time etiquette of not talking when eating.

Other Program B teachers also reflected upon their own cultural understanding as they commented on their institutional practices:

"When the Chinese people teach their children at home, if they see them not holding the pen right, then they naturally teach them how to write their names. To help them, like, holding their hands. But it's not allowed here... [we have to] let them express freely, you can't hold the children's and teach them how to write their name. For us it's very normal, it's like if you have children at home, when you teach them how to write their names you say, 'That's how you hold the pen' and hold their hand and write, right? Here you can't hold their hands and write." (BT02)

In this excerpt BT02 spoke from two distinct perspectives: the view as a parent, and the view as a preschool teacher of DLL children. As a parent, she described how most Chinese parents held children's hand to guide writing Chinese character strokes in the correct order. As a teacher, she

described the institution's value of allowing children to manipulate writing utensils freely, without direct instructions. Even though BT02 did not explicitly comment on which method she found appropriate in teaching DLL children, the way she referred to guiding children's hand movement as "normal" suggested that she also understood the home practice as also beneficial to DLL children. Another teacher BT03 also commented on the way cultural background was associated with their perception of STE. In response to the interview question on STE activities in the classroom, BT03 said: "About their knowledge, in general [such areas] are not as popular in Chinese families. It could be because they don't really talk about those at home, which is... to them, science is relatively difficult, advanced level..."

However, sharing an immigrant status was not the only way for teachers to understand children's learning situations. BT03 and BT05 both mentioned their respective struggles in deciding the language to use for literacy instruction. While BT03 had another identity as a Chinese immigrant parent, BT05 was not an immigrant, not a parent, and was a native English speaker. During their separate interviews, however, BT03 and BT05 shared similar views on DLL children's learning opportunities as they recalled their experiences in a professional training on teaching literacy: "the professor said, 'if you read one sentence in English, and then explain that line in Chinese, then the children will only rely [on the explanation], and won't learn English.'" (BT03); "we actually just had a training yesterday about dual language and one of the trainers actually said like focus all English, or all Chinese for half of the day" (BT05). The message that these teachers got from the trainings was to be consistent in the use of languages, such that children would not be relying on the interpretations only and missed the opportunity to learn the English language.

While teachers understood the institution's guideline in being consistent in instructional

language, they preferred to have the agency in deciding the language to use in specific circumstances. For instance, BT03 evaluated the feasibility of the training ideas:

“In general, if the children really don't know [the language] you [speak], then you have to speak in Toisanese or Mandarin. (...) Back then when we read books, we usually read it as it was, but after you read it in English, some children actually didn't understand what you said. They just looked at you, and in fact they didn't understand. So sometimes when we are done reading the book, I will also roughly explain what the book is about.”(BT03)

BT03 was able to communicate in Cantonese, Toisanese, Mandarin, and English. Hence, based on her experiences of being both a teacher and parent of DLL children, she decided upon the language that would best support children's reading experience.

Interestingly, for BT05, who was a native mono-lingual English speaker, she shared a similar opinion with BT03 about the effectiveness of structurally alternating the use of Chinese and English in reality. BT05 saw the need to incorporate DLL's home language in instruction: “it's a good suggestion but it's really hard if you're just all English or all Chinese, so we really have to mix the two.” She believed that children's home languages as essential components in their school learning:

“there's a lot of literacy everywhere, but I don't want them to be lost and confused, and feel like they're the only one not getting it, (...) I feel like they get to connect [*sic*] their home language is most important right now so they can understand their home language, be confident, and then move on to English.” (BT05)

In this excerpt, BT05 regarded home languages as not only enabling children to understand a subject, but also providing the confidence needed in order to learn. BT03 and BT05 demonstrated the way teachers who worked closely with DLL children might prioritize

children's understanding of a topic to their English language learning opportunities. While the teachers were expected to follow institutional regulations in their instruction, from this study it seemed that teachers would assess their children's actual needs and implement the regulations accordingly.

Responses on Learning Opportunities in Life Science and STE

This section specifically focused on participants' responses on children's learning related to life science and STE. The interview questions included a direct question that asked parents and teachers about their understanding of children's STE exposure. For parents, they were asked about their children's knowledge of living and non-living things as a way to access life science learning in the home setting. Parents were also asked to give anecdotes on the way children observed the differences or similarities between living and non-living things. For teachers, they were asked to illustrate the way children in their classes engaged in STE activities.

This summary was intentionally composed after IPA was completed to uncover parent- and teacher-beliefs, such that the author was not influenced by the participants' explicit comments in interpretative analysis. The goal of including participants' direct responses to interview questions on STE was to make sense of the result findings in a way that could inform the RISE project on parents' and teachers' ethnotheories of STE learning.

Parents' Understanding of Children's STE Learning at Home

Two patterns that were shared among parents from both Programs were both related to parents' interpretations of the interview prompts. The first pattern was that parents often commented on children's ability as they described their children's understanding of living and non-living things. Program A parents, AP02 and AP04, responded to the question by saying that their children were capable of telling the differences between living and non-living things,

whereas Program B parents, BP01 and BP03, described how their children would ask questions to understand living and non-living things.

The second pattern was related to the way parents were having difficulty understanding the questions on living or non-living things. Six out of the nine parents responded that they either did not specifically teach children the concept of living or non-living (BP01, BP02, BP03), or did not know what to respond to the researcher at the time of the interview (AP04, BP05). One parent, BP04, seemed to feel alarmed by the question of living and non-living things, and even asked the researcher if she had missed teaching something to her child: “Do you have any idea that can inspire me how to teach children? We did miss something, like we didn’t tell her the trains or subways can move. The flower thing, something about flowers, I never told her about that.”

Teachers’ Understanding of Children’s STE Learning in the Classroom

Four patterns from asking teachers directly about STE in the classroom were related to (1) teachers’ perceived efficacy in facilitating STE activities; (2) program differences in the use of the science-area; (3) teachers’ perception of their role in children’s STE learning; (4) the definition of technology learning as related to the use of electronics.

Teachers’ perceived efficacy in facilitating STE activities. Two teachers from the study provided contrasting examples of one’s comfort level with science curriculum influenced their description of how they arranged STE in their classrooms. AT01 emphasized that “science was always my big thing,” and she was excited about the initiatives that focused on math and science. She said that she had experience leading workshops on math and science in a local university a few years ago. AT01 provided an array of examples on how she would facilitate science-related activities by engaging in verbal scaffolding and hands-on experimentation for her

children. Her strategies included using scientific words like “hypothesis,” “metamorphosis,” and asking children to think about the cause and effect with the guidance of the “wh-“ questions. She would also facilitate hands-on experiments with the children, such as making volcanoes and creating lava. It was likely because of her keen interests and knowledge of various preschool-oriented science curriculum, that AT01 demonstrated a sense of excitement and efficacy in arranging STE-related activities for her children.

On the other hand, Program B teacher BT05 did not share the same level of excitement as AT01. When being prompted about the STE experiences in the classroom, BT05 asked the researchers in return for ideas to enrich STE in the classroom. She even perceived a connection between her view on science and the way the science learning opportunities manifested in her classroom: “I am not big on science, I was never like a science fan myself, I don’t know if that kind of, like, has something to do with me procrastinating getting materials” (BT05). As she commented on the ways she wished to improve her science-related activities, BT05 mentioned the need to “do a little bit more research on my end about science.” In contrast to AT01, BT05 did not seem to feel as empowered to arrange STE-learning opportunities, and she suggested her personal lack of interest might be an influential factor.

Program differences in the use of science area. Program A and Program B teachers provided different emphasis as they described how their respective science areas were used in the classrooms. Program A teachers would address the way children were engaged in cognitive processes as they participated in the activities in the science-area. For instance, AT03 and AT04 mentioned the way children learned about cause and effect, and AT05 mentioned children’s ability to make connections between future career goals and present preparation in order to reach the goal.

Program B teachers, on the other hand, responded to the question on children's science activity as in the way children used the materials in the area. Collectively as a group, Program B teachers produced a list of items that children used in the science area: map or globe (BT01, BT02), magnets (BT01, BT02, BT03, BT04, BT05), liquid-mixing tubes (BT01, BT05), playdough (BT03), magnifying glasses (BT03, BT04, BT05), living plants in the area (BT03, BT05), water or sand tables (BT04), and animal figurines (BT03, BT05). The responses on how children's STE learning manifested, offered a consistent characteristic that pertained to the specific program.

Teachers' perceived role as a guide in children's STE exploration. Teachers also explicitly stated the way they saw themselves as the essential facilitators in children's STE learning in the science area. AT04 noted the way children in her classroom needed teachers' encouragement in exploring the science area:

"I don't want to say they only know what we teach them, but they don't like to experiment. They don't do a lot of cause and effect on their own. You've really gotta engage them, and plan something or give them ideas. Because when we have discovery as not an activity of the day and it's free choice, it's not one of the areas that they like to choose." (AT04)

AT04 noted the way children were attuned to "discovery" activities. "Discovery" was a description used specifically in AT04's classroom to refer to activities in which math was separated from science. The activities included the use of objects such as collections, magnifying glasses, flashlights, and tweezers. In the above excerpt, AT04 described the two conditions under which children would use the science area: when discovery was not an option, and when they did

not have free choice. Hence, AT04 saw that teachers' intentional engagement and direction as needed for children to experiment in the science area.

The idea that teachers' presence and guidance as taking a significant role in children's use of the science area was shared by almost all Program B teachers. BT02 saw her teaching role as disseminating new knowledge: "Since they haven't seen a lot of things, they [learn] through the teachers, through our teachings, as well as learning from the books." BT03 saw her role as helping children to make connections to what they already know:

"They are very curious, and they don't know about things they haven't seen or come into contact before. But for the adults, as teachers we remind them (...) where you have seen it before (...) Then sometimes as they go to those places then they will pay particular attention" (BT03)

Moreover, BT01 and BT05 saw their roles as providing scaffolding to children as the children engaged in the process of exploring materials or playing:

"The most important thing is how we guide them. For example, when you are playing with an object, you don't just pick it out, sometimes you need to, you need to do that... which is to give them ideas... to play like that." (BT01)

"I really feel like I have to like facilitate that because they don't really know what to do in science and it's been an ongoing challenge for me to get." (BT05)

As a whole, these teachers expressed the shared belief that in order to maximize what the children gained from areas or materials designed for STE learning, teachers played an important role in guiding the process in children's exploration.

Teachers' association of technology to electronic use. As teachers responded to the question about children's understanding of technology, several of them listed the children's

effortless uses of game consoles and computers. AT01 described her children as most familiar with the technology aspect within STE because of the children's day-to-day experience of using them: "A lot of them have Nintendo's and Wiis and stuff like that, so they know how to operate that kind of stuff. Some of them have computers at home, they know how to operate that." She also described that the children who did not have computers at home could also demonstrate the same ability in using the classroom computer.

Program B teachers BT03 and BT04 also made an association between technology and electronic use. BT03 attributed children's mastery in computer use to the prevalence of electronics in the present time: "since technology these days is relatively popular: everyone knows about iPhone, iPad, computers and all those." BT04 even described her children's ability in computer use had actually surpassed her own ability: "They are even smarter, because sometimes when I can't figure it out I ask them for help." BT04 also saw the use of computer as providing a chance for children to learn from each other. Elder children in the class who already mastered the use of the computer could teach the younger ones:

"Because for the children who are on their second year, they are already familiar with how to play with the computer. Sometimes the children, who are on their first year, don't know, then I encourage the ones who are on their second year to guide them, to teach them how to play." (BT04)

In sum, teachers articulated children's understanding of technology as related to their frequent uses and advanced knowledge of electronics.

Discussion

This study explored how parents and teachers from two preschool programs understood learning opportunities for their DLL children. Emergent themes on the parents' and teachers'

ethnotheories regarding their children's learning were accessed through Interpretative Phenomenological Analysis of open-ended interviews. Such theories are beliefs that help to "organize and make sense of the world, provide certainty of what will happen, and serve as a regulatory function" (Hill, 2008, p. 102). Despite the way in which parent and teacher interviews were guided by protocol, parents' and teachers' responses revealed many variations and similarities, which are discussed below.

Parallels between Teachers' and Parents' Perspectives

Parents and immigrant teachers in this study shared the practice of reflecting upon their personal experiences as a means of understanding learning opportunities for the DLL children. Parents from both Program A and Program B made comments regarding what kind of learning environment or teaching method was appropriate for their children. They based this on comparisons between their own childhood and parenting experiences from their home country and those in the United States. Since the definition of having ethnotheories included the way caregivers reflected upon the "cultural experience of the community or reference group" (Harkness & Super, 1992, p. 374), these parents actively reflected upon their personal knowledge so as to guide their children's learning.

The use of one's cultural experience as a frame of reference in determining learning opportunities was also evident in Program B teachers' narratives. In this study, four out of the five Program B teachers self-identified as Chinese immigrants who were also parents of DLL children. Similar to the Program B parents, these four teachers were interviewed in the language that was most comfortable for them, Cantonese. Based on the immigrant background and the language use, it was very likely that the teachers also share a similar parenting experience with the Program B parents in the study. As they described the teaching methods in writing and

reading, they often included additional comments as to how they perceived the efficacy of the method based on their cultural knowledge. For instance, one teacher explained to the researcher the way Chinese families were hesitant to discuss STE-related topics, because such topics were often regarded by the parents as too advanced for preschool children. One teacher also described the different expectations during meal time: at home, children were expected to eat silently, while at school, meal time was regarded as an opportunity to encourage children to talk about food items. The way teachers reflected upon his or her own culture when interpreting institutional guidelines was not an emergent theme in Program A teacher interviews, which were all conducted in English. It was evident that immigrant teachers of Program B processed the school's curriculum with reference to their own cultural background.

Indeed, studies have shown that early childhood educators who belonged to the same community as the children in their class would use their practical and personal experiences to inform their instructional decisions (Friesen & Butera, 2012). For Chinese immigrant teachers, previous research has also shown that their identity and cultural heritage were related to their teaching practice (Sun, 2012). A shared identity in being a first-generation immigrant raising DLL children, as well as having a first-person perspective on the Chinese culture might have established a common ground between the Program B parents and teachers in this study.

The influence of having a common ground in supporting children's learning opportunities was exemplified in the way Program B parents and teachers shared the value of learning how to write. Teachers described the writing routine as happening at the designated writing area, and parents described the way they drew children's attention to details and persistence by repeated practices. This echoed with what Sun (2012) described as the Chinese tradition of literacy, which involved a systematic, pre-determined way of introducing literacy in the order of first teaching

characters, then words, sentences, paragraphs, and finally teaching a passage. This systematic process reflected most Asian American's holistic view of learning as not only for the development of an academic skill, but also to support character-building, such as being diligent, perseverant, and able to exhibit endurance and concentration (Hill, 2008; Li, 2004). In other words, the act of learning how to write was not only important for acquiring literacy skills, but also for developing virtues that were valued by the Chinese culture. Even though several Program A teachers and parents also provided sporadic anecdotes of literacy-related activities, such as writing at school and watching TV to learn the home language, Program B teachers' and parents' accounts about writing represented an experience that was deeply-rooted within the lives of the Program B DLL children. The consistency of this theme revealed a culturally-related thought process on Program B individuals' value of learning opportunities.

Distinctions between Parents' and Teachers' Understanding of Learning Opportunities

Although it is evident that personal experience serves as an influential factor in the way parents and teachers understand learning opportunities for their DLL children, these parents and teachers also needed to negotiate other factors that might be obstacles in their effort to support children's learning.

Teachers negotiated between ethnotheories and professional knowledge. In this study, Program A and Program B teachers' descriptions of their daily routines in the classroom were remarkably similar because even though they were from different preschools, both preschools belonged to the same national organization, Head Start. Head Start issued guidelines for individual agencies to "design services for children and families that meet the needs of their local community and the Head Start Program Performance Standards" (Office of Head Start,

2014). Each program followed the guidelines in the ways that were tailored to meet the needs of the local community.

Teachers, especially those like Program B teachers who had a first-person understanding of the families' ecocultural contexts, often found themselves caught in the tension between their perception of best practices as defined by the dominant culture and their own cultural responsiveness (Adair et al., 2012). For instance, one teacher commented that the strategy of encouraging children to practice writing freely with little adult guidance might not work at home, as Chinese parents' common method to guide writing was to hold the child's hand. While Program B teachers could not hold the children's hand in their class, they did mention encouraging children's use of writing utensils such as journal books, stencils, and word and picture cards as they engaged in the daily writing exercises at school. Hence, immigrant teachers' way of providing learning opportunities for DLL children resulted from the negotiation between two dimensions: the consideration of their ethnotheories and the consideration of their professional guidelines. Teachers used their deeply ingrained ethnotheories as funds of knowledge, which shaped their intuition in their spontaneous interactions, as well as their interpretation of the guidelines so as to meet the needs of their DLL children (Adair, 2011; Hedges, 2012).

Parents negotiated between ethnotheories and sense of efficacy. As teachers considered meeting program expectations in the context of their own ethnotheories, parents also faced considerations, with respect to their ethnotheories, to provide learning opportunities for their children. Consistent with literature, parents in this study emphasized their personal sense of efficacy as they arranged opportunities, and overcame challenges by utilizing such opportunities for the benefit of their children (Hoover-Dempsey et al., 2005). Parent's sense of efficacy is

defined as a person's belief in his or her own competence to achieve a desired parenting outcome, and those who saw themselves as essential in guiding their children's education were more likely to be involved in children's educational activities (Waanders, Mendez, & Downer, 2007).

On one hand, parents in this study demonstrated their agency, driven by their ethnotheories, by seizing learning opportunities for their children. This was evident in the array of anecdotes such as using media to support language learning, supermarkets for literacy awareness, church playgroups for peer socialization, outings in the community for accommodating the lifestyle in the United States, and household duties for the development of self-help.

On the other hand, parents expressed the need to meet their psychological comfort and logistical considerations before they could effectively provide learning opportunities for their children. For instance, some parents were conscious about the disturbance they might bring to the public with their young children. Some mentioned the way they needed to overcome barriers, such as their limited time due to busy work schedules, the accessibility of financial assistance for admissions, and the comfort level in using public resources. If they did not feel convinced or comfortable about their roles in providing the specific opportunity, they might not be motivated to encourage their children to participate. In sum, it was evident from this study that parents would choose *not* to visit such institutions if they had not perceived themselves as capable of taking advantage of the situation.

Implications for Promoting STE with DLL Children's Parents and Teachers

This thesis project was conducted with the goal to inform RISE on Program A and Program B parents' and teachers' baseline perceptions and values about their DLL children's

learning. Since the RISE project aims to foster a sustainable, ecologically valid partnership between parents and teachers in co-constructing an STE curriculum, in this section, implications will be drawn from the interviews to specifically address promoting STE with these parents and teachers.

STE as separated from the integrated thematic curriculum. The way teachers described classroom learning was explicit and structured: children were expected to engage in specific activities at the designated times, in designated areas (e.g., science area, computer area, listening corner, and library), and by weekly themes (e.g., volcanoes, farm animals). Teachers from both programs acknowledged their children's natural curiosity and their keen observations of their surroundings. With the use of verbal scaffolding, teachers encouraged children to discuss beyond the observable elements, and to lengthen their attention span by frequently directing children's focus to the current theme.

The way teachers discussed children's thematic learning and their explorations in the science area, however, revealed two distinct learning goals. This suggests that teachers might regard STE as a separate topic. Program A teachers gave examples of thematic learning that featured hands-on learning corresponding to a weekly topic, such as collecting leaves and pinecones from the community during a theme about the fall season. When being probed about children's use of the science area in the classroom, the same Program A teachers emphasized the way in which children develop cognitive skills, such as cause and effect, or making connections between present and future, as they explored the area. Program B teachers, their examples about thematic learning emphasized having children give verbal feedback based on cognitive skills such as observing, retaining, and recalling information from their local walks in the neighborhood. When they described children's use of the science area, however, Program B

teachers gave descriptions of the variety of tools (i.e., magnifying glasses, magnets) that children used, and how they manipulated the use of such objects.

Across both sites, teachers used themes as the unifying concept that connected the children's whole group discussion, local walks in the neighborhood, and the collection of objects. As they described children's exposure to the science area, however, they mentioned learning objectives that did not align with their respective goals of thematic learning. The way children's science learning is separated from the general thematic learning was exemplified by a Program B teacher. This is BT03's comment on separate teaching methods for different learning objectives:

“The science-subject has its own ‘science’ teaching method, the math-subject has its own ‘math’ teaching method, literacy-subject has its own ‘literacy’ teaching method. (...) different areas [require] different skills, it depends on what field you are teaching them.”
(BT03)

In this excerpt, “science,” “math,” and “literacy” signified different bodies of knowledge that one studies, hence BT03 explained that they represented three different teaching methods. Similarly, Program A teacher AT01 commented on the way she perceived different expectations on preparing children for literacy and for science:

“Science was always my big thing. And then they started like pushing literacy, pushing literacy, so you're trying to concentrate on making sure you got – because the next person that walks in is going to be looking for literacy. So I really have slacked off a lot on science, but I have like tons of science stuff.” (AT01)

The way preschool teachers perceived science learning as a separate entity from other learning objectives echoes with previous literature (i.e., Greenfield, Jirout, Dominguez, Greenberg, Maier,

& Fuccillo, 2009), in that the teachers felt confined by the busy daily routine and the pressure to focus on literacy and language. It was a challenge for teachers to find and address other readiness areas like science, and by teaching school readiness skills in isolation, each skill might not receive enough attention (Greenfield et al., 2009).

STE as separated from the concepts of home learning. Similar to the teachers, parents in this study also perceived STE concepts as distinct from their ethnotheories on learning. In the interviews with parents, the concept of STE was operationalized with a question about children's understanding of living and non-living things. Parents mostly offered responses that addressed children's interests and abilities to distinguish the differences among animals. Some participants even expressed concerns upon hearing the question, and asked the researcher if they, as parents, had missed an important learning opportunity about STE.

Their terse responses were seemingly out-of-sync with the question and were inconsistent with the other sections of the interviews. When parents had the opportunity to address how their children learned to be independent or developed a skill that they valued, these parents had much to share. The majority of the Program B parents, in particular, commented on their practices in supporting their children's writing. Parents' discussion about writing was distinctively more detailed and longer than when they talked about living and non-living things.

From the detailed responses parents offered regarding the way children's learning on topics that the parents valued, it was evident that parents were keen to support their children's education and development. Asking them about their children's STE exposure was possibly an unfamiliar topic, which resulted in their relatively briefer and seemingly confused responses. These parents' responses, however, should be interpreted as a sign that they need to see the connections between home practices and school curriculum, such as science learning (Riojas-

Cortez, Huerta, Flores, Perez, & Clark, 2008). For researchers who are interested in comprehending parents' understanding of science, it is important to find the topic that is relevant to the parents' actual practice in order to access their values and beliefs.

STE as currently a support to language or social skill developments. Even when parents and teachers shared the same understanding of an STE concept, they might value the learning opportunity for different reasons. For instance, parents and teachers shared a similar description of the children's mastery in electronics. Parents would use computers and TVs to support children's language learning, whereas some Program B teachers specifically saw computer use as a way to allow children to learn from each other. Program B teachers, such as BT03 and BT04, regarded the way children were attracted to computer use as an opportunity for children to learn from each other—the older ones could guide the younger ones on what to do and how to play. It is evident that this simple concept of “technology” could lead to two different goals in learning. Hence, researchers must seek to understand the parents' and teachers' baseline interpretation and value of a learning objective such as STE, so that all participants and researchers are aware of the multiple perspectives that can be taken before moving forward in the partnership.

Teachers' sense of efficacy in facilitating STE-related topics. Similar to the way in which parents discussed their sense of efficacy in fully utilizing learning opportunities for their children, teachers' individual confidence and interests in facilitating STE-related topics were also evident from their narratives. In response to the prompt on children's interactions with the science-related activities in the classroom, teachers perceived their encouragement and guidance as essential in order to have children explore the science area. The teachers' description of children's relatively less frequent visits to the science area than other areas was consistent with

the literature (e.g., Nayfeld et al., 2011), which in turn, justified the reason for teachers to feel responsible for closely guiding children in the science areas.

Even though teachers well understood the pivotal roles they played in guiding children's exploration of the science area, the way in which they actually engaged the children was influenced by their own views on science. AT01 and BT05's distinct views on science offered an example of the way teachers' subjective perception of a topic could affect the types of experiences that they might offer to the children. AT01, who explicitly mentioned her excitement in teaching science, would incorporate hands-on experiments and the use of scientific terms like "hypothesis" or "metamorphosis" in the curriculum. BT05, who declared that she was not a fan of science, said she suspects her lack of interest in science might have directed her attention towards other learning objects instead.

Although these teachers, AT01 and BT05, did not view science-teaching from the same perspective or with the same level of interest, they did share the same eagerness to prepare themselves for the benefit of the DLL children in their classes. AT01 expressed her desire to continue increasing her children's exposure to STE by saying, "there's a new initiative for math and science which I'm excited about, because I hope we get some really cool stuff out of it." BT05 also showed her determination in understanding more about STE-related activities for the sake of her children, despite her heavy workload: "it's just a lot for me to put like an extra step into something, but I should try at least before the school year is over, [to] do something." These teachers' positive attitude towards STE learning would be beneficial to the children, because when teachers' (like AT01) and children's interests were aligned, teachers would be more likely to notice and respond to children's curiosity (Hedges, 2012). Also, teachers (like BT05) who might not have a positive perception of science would benefit from professional development to

not only change their attitude, but also to become more likely to incorporate science into everyday activities (Roehrig, Dubosarsky, Mason, Carlson, & Murphy, 2011).

Limitations and Future Directions

Subjective, Context-dependent Nature of Qualitative Studies

This study engaged in an interpretative analysis on a purposefully selected sample from two immigrant communities. Participants' ecological and cultural factors were considered when making interpretations of their implicit beliefs. Results were closely related to the particular contextual factors, and pertained to the respective 18 participants. Findings from IPA studies should not be treated as applicable to other individuals (Griffith, Totsika, Nash, Jones, & Hastings, 2012; Schweitzer, Griffiths, & Yates, 2011). As indicated by Smith and associates (2009), the findings represented a perspective, rather than a population, regarding the phenomena under study. Future studies could use the results from this study as a reference in some of the concerns that DLL children's parents and teachers might express, so as to inform their research topics or designs.

Interview Styles Influencing the Quality of Interpretative Analysis

Data analysis for this study was closely associated with data collection and the author's personal background. Despite some effort of interviewer training prior to data collection in the first group of interviews, the resulting set of 18 interviews was characterized by an array of interview lengths and content. For instance, interviews with Program B parents and teachers were significantly longer in length than with Program A participants. By comparing the single-spaced English transcripts that had the same font style and size of all interviews, Program B interviews had an average of 33.6 pages with parents, and 13.4 pages with teachers, while

Program A interviews had an average of 6.25 pages with parents, and 7 pages with teachers.

Program B interviews were generally longer in length than Program A interviews.

The consistent patterns of variation in the interview lengths between Program A and Program B seemed to be related to the way in which interviewers conducted the conversations. Due to RISE's commitment to ensure participants' comfort as they engaged in the research project, the 18 interviews were conducted by six graduate-level students with different ethnic backgrounds and levels of experiences interacting with immigrant parents and teachers. Interviewers with Program A participants conversed with parents and teachers in English or Spanish, and in ways that mostly aligned with the pre-determined list of interview questions. Interviewers would ask one question, and then smoothly moved to the next question. In contrast, interviewers with Program B participants conversed in Cantonese or Mandarin, and asked prompts along the flow of the conversation topic, not necessarily following the order listed on the interview questions. The more day-to-day conversation style of Program B interviews might require the interviewer to probe more in order to gain insights for the questions on the protocol.

The conversation style of Program B interviews was a shared characteristic among the Program B parent interviews. In this study, the student interviewers for Program B conducted interviews in Mandarin, while Program B parents were Cantonese speakers. Thus, Program B parents tried their best to meet the student interviewer's need by speaking Mandarin, a language that those Program B parents did not usually speak. That resulted in a substantial amount of interview time being spent on elaboration and clarification. For instance, BP02 had to clarify the word "crab," BP01 informed the interviewer on the community events that the interviewer could also participate, and BP05 had to explain and differentiate the words "play dough" and "pears" because she was not a native speaker of Mandarin. The interviewer apologized to the parents for

not being able to speak parents' Cantonese language, and persisted to keep asking the parents for explanations and elaborations.

Program B interviewers' act of encouraging the interviewees to talk more was beneficial to the later data analysis process. While Program A interviews yielded narratives that aligned with the prompts for quick and orderly comparisons; Program B interviews allowed participants to share information beyond the prompts, which provided a larger pool of narratives for analysis to uncover implicit beliefs. Hiller and Diluzio (2004) highlighted that if a study sought to enter a constructivist dialogue with participants, which was to treat the interview as a meaning-making experiences and to produce knowledge through active conversations, then interviewers were expected to take up the responsibility of facilitating the dialogue. Although purposive sampling helped to gather a homogenous group of participants to offer a particular perspective, the interviewers' interests and open-mindedness to make new discoveries on the go were the main driving forces in uncovering the participants' experiences (Hiller & Diluzio, 2004).

The emphasis on establishing a co-constructive relationship with participants has special meaning for future interviews within the RISE project. Since RISE valued the co-construction of an STE curriculum among parents, teachers, and researchers, the same collaborative spirit could also be manifested in the interview styles with the parents and teachers. Moreover, future directions should also consider including participants to check the quality of interpretations. Having a reciprocal dialogue between researchers and participants in research helped to balance the power dynamics inherent in research partnerships (Fantuzzo et al., 2006). Participants, being the ones who knew their lived experiences the best, could play the dual roles of being informants and consultants in understanding their specific situations (Oliver et al., 2011).

The Need for a Triangulation of Data

Last but not least, in light of the movement towards using multi-faceted approaches to yield rich information in research (Cabrera & Ethnic and Racial Issues Committee, 2013), this study relied solely on semi-structured interviews in understanding participants' views. While this methodology may serve the purpose of providing exploratory findings regarding the specific sample, similar studies in the future will benefit from incorporating additional methods of data collection such as home/classroom observations (e.g., Parmer et al., 2004), questionnaires about beliefs and attitudes towards children's learning such as the Preschool Teacher Attitudes and Beliefs toward Science Teaching questionnaire (P-TABS, Maier et al., 2013). A triangulation of data would provide more texture to the findings of this study.

Under President Obama's administration, the field of early childhood is receiving an increase in attention and support, particularly with respect to expanding and modifying Head Start's capacity to serve families. The President addressed the government's investment in Head Start programs to foster home-school partnerships for children's school readiness, and also to create "opportunities for parents to get the training and support they need to take a leadership role in the program, and in their children's education" (State of the Union Address, 2013).

This study confirmed that DLL children's parents and teachers operated from their own ethnotheories, implemented strategies to foster learning based on their implicit and explicit beliefs, and had their own aspirations for DLL children's learning. They illustrated how they evaluated and accessed the appropriate opportunities for their preschool children's learning. The methods illustrated in their anecdotes, however, were not meant to be a universal remedy to the many families and schools with DLL children. In addition, even though this study noted that most Program B participants' shared immigrant parent experience it would have been an

oversimplified assumption that such shared experience was the *key* [emphasis added] to support learning opportunities (Kern et al., 2012).

Instead, a partnership that retains the respective values and strategies of both parties has the potential to work towards the benefit of DLL children's learning. BT03's example of a child's experience in going to the zoo on two occasions provided a strong case for this complementary partnership to work:

“Not long ago [the whole class] went to the zoo and one child really liked it. (...) on Monday, he came back and told us that he asked his father to go again, ‘For those animals that [the whole class] didn't see last time, I could see a lot of them on the day that I went with my father: there was a lot, there were giraffes, leopards, elephants.’ Since there weren't any last time we went there, so he came back and reported to us.” (BT03)

In this excerpt, the child's father exercised his agency in using the community resource (i.e., the zoo) to extend the child's interests. Then as the child returned to school, the teacher took advantage of the child's observations and the classroom routine (i.e., group time) allowing the child to share and enrich the collective experience for the class. When parents' and teachers' strategies for children's learning opportunities are uncovered and recognized, they can foster a complementary learning system that provides continuous support to DLL children's success in school and in life (Weiss, Bouffard, Bridglall, & Gordon, 2009).

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Appendix A

Recruitment flyers in English and Spanish

ATTENTION PARENTS!

Together, we can plan
our children's
education and ensure
their futures.

We hope to speak with you and other parents in interviews or group discussions about your family's routines and activities, and your child's learning experiences.

Please join us and share your thoughts!

To find out more, please talk with
(Center Contact)
Or call Christy at *(phone #)*

We hope you join us!

¡ATENCIÓN PADRES!



Juntos, podemos planear la educación de nuestros niños y asegurar su futuro.

Esperamos hablar con usted y con otros padres en entrevistas o en discusiones de grupo sobre las rutinas diarias y actividades de su familia, y las experiencias de aprendizaje de su niño.

¡Por favor únase a nosotros y comparta sus pensamientos!

Para obtener más información, por favor, hable con
(Center Contact)
o llame a Christy al teléfono (phone #)

¡Esperamos que usted nos acompañe!

Appendix B

Recruitment Scripts for Family Service Workers, in English and Spanish

RISE
Oral Recruitment Scripts
For Parents at Parent Meetings
(To be delivered by Family Service Workers)

As you may already know, we have been working in partnership with Drs. Christine McWayne and Jayanthi Mistry from Tufts University for several months now as part of a project around science learning in [name of preschool] programs. We would like to tell you a little bit about their project to find out more about families' and children's experiences with science learning, and how you may participate.

If you agree to participate in this study, your participation would involve about an hour or two of your time. Dr. McWayne and her team would ask you to join them for either an interview or a focus group session. This would involve talking with researchers about your family's daily routines and activities.

In addition to participating in an interview or focus group, you may also choose to participate on a "neighborhood walk" with members of Dr. McWayne's research team. This would involve taking a walk around your community and helping the researchers better understand your neighborhood, and the activities and events that take place there.

The information you share with Dr. McWayne and her team will be kept private. Although information will be shared with the [name of preschool] program to help improve its services to families and children, information will be shared as a group. **NO INDIVIDUAL FAMILY INFORMATION WILL BE IDENTIFIED.** In fact, your name and your child's name will be replaced by a fake name or identification number in any presentation or publication based on the study. You are not required to participate in this study and may refuse participation or withdraw at any time, and this decision will not affect in any way your relationship with your child's teacher or other at your child's [name of preschool] center.

Dr. McWayne and her team will be available in the next few weeks to answer any questions you may have. If you choose to take part in this study, they will ask you to sign a form, which says that you agree to participate in either a focus group or interview, and that you agree to have your responses recorded (by audiotape or videotape) for research purposes. You may then drop the consent forms in the drop box provided at your center or take it home with you and mail it in later. Someone from Dr. McWayne's research team will be available at least one day a week on-site to answer any questions you have, and you may contact Christine McWayne at *phone #* (or via e-mail at *email address*).

RISE
Oral Recruitment Scripts
For Parents at Parent Meetings
(to be delivered by Family Service Workers)

Como usted ya sabe, hemos sido trabajando en asociación con Dras. Christine McWayne y Jayanthi Mistry de Tufts University para varios meses como parte de un proyecto sobre el aprendizaje de las ciencias en los programas de [name of preschool]. Nos gustaría decirle un poco sobre su proyecto y descubrir más de las experiencias de familias y niños con el aprendizaje de las ciencias, y como usted puede participar.

Si usted acuerda a participar en este estudio, su participación implicaría más o menos uno o dos horas de su tiempo. Dra. McWayne y su equipo le preguntaría a usted juntarse con ellos para una entrevista o una sesión de grupo de enfoque. Esto implicaría hablando con investigadores sobre las rutinas diarias y actividades de su familia.

Además de participando en una entrevista o una sesión de grupo de enfoque, puede elegir participar en “un camino del barrio” con miembros del equipo de investigación de Dra. McWayne. Esto implicaría caminando alrededor de su comunidad y ayudando a los investigadores comprender mejor su barrio, y las actividades y eventos que ocurren allá.

La información que usted comparte con Dra. McWayne y su equipo se mantendrá como privado. Aunque información va a ser compartido con el programa de ABCD/[name of preschool] ayudar a mejorar sus servicios para familias y niños, información va a ser compartido como un grupo. **NO INFORMACION DE FAMILIA INDIVIDUAL VA A SER IDENTIFICADO.** De hecho, su nombre y el nombre de su niño va a ser reemplazado por un nombre falso o un número de identificación en cualquiera presentación o publicación basado en este estudio. No es necesario que usted participe en este estudio y usted puede rechazar participación o retirar en cualquier momento, y esta decisión no va a afectar, de cualquier manera, su relación con la maestra de su niño en el [name of preschool] de su niño.

Dra. McWayne y su equipo va a ser disponible en las próximas semanas contestar cualquier pregunta que usted tenga. Si usted escoge participar en este estudio, ellos van a preguntarle a firmar un forma, que dice que usted está de acuerdo a participar en una sesión de grupo de enfoque o una entrevista, y que usted está de acuerdo a tener sus respuestas grabado (por audio o vídeo) para fines de investigación. Entonces usted puede dejar los asentimientos de participación en la caja provisto en su centro o los trae a su casa para enviar más tarde. Alguien del equipo de investigación de Dra. McWayne va a ser disponible por lo menos un día en el sitio contestar cualquiera pregunta que usted tiene, y puede ponerse en contacto con Christine McWayne a *phone #* (o por correo electrónico a *email address*).

Appendix C

Parent Interview Guidelines for Researchers

“We’re interested in talking to you today about your family’s daily routines and activities. We hope to help [name of preschool] better understand how to make their classrooms reflect the culture and lives of children. So, we have a few questions for you that will help us to understand the lives of your children in your homes and communities.”

- First, can you tell us about a typical day during the week; for example, tell us about your day yesterday with your child.
 - Probe: What kinds of places did you go with your child?
 - Probe: What kinds of activities did you do with your child?
 - Probe: Who else did your child interact with yesterday?
- What are the other places in your neighborhood or community where your child spends time?
- Who are other people in your neighborhood or community with whom your child spends time?
- Who kinds of objects/things/materials do your child like to play with in your home?
 - ...in your neighborhood?
 - ...in the child’s physical environment?
 - Probe: *ask specifically about living and non-living objects/materials*
 - Probe: How does your child engage/play with these objects/materials?
 - Probe: With whom does your child engage/play with these objects/materials?
- Since you know your child best, can you talk to us about what you think he or she knows about living and non-living things?
 - Probe: What are some of the differences?
 - Probe: What are some of the similarities?
 - Probe: Can you give me an example of a time you observed your child being able to see the difference between living and non-living objects?
- We are interested in knowing more about the places or activities in your home and neighborhood in which there might be opportunities for your child to continue to learn the things they’re learning in school. Are there other activities you can think of that your child does?
 - Probe: chores (e.g., helping with cooking, cleaning, taking care of pets)
 - Probe: parents’ workplace(s)
 - Probe: community events/festivals/resources

Appendix D

Teacher Interview Guidelines for Researchers

Purpose	Question	Intended/Elicited Responses
Introduction to interview/focus group and our intentions.	“We’re interested in talking with you today about the kinds of things you with the children in your class in a typical day. We hope to help [name of preschool] better understand how to enrich classrooms with information about the daily lives of children. So, we’d like to talk with you and ask you a few questions that will help us to understand your child’s routines and activities in the classroom and community.”	
Encourage participants to start thinking about daily activities and routines.	First, can you talk to us about a typical day in your classroom – walk us through your daily routine <ul style="list-style-type: none"> ○ Probe: What other kinds of activities do you do with your class? ○ Probe: What kinds of activities do you notice children doing on their own? With their peers? With other adults? ○ Probe: What kinds of places do you go with your class? What are their favorite places to go? 	NOTE: Trying to get at the “who, what, when, where” of activities and routines.
	What are other places in the neighborhood [or community] outside of the center, where your class spends time? <ul style="list-style-type: none"> ○ Probe: What do they do at/in the _____[insert location] ○ Probe: What things do children notice during these activities? ○ Probe: What do you hear them talking about? 	
Encourage teachers to talk about class activities outside of the classroom	What kinds of objects/things/materials do the children see/hear/come into contact with/play with outside of the center? <ul style="list-style-type: none"> ○ ... in the neighborhood? ○ Probe: How do they engage/play with these objects/materials? What kinds of things do they _____ [insert activities here: make with block/do on computer/draw pictures of]? ○ Probe: With whom do they engage/play with these objects/materials? 	NOTE: if no explicit mention of living OR non-living thing, specifically ask about examples of those living and non-living objects/materials. (e.g., “You just listed a lot of things that are alive. What about other things that are not living?”)

<p>Using information from the answers to the questions above, want to elicit more information about what children know.</p>	<p>You know the children in your class the best, so can you talk about what you think they know about science, technology or engineering?</p>	
<p>Want to learn more about teachers' knowledge of children's homes.</p>	<p>When the children talk about their homes, what do they talk about?</p> <ul style="list-style-type: none"> ○ Probe: What do the children bring to school from home? ○ Probe: What do you think about these things? 	
<p>Including this in case there are different routines (or caregivers) during different parts of the week</p>	<p>What about the weekend – what kinds of things do you hear children saying about what they do on the weekends?</p> <ul style="list-style-type: none"> ○ Probe: What do families share with you about their weekend activities or children's home lives? 	

Appendix E

Code manual

Code	Definition	Example from data, optional
Code family: Activity		
Activity: Chuck E. Cheese	The chain amusement facility for children "Chuck E. Cheese." Also known as "Chucky Cheese" in some transcripts.	E.g. (AP01) Yesterday I took them to chucky cheese like for one hour or one hour and a half.
Activity: downtown Boston	Parent's recall of spending with children in the area of downtown Boston.	E.g. (AP01) I take them to the downtown just, you know, just a tour, a tour in downtown Boston and take the train back or just go shopping
Activity: household duties	Includes setting up for table, folding laundry, cleaning etc.	
Activity: library	Visiting libraries	
Activity: local walks	Description of going out to the immediate neighborhood with children. This includes going to shops, open space, and walking in streets.	
Activity: Museums, zoos, aquariums	Visiting museums, zoos, and aquariums	
Activity: other institutions	Visiting community-specific institutions like Chinese schools	
Activity: Play in park	Any outdoor activities that take place in a park.	E.g. (AP01) After it was nice, I took them to the park.
Activity: playing at a beach or seaside	Descriptions of activities near water source.	E.g. (AT03) We go down to Shore Plaza which is the big apartment complex at the end of the street, because they have like a giant – it's almost like a little boardwalk that goes along the water. So we'll go to the waterfront and look at the boats.
Activity: reading	Specific mention of activities that are related to print awareness, reading from a book, or learning vocabularies.	E.g. (AT01) After breakfast, we clean up, wash our hands. We do a lot of hand washing if you wondered why there's no skin on my hands. And they brush their teeth, and then they go and get a book and sit on the rug and wait for the rest of their friends and for the classroom to be cleaned up.
Activity: school field trip	Any types of activities that the school organized and invite family members to join.	E.g. (BP02) His school had a zoo trip once at that zoo+...
Activity: shopping	Description of visiting stores, or even making purchases in such stores.	E.g. (AP01) I take them to the downtown just, you know, just a tour, a tour in downtown Boston and take the train back or just go shopping

Code	Definition	Example from data, optional
Activity: take public transportations	Taking a train, bus, subway etc. as an activity with children.	E.g. (AP01) I take them to the like downtown Boston because they like the train ride, the subway
Activity: watching/playing media at home	Including watching TV, videos, streaming videos from internet, multimedia etc.	E.g. (AP01) TV channel in Arabic and there is some stories about the history about something like, like, what do you call it like something in the past that happened and is like miracles thing. And there is like stories in the Koran, how did that happen, and a series about animals and he loves it. He was watching it a lot.
Activity: writing	description of any activities that are related to writing, copying alphabets, or even scribbling.	E.g. (BT04) then they take their own notebook to sit down and write.
Code family: Background Information (BI)		
BI: age of children	Information on the child(ren)'s age.	E.g. (AP01) The oldest is 4 years and maybe 8 months <okay> the other one is 3 years and 4 months.
BI: distance between home and school	Description of the interviewee's currently living arrangement, and its distance from the children's preschool.	E.g. (AP01) I: Okay and do you live in the area near [name of preschool]? AP01: Yeah, I live in East Boston, here, very close, 5 minutes
BI: home language	Information regarding the language(s) spoken at home.	E.g. (AP01) We speak two languages.
BI: immigration history	Information on the interviewee's and their family members' country of origin, years spent in the new country, process to move to the U.S. etc.	E.g. (AP01) In Boston since maybe 2004.
BI?: comment on child care support from family	Description of the people who also provide care for the children (other than parents). Also include incidents when the interviewee said there were nobody to provide care.	E.g. (AP01) No, I don't have family.
BI?: parent goes to school	Background information: parent goes to school Parent attends courses full or part time.	E.g. (AP01) Yes, I work, yes. And I go to school too.
BI?: perceived regulations	The way participants interpret regulations	E.g. (AT03) Because Central will send out people to look at the area parks and be like "this is up to code; this is not up to code." <Right>. And if it's not up to code, we can walk through there but we can't let them stop.
BI?: single parent	Parent who lives in separate households with spouse, or divorced.	E.g. (AP01) I: Okay, so is your husband also working? is that... AP01: He is, he doesn't live with me. So sometimes he works, sometimes he doesn't.
BI?: working parent	One or more parents work full or part time, and share child	E.g. (AP01)

Code	Definition	Example from data, optional
	care with other family members.	Yes, I work, yes.
Code family: Community Resources (CR)		
CR: cultural-specific institutions	Institutions affiliated with a cultural group.	E.g. (AP01) I’m planning to have them go to Arabic school to learn the Arabic language.
CR: meeting people from neighborhood	Interaction with individuals from neighborhood that is related to children's learning or experience.	E.g. (AT01) There’s a woman that has a garden. She’s actually been coming out when she sees us and talking about the flowers
CR: store with affordable materials	Comment on getting used or new materials with affordable price.	E.g. (AP01) Like even for the toys I always try to go to like the store, xxx store, to get the used thing.
Code family: Daily Routines (DR)		
DR: after school	The time between leaving school and before dinner.	
DR: bedtime routine	The approximate time and activity that the child does on a regular basis around time to go to sleep.	E.g. (AP01) I: Okay, and what time do they normally go to sleep? AP01: I always try between 8:30 to 9 [pm].
DR: breakfast routine	The time between waking up and finishing breakfast.	
DR: dinner routine	The time when having meals at night.	
DR: free play routine	The school routine when children break into small groups to explore areas by their own choice.	
DR: going to school	The time between leaving house and arriving school.	
DR: gross motor routine	The school routine when children of a class were expected to engage in active, full body play.	
DR: group time routine	The school routine when children of a class gather, and then the teacher discusses a topic.	
DR: lunch routine	The time when having meals in the middle of the day.	
DR: morning routine	The time between arriving school and lunch time; or the time between waking up and lunch time at home.	
DR: nap routine	The time when brief naps happen in the afternoon.	
DR: school arrival routine	The time when children arrived school, before parents or other caregivers leave.	
DR: transition routine	Any activities that children do, or places that they go to as they transition from one routine to the other.	E.g. (AT01) Then they’ll get a book, and again wait for their friends, for everyone to finish, and we’ll gather and do another group.
DR: weekends	Saturday and Sunday, the times when children do not have to go to HS.	
Code family: Home Materials (HM)		

Code	Definition	Example from data, optional
HM: active play objects	Objects that children use when they engage in whole-body movement play.	E.g. (AP01) I have a bike home so they ride the bike. E.g. (BP02) We went to the beach last summer. I bought my son a bucket.
HM: manipulative toys	The objects children use when they use fine motor skills to control the function of small objects.	E.g. (AP01) They like to play with cars E.g. (AP01) I think in Christmas, yes in Christmas and he get a train so he plays with it
HM: objects children bring to school	Teacher description on the items that children bring to school themselves, including toys, stickers etc.	E.g. (AT01) They'll bring little – those stupid McDonald's things, they all – those happy meal toys – I hate that.
HM: objects requested by teacher	Teacher description of items that are requested to parents for children to bring to school.	E.g. (AT01) When we did restaurant, I asked for empty packages, when we did supermarket, I asked for empty packages and parents brought them in.
Code family: Parent Beliefs (PB)		
PB: adult-led activity with children	Activities that are initiated and facilitated by adult family members, who may also provide materials to support children's exploration.	E.g. AP01- cooking with children; BP02- playing lion dance with materials from home country
PB: age and ability	Parent's comment on child's behavior as related to their age or development.	E.g. (AP04) She talks with me as if she were a grown woman. When you talk to her you'd think you were talking to an adult woman because she tells me everything, absolutely everything.
PB: challenging exchanges with child	Parent's comment on the interactions with children that are difficult.	E.g. (AP01) he ask me if it is dead, what is the death, like this question, these hard questions.
PB: child learning from specific objects /opportunities	Parent's comment on the way children make connections between learning and real life. Parent's comment on the way child imitate people's actions, or what the child sees/ hears/ experiences from the environment. Parent's comments on the way children learn from watching shows or videos on TV.	E.g. (BP05) I: can he tell they are from cartoons? BP05: It is cartoon, but sometimes when we go to <u>supermarket</u> , he would say that this is <u>broccoli</u> , this is <u>orange</u> , and this is <u>apple</u> E.g. (BP05) He imitated. He sang Oh Oh Oh~~ like what he heard, not correctly, but he still tried to learn.

Code	Definition	Example from data, optional
		E.g. (BP05) You can learn a lot from it. It has <i>orange, fruit, and vegetables</i> .
PB: children's sensitivity to differences	Parent's comment on the way children is able to distinguish the differences within a topic.	E.g. (AP04) they know exactly what the difference is between living and non-living things. E.g. (BP05) Later maybe he found out with the real one you can see the pictures you just took, but with the fake one you can't.
PB: comment by referring to past experience /country of origin	Parents' descriptions of their past experiences.	E.g. (AP01) like in my childhood, when I grew up in Morocco we, like the weather is nice, we can play outside is very sociable (AP01) he ask me about my father. And I told him he passed away, he's dead now
PB: comment on child's personality	Parent's descriptions and comments the child(ren)'s personality, habits, characteristics.	E.g. (BP02) My son is very shy.
PB: comment on own personality & condition	Parent's comment on his or her own personality or influence on child care.	E.g. (AP04) I don't have a lot of friends who go out with their children. I'm not very social but I love to have friendships, but it's not like I go out often.
PB: comments on children's observation	Parent's description of the way children observe things in daily lives, and how they notice things around them.	E.g. (BP05) Yea. When he saw our computer, he would notice what was nearby. Sometimes there was a piece of paper on the table. I just saw the computer on the table but didn't notice the piece of paper. However he would tell you there was a computer with a piece of paper.
PB: concern for child ability compare to peers	Parent's comments on child's ability compare to other children.	E.g. (BP02) He is not like other students, cutting circles or triangles. Sometimes he could cut those shapes, too, but he's not good at that. E.g. (AP04) She worries me because she is younger but more curious.
PB: concern for expense	Parent's comments on how s/he thinks about the price paid for activities related to children.	E.g. (AP01) Chucky Cheese is more spending money so there is always like a, like around budget, like I cannot spend too much (AP01) I try sometimes like, the discount they have, like the library pass

Code	Definition	Example from data, optional
		(AP01) sometimes is a little expensive, is the Arabic channel, I keep them home like all the time just like for them to understand.
PB: concern for safety	Parent's comment on things or situations that must ensure children's mental and physical safety.	E.g. (AP04) When they go out I have to check on them because they could like, drown or asphyxiate, so they stay inside [?]. (AP04) I like to always be watching them, in case one of them gets hurt or anything.
PB: concern for time spent with shared activity	Parent's comments on how much time was spent / needed to be spent with children in order to support their growth or learning.	E.g. (BP05) But we don't always have so much time. Just read a little this time, and continue it next time. It's fine. E.g. (BP05) I think I should go out with him more.
PB: concern or thoughts on child health	Parent's comments on thoughts or actions that are related to ensuring children's physical well-being.	E.g. (AP01) [name of child 2] is little more sensitive to dust so I had a set of XX and they use it when they were young but since my son start like sneezing most of the time when he play with it so I just <stop?> throw it away,
PB: designated space for child exploration	Areas that the adult specifically mentioned as desirable or normal for children to explore.	E.g. (AP04) If it's really cold out I don't take them out, what we do all the time is just go to the porch.
PB: desire to keep home language/ culture	Parents' comment on how they wanted to maintain their home language or culture.	E.g. (AP01) I'm trying to have them to speak; to keep speaking Arabic because it's good for them to learn other languages than English, I think is for their future.
PB: desires or regrets in better support child development	Parent's comments on it would be better for child if parents did not divorce and stay together.	E.g. (BP05) I think it would be better if his father and I were still together.
PB: difficulties in child's learning	Comments on the factors that may affect children's learning, as well as the difficulties that children undergo as s/he learn something.	E.g. (BP05) He is a left-hander, which makes it more difficult for him. E.g. (BP05) He used to read <u>e</u> as <u>de</u> . Now he corrects it.
PB: difficulties in interacting with other parents	Parent's comments on the difficulties in communicating or interacting with other parents.	E.g. (AP01) Yeah, I don't get a lot with them because you know every time I go there to other families, you know, there is other problems you

Code	Definition	Example from data, optional
		know like I just don't feel comfortable sometimes to get with other people from community, yes.
PB: expectation on how child learns	Comments on the process and end product of children's learning or growth.	E.g. (AP01) if they gonna be in the same situation, I want them to do things by themselves. E.g. (AP01) when I was in my back home, and I was responsible, so I want my kids be responsible too.
PB: influence from prof's knowledge	parent's description of the way they recall knowledge from professionals like teachers, doctors, researchers etc.	E.g. (AP04) was working before with a woman doing a study about asthma, they came to my house before.
PB: on parenting responsibility	Parent's comment on what they belief they should do as a care provider to their children	E.g. (AP04) I am a single mother and I have to take care of the children.
PB: opportunity for playing with other kids	Parent's comment on with whom the child(ren) play with, and how.	E.g. (AP01) Yeah like in the park they run and they play with other kids.
PB: outdoor play as dependent upon weather condition	Parent's comment on the way activities or enjoyment is hindered by weather factor.	E.g. (BP05) But it's cold. Perhaps it was cold when we were there last week, it was cloudy.
PB: reactions: child behavior/ words that provokes discomfort/ disapproval	Parents' discussions on the way children's words or behaviors that made them feel uncomfortable or sad or angry.	
PB: reactions: discourage activity, behavior, or words	Parents show dismay or criticisms to specific activities, behaviors, or words	E.g. (BP05) There are always a lot of Spanish and, that kind of people, so we just don't go there. E.g. (BP05) he always "bang, bang, bang", like this, shooting birds. "Don't do that, that's impolite." E.g. (AP01) I don't like the video game. I don't want them to use it. E.g. (AP01) I think that's normal for boys. Yeah if I see them playing with, I don't know, like girls toys, then I got a little xx.
PB: reactions: indifference to child's words	Parents showing little to no reaction to children's words.	

Code	Definition	Example from data, optional
PB: reactions: puzzled about child's behavior/ word	Parents raised concern about children's particular actions or words.	
PB: reactions: satisfaction/approval in child's words/behavior	Parents' comments on how they like or proud or agree with children's actions or words.	
PB: source of stress	Parent's comments on the events or interactions with others that bring stress to life.	E.g. (BP05) BP05: Yea, my new house has some places to be fixed. Later I have to move to another place to wait till the house is fixed. I: And then you will move back? BP05: Yes, move back. Ah, now I'm very stressed.
PB: value for active play	Parent's comment on the reason children should engage in active play.	E.g. (AP01) Yeah like in the park they run and they play with other kids. I think I like it better.
PB: value for child listening to parents	Parent's comment on the importance of children listening to parents, or being well-behaved.	E.g. (BP05) If he doesn't listen to me in the morning, I'll only let him watch once. If he gets angry then there is no video watching that day
PB: value for learning at institutions	Parent's comments on children going to school, or the system of schooling	E.g. (AP04) That's very important because the children learn a lot at school.
PB: value of rewards	Comments and descriptions on the use of food, objects, or activities as a reward to desirable behaviors	E.g. (BP05) I would buy him something next time when he was being good. The cookies, he likes eating sweet. E.g. (BP05) If he doesn't listen to me in the morning, I'll only let him watch once. If he gets angry then there is no video watching that day
PB: views on writing and drawing	Parent's comment on having children write the alphabets in English or in their home language, or practice writing in general	E.g. (AP01) like to learn the alphabet, names, words, especially for like [name of child 1]. And have him write and drawing things.
PB: what child learning/exposed at school	Parent's comments on their knowledge of what children learn at school.	E.g. (BP05) They are learning about <i>caterpillar</i> , you know, the caterpillar will turn into a butterfly.
Code family: Parent Observations (PO)		
PO: child ask question: objects' or animals' property	Observations on the way children ask questions about objects or living animals.	
PO: child ask question: people or experience	Observations on the way children ask questions about human beings or lived experiences.	
PO: child interest related to	Observations on the way children showed interests to literacy.	

Code	Definition	Example from data, optional
literacy		
PO: child interested in how things work	Observations on children showing interests to how things work.	
PO: child interested in objects/ activity	Observations on the way children showing interests on objects or activities.	
PO: child interested in pretend play	Observations on children showing interests to pretend play.	
PO: child interested in seeing/interacting with objects/ animals	Observations on children interested in seeing or interacting with objects of living animals.	
Code family: Teacher Beliefs (TB)		
TB: age diff in actions or words	Teacher's comments on the things older and younger children do or say in the activities.	E.g. (BT03) the older ones are relatively able to <i>catch</i> those [ways of doing things], but for the younger children they are not quite... if they don't know they click randomly, if they can't then,
TB: applying knowledge from professional training	Teacher's comment on what s/he learned from training and how s/he applies what is learned to classroom.	E.g. (BT03) when we went to <i>training</i> , the <i>professor</i> said, "if you read one sentence in English, and then explain that line in Chinese, then the children will only rely [?on the explanation], and won't learn English."
TB: child and parent expectation	Teachers' comments on what they expect from children and their parents.	
TB: children's ability related to engineering	Teacher's comment on what children know or do related to engineering.	
TB: children's ability related to science	Teacher's comments on what children know or do that are related to science.	
TB: children's ability related to technology	Teacher's comment on children's fluency in technology.	E.g. (BT04) They are even smarter, because sometimes when I can't figure it out I ask them for help. E.g. (AT01) Technology they know a lot more
TB: children's home experience	Teacher's description or comment on what s/he knows about the conditions or activities that their students do outside of the school.	E.g. (AT01) But like I said, very, very few go out to do physical kinds of stuff. <Really? OK>. Unless they live near the park, or walk by it on the way home from school.

Code	Definition	Example from data, optional
		(BT03) Some who live further take <i>trains</i> .
TB: child's cognitive ability	Teacher's comments regarding the way children make connections between ideas based on their answers to teachers' prompts.	E.g. (AT05, 06) They really make a good connection between one thing to another. E.g. (AT05, 06) they say, "when I grow up, I'm going to be an architect so I can build a house." E.g. (AT05, 06) they say "well, if you don't eat good, I mean, you're gonna get sick. And then if you get sick, you're gonna go to the doctor, and they're gonna give you a shot, and I don't like shots."
TB: comments on children's observation	Teachers' comments on the way children notice things in their surroundings.	E.g. (AT01) Anything that's different, they pick up right away.
TB: comments on growth and health	Teachers' comments on children's mental and physical growth and health.	
TB: comments on interacting with parents	Teacher's comments on their experiences in communicating or interacting with parents.	E.g. (AT01) so I don't see a lot of the parents. And when I do, it's like "good morning, how are you?" The mornings are really crazy, and it's usually the babysitters, the aunts, the uncles, that pick up in the afternoon E.g. (AT05, 06) then they also come out with some concerns that they have at home. Or if they really have certain kind of needs they just come up with the teacher and tell us, you know, what they are looking for. E.g. (AT01) Unless it's a specific thing like the caterpillars, yes, that was a product, but you know what? Sometimes you need that – the parents look for it. They're like "oh, what are we gonna make?" you know?
TB: concern for safety	Teachers' comments on children's safety.	
TB: concern for sharing objects	Teacher comments on the way materials in the classroom need to be shared and distributed fairly.	E.g. (BT04) If there is not enough, then you shouldn't take it out and distribute. Because if a child has it and another doesn't, then the other child will be sad

Code	Definition	Example from data, optional
TB: cultures represented in classroom	Teacher's description of the way culture is evident in the classroom.	E.g. (AT05, 06) I like working with my coworker, I really enjoy that, because she's from Morocco. <Right>. And she's got different culture, but I can find similarities. At the same time, some things that are different from her country and my country.
TB: encouraging self-expression	Teacher's comments on expecting and supporting children's ability to talk about thoughts or feelings about objects or events.	E.g. (BT03) I ask them to talk about it themselves. If they don't know how to express themselves will teach them, "So this is such-and-such" and give them some help.
TB: home vs. school contexts	Teacher's comment on the difference between learning at home vs. learning at school. Teacher's comment on objects from home or school.	E.g. (BT03) In a <i>classroom</i> there are 20 children, everyone does the same, until... which is to do the same thing as everyone else, to <i>follow</i> , so then they think that's the way it is. E.g. (BT04) at school, you can't play with toys that you bring from home.
TB: incorporate neighborhood features into instruction	Teachers' comments on the topics and/or objects that were incorporated in conversation or instruction with children.	e.g. (BT04) For example when they see birds fly in the sky, right. Then they, which is, during spring time when we go outside and see the flowers, they also talk about it: saying what color it is. Since there are few flowers on our way there, [?over here]. So they say, "This flower is white in color, and I also see <i>purple</i> flowers." They also talk about that.
TB: incorporate real life scenarios to instruction	Teacher's comment on using real-life experiences from outside school and relate to activities in the classroom.	E.g. (BT03) they say how they also eat that in McDonald's, with <i>cheese</i> , and they need Ketchup... they get everything, "You have to sandwich them all to make it tasty." Which is... asking things that <i>relate</i> back to their <i>real lives</i> . (BT03) Since we talked about these in a <i>theme</i> before, then they know
TB: language: barrier	Teacher's comment on language as being an issue in the communication with parents, other adults, or children.	E.g. (AT01) I didn't understand a word she just said. I thought she said "is this his?" <Is this his? Yeah. Right.> They have a hard time with English,
TB: language: child ability	Teacher's comment on the way older or younger children in the same classroom understand instructions in different languages, or teacher's perception of child's language ability.	E.g. (BT03) Since we have some kids who are on their first year, who are a little over 3 years old, in fact they don't really understand, they don't know. For the ones in their second year, the older ones, they

Code	Definition	Example from data, optional
TB: language: instruction	Teacher's comments on the use of L1 and L2 in reading or instructing children. Teacher's mention of using words such as scientific language or advanced vocabularies in activities with children.	understand, E.g. (BT03) after we read it we use English... Chinese to explain to them, what this and that are about. Like that. So that the kids don't <i>get confused</i> . E.g. (AT01) like, my children know what metamorphosis is; when the seed breaks open, they know it's germination...some of the parents didn't. So we did hypothesis, what our hypothesis was, mixing the two compounds to get a reaction
TB: limitation in instruction due to child char	such as having to end an outing activity for the whole group because some children may have to leave early for services	
TB: limitation in instruction due to staffing	Teacher's comment on staff team: especially on the way teacher turnover may influence children's learning.	E.g. (BT04) affecting the kids. Since they need to continuously adjust to different people, right.
TB: limitation or pressure in instruction due to program structure	Teacher's comments on challenges in teaching that are related to children's behavior problems.	E.g. (BT03) But sometimes it's frustrating. Sometimes some children's <i>behaviors</i> are very <i>challenging</i> . E.g. (AT01) A lot of times at breakfast, what I don't have a chance to do at group time, I try to give them a little preemptive, cause I know I'm not gonna get it all in,
TB: nice weather as opportunity to explore outdoors	Teachers' beliefs on the way optimal weather as enabling outdoor activities.	
TB: older children scaffolding younger	Teacher's description of how some children who may be older or spend more time than other help the less experienced ones.	E.g. (AT01) some great older kids that were here last year so they know, and they're helping the younger children. And they're really good
TB: on children working independently or together	Teacher's comments on expecting or having children carry out an activity by themselves.	E.g. (BT03) <i>read</i> by themselves, or look by themselves. E.g. (AT03) other kids will work together to color a picture together.
TB: opportunities for social time	Teachers' beliefs on the time and place for children to learn social skills.	E.g. (AT01) I mean during lunch and breakfast is social times, too. Like, we'll discuss what we're doing – what did you do at home

Code	Definition	Example from data, optional
TB: opportunities to decide for oneself	Teacher's description of the way children make choices in what they do in class.	E.g. (BT04) the older ones they have other <i>choices</i> , in which the first <i>choice</i> is the <i>block area</i> .
TB: reactions to children's words, objects, actions	comments or emotional reactions to children's words, objects, or actions	
TB: role as a teacher/educator	Teacher's comments on how they guide children as the children explore activities or learn.	E.g. (AT01) I sat with them the first couple days and played so they could see me play, and then I step back and let them do it. And if they aren't getting it, then I'll kind of step back in.
TB: satisfaction and passion in teaching	Teacher's comments on things that they enjoy or feel motivated as a teacher.	E.g. (BT03) but the kids learn something, and you are also happy E.g. (AT01) science was always my big thing
TB: teacher's own investment in instruction	includes materials or prof training imitated by the teacher for the benefit of the children's learning	E.g. (AT01) A lot of the stuff we didn't get here, I got a lot in New Hampshire
TB: topics related to math	Teacher's description of activities that are taught to cover math-related ideas.	E.g. (AT05,06) And then when we have that, we just count the days, and number, and addition, and all that stuff that involves math concepts. <Right>.
TB: toys for boys and girls	Teachers' beliefs on the types of toys that are suitable for boys and girls respectively.	E.g. (BT04) Boys bring cars, cars. Mostly cars, for girls... a lot of the girls buy <i>stickers</i>
TB: value for family	Teacher's comment on his/her thoughts in including families in the school. More general beliefs and values, not include the description of actual interaction.	E.g. (AT01) Family is a big thing, E.g. (AT03) they have to provide, and they don't get the time to always sit there with their family and enjoy it. So, it kinda sucks sometimes, you're with them more than their parents sometimes. E.g. (AT01) So we involved the parents in it, too, you know, like "can you bring egg cartons?"
TB: value for peer exchange	Teacher's comments on encouraging children to share ideas among themselves.	E.g. (BT03) to chat with each other, to exchange some comments.
TB: value for questions	Teacher's comment on the use of questions with individual or whole group of children during any activities.	E.g. (BT03) if they don't know, then I will ask them questions, which is to <i>keep</i>

Code	Definition	Example from data, optional
		[?asking] <i>opening</i> [?open] <i>questions</i> , so to let them ask questions and talk.
TB: views on writing and drawing	Teachers' comments on writing and drawing practices.	
TB: what teaching(?) looks like depending on situation	Teacher's comment on the instruction method or style varies by the theme or aspects of child development. Also include teacher's initiative/sense of agency/flexibility in adjusting the instruction or routine or regulation.	E.g. (BT03) If it is about cars, then when you go outside for that week, you talk to them according to the <i>theme</i> . (BT03) We actually teach children different things from various perspectives. Just like when you play, you need to <i>share</i> .
TB?: concern for limited resources	Teacher Belief: concern for limited resources Teacher's comments on the inadequate pool of resources for all children.	E.g. (BT03) you know there are 8 classes upstairs, and there are 6 classes with us downstairs, so there are not enough places to play. E.g. (AT01) We haven't had too many opportunities for field trips this year with the budget
TB?: opportunities for learning	Teacher's appreciation on spontaneous opportunities in learning.	E.g. (AT01) So a lot of it is spur of the moment, and it's not planned for.
Code family: Theme		
Theme: timing of a unit	teacher's description of the time frame and the time of the year that a specific topic is initiated	e.g. (BT04) About the weather, or... when it's spring time we will bring them to see the trees. Before we go out, if we have talked about... talk about this <i>theme</i> , then we will tell them "today we are going out, pay attention and see what are some changes on our trees?" Like that, we have to tell them, "We are going out, then you will observe according to the questions, then tell us about it later."
Theme: what is done specifically for the topic	teacher's description of the specific activities or talking points that go with the weekly or core teaching theme	
Code family: Teacher Observations		
TO: child interest related to literacy	Observations on the way children showed interests to literacy.	
TO: child interested in how things work	Observations on children showing interests to how things work.	
TO: child interested in object/activity	Observations on the way children showing interests on objects or activities.	
TO: child interested in	Observations on children showing interests to pretend play.	

Code	Definition	Example from data, optional
pretend play		
TO: child interested in seeing/interacting with object/animals	Observations on children interested in seeing or interacting with objects of living animals.	
TO: children ask questions	Observations on the way children ask questions.	

Codes and their families, at a glance

ACTIVITY

Activity: Chuck E. Cheese
 Activity: downtown Boston
 Activity: family-oriented community institution
 Activity: household duties
 Activity: local walks
 Activity: Play in park
 Activity: playing at a beach or seaside
 Activity: reading
 Activity: school field trip
 Activity: shopping
 Activity: take public transportations
 Activity: watching media at home
 Activity: writing

BACKGROUND INFORMATION

BI: age of children
 BI: distance between home and school
 BI: home language
 BI: immigration history
 BI: school regulation
 BI?: comment on child care support from family
 BI?: parent goes to school
 BI?: single parent
 BI?: working parent

COMMUNITY RESOURCE

CR: cultural-specific institutions
 CR: meeting people from neighborhood
 CR: store with affordable materials

DAILY ROUTINE

DR: after school
 DR: bedtime routine
 DR: breakfast routine
 DR: dinner routine
 DR: free play routine
 DR: going to school
 DR: gross motor routine
 DR: group time routine
 DR: lunch routine
 DR: nap routine
 DR: school arrival routine
 DR: transition routine
 DR: weekends

HOME MATERIALS

HM: active play objects
 HM: manipulative toys
 HM: objects children bring to school
 HM: objects requested by teacher

PARENT BELIEFS

PB: adult-led activity with children
 PB: age and ability
 PB: challenging exchanges with child
 PB: child learning from specific object/opportunities
 PB: children's sensitivity to differences
 PB: comment by referring to past experience/country of origin
 PB: comment on child's personality

PB: comment on own personality
PB: comments on children's observation
PB: concern for child ability compare to peers
PB: concern for expense
PB: concern for safety
PB: concern for time spent with shared activity
PB: concern or thoughts on child health
PB: designated space for child exploration
PB: desire to keep home language
PB: desires or regrets in better support child development
PB: difficulties in child's learning
PB: difficulties in interacting with other parents
PB: discourage activity, behavior, or words
PB: expectation on how child learns
PB: influence from prof's knowledge
PB: on parenting responsibility
PB: opportunity for playing with other kids
PB: reactions to child's behaviors, words, or choice
PB: source of stress
PB: take initiative to ask children questions
PB: use of rewards
PB: value for active play
PB: value for child listening to parents
PB: value for learning at institutions
PB: views on writing and drawing
PB: what child learning/exposed at school
PB?: concern for weather
PB?: empathy on child's routine
PB?: planning activities ahead of time

PARENT OBSERVATIONS

PO: child ask question: object or animals property
PO: child ask question: people or experience
PO: child interest related to literacy
PO: child interested in how things work
PO: child interested in object/activity
PO: child interested in pretend play
PO: child interested in seeing/interacting with object/animals

TEACHER BELIEFS

TB: age diff in actions or words
TB: applying knowledge from professional training
TB: child and parent expectation
TB: children's ability related to engineering
TB: children's ability related to science
TB: children's ability related to tech
TB: children's home experience
TB: child's cognitive ability
TB: comments on children's observation
TB: comments on interacting with parents
TB: concern for limited resources
TB: concern for safety
TB: concern for sharing objects
TB: cultures represented in classroom
TB: encouraging self-expression
TB: home vs. school contexts
TB: incorporate neighborhood features into instruction
TB: incorporate real life scenarios to instruction
TB: language: barrier
TB: language: child ability
TB: language: instruction
TB: limitation in instruction due to child char

TB: limitation in instruction due to staffing
TB: limitation or pressure in instruction due to prog structure
TB: nice weather as opportunity to explore outdoors
TB: older children scaffolding younger
TB: on children working independently or together
TB: opportunities for social time
TB: opportunities to decide for oneself
TB: reactions to children's words, objects, actions
TB: role as a teacher/educator
TB: satisfaction and passion in teaching
TB: teacher's own investment in instruction
TB: topics related to math
TB: toys for boys and girls
TB: value for family
TB: value for peer exchange
TB: value for questions
TB: views on writing and drawing
TB: what teaching looks like depending on situation
TB?: opportunities for learning

TEACHING THEMES

Theme: timing of a unit

Theme: what is done specifically for the topic

TEACHER OBSERVATIONS

TO: child interest related to literacy

TO: child interested in how things work

TO: child interested in object/activity

TO: child interested in pretend play

TO: child interested in seeing/interacting with object/animals

Appendix F

Domains

Domain	Definition	Sub codes
Activity: guided/ educational outings	Activities involved visiting an institution that primarily served to provide family-oriented, intentional learning experience for visitors. Examples included going to museums or zoos.	Activity: library Activity: Museums, zoos, aquariums Activity: other institutions Activity: school field trip CR: cultural-specific institutions
Activity: indoor activities	Activities that one would perform within an indoor setting for particular purposes, such as to gain a skill or spend leisure time. Examples included reading, writing, or using computer at home.	Activity: household duties Activity: reading Activity: watching/playing media at home Activity: writing
Activity: outdoor commercial	Activities that involved the consumption of goods and services, particularly for entertainment purposes, such as going to downtown Boston, going shopping, taking public transportation for fun, and going to arcades like Chuck E Cheese.	Activity: Chuck E Cheese Activity: downtown Boston Activity: shopping Activity: take public transportations
Activity: outdoor in nature	Activities that involved settings that were outdoor and with opportunities to have free, direct interaction with resources that were mostly organic and unchanging.	Activity: local walks Activity: play in park Activity: playing at a beach or seaside
DR: home routines	Activities that were performed on a daily basis in the home setting, for the maintenance of order and well-being. Most home routines adhered to a specific time of the day.	DR: after school DR: bedtime routine DR: dinner routine DR: going to school DR: morning routine DR: school arrival routine DR: weekends
Parent Beliefs	Parents’ utterances that referred to their explicit and implicit comments regarding a certain aspect	(same as the list of sub codes for the code family “Parent Beliefs”)

Domain	Definition	Sub codes
	related to their children's learning.	
Parent Observations	Parents' utterances that described their children's interests, personal characteristics, and cognitive abilities.	(same as the list of sub codes for the code family "Parent Observations")
Teacher Beliefs	Teachers' utterances that referred to their explicit and implicit comments regarding a certain aspect related to their children's learning.	(same as the list of sub codes for the code family "Teacher Beliefs")
Teacher Observations	Teachers' utterances that described the children's interests, personal characteristics, and cognitive abilities.	(same as the list of sub codes for the code family "Teacher Observations")

Appendix G

A Sample Quotation Report

Parent beliefs on Activity: guided/ educational outings

Program: A

Role: Parents

Domain: Educational Outings

Query Report for Prog A [PB x guided/educational outings]

HU: Pilot interviews_LL_working
 File: [R:\Atlas\Pilot interviews_LL_working.hpr7]
 Edited by: Super
 Date/Time: 2014-03-31 15:05:06

Document filter:
 "Prog A - Parents"

5 Quotations found for query:
 ("Parent Beliefs" COOBUR "Activity: guided/educational outings")

Interpretative memo/ Main ideas:

- (AP01) Planning ahead for trips so to take advantage of the discounts- required access to resources and coordination of schedules
 - o Pressure in parenting in public, a reflection of parenting
 - (AP01) investment in having child to learn a formal version of home language at Arabic school.
 - o FFK: a spectrum. Some parents may not want to totally embrace their home culture (e.g. AP01 did not want child to learn her dialect but the classic Arabic) – that's why they chose to come to the US and not stayed in home country (we are talking about immigrants who voluntarily moved to the US). They have their own theory in deciding what kind of home culture to keep for their children.
 - (AP02) going out as involving a specific destination, an extended period of time, and it was treated as a main event.
 - o "go walking outside" did not qualify as an outing for AP02
-

P 1: Pilot interview - AP01 - translation.docx - 1:11 [AP01: I try sometimes like, t..] (59:61) (Super)

Codes: [Activity: Museums, zoos, aquariums - Families (2): Activity, Activity: guided/educational outings] [PB: adult-led activity with children - Family: Parent Beliefs] [PB: concern for expense - Family: Parent Beliefs]

No memos

AP01: I try sometimes like, the discount they have, like the library pass <hmmm, okay> most of the time like, two weeks ago I took them to the Children's Museum because they have the half price <oh, okay> and I have the pass I will try to take them on the 23 to the museum of science <okay> I will take them on the 23. I reserve the pass

I: Where did you get the pass? Did you get it from here?

AP01: The city of Boston, I go just online and I reserve the pass for the day. <okay> if it is available <okay> so I will just take it. So I reserve one for the 23 for the museum of science and April 1st, the aquarium which is gonna be free <ohhhhh okay>. Yeah, it's free of charge <so it's free, okay.> free of charge <that's nice> so, yeah. And I took them one time to the zoo, the Franklin[?] Zoo.

- Parent was very clear about the places to go (i.e. BCM, MoS, Aquarium, Franklin Zoo) and the timing to go by specific dates.
- "because they have the half price", "reserve the pass for the day... if it is available", "it's free of charge": the main reason for going to the specific places at specific times was because of discounts in admission
- "go online", "if it is available", "reserve": the trips were planned in advance. In other words, the parent had to plan advance in order to use the discount library passes or to get the information on when the institutions were offering free admission. For this parent, going to museums and places that offered discounts did not sound like a casual trip that one could just go anytime. It sounded like she was "constrained" by the timing of when the discounts were offered.
 - o Yet, in this excerpt, the parent did not express any frustration. Rather, the parent sounded very resourceful and all-knowing. It sounded like any new immigrant families new to the community could just go to the parent and get useful information.

P 1: Pilot interview - AP01 - translation.docx - 1:22 [AP01: In addition to Head Sta..] (133:135) (Super)

Codes: [CR: cultural-specific institutions - Family: Activity: guided/educational outings] [PB: desire to keep home lang/cult - Families (2): Parent Beliefs, PB: family bkg/cult related] [PB: expectation on how child learns - Family: Parent Beliefs] [PB: views on writing and drawing - Family: Parent Beliefs]
 Memos: [Surprising]

AP01: In addition to [name of preschool], I'm just trying sometimes to work with them about like, like to learn the alphabet, names, words, especially for like [name of child 1]. And have him write and drawing things. Like art activities like...<oh, okay> like when I have time I do that with them <okay> and I think I see a lot of progress. And next year I'm planning to have them go to Arabic school to learn the Arabic language.

I: Okay, so like, more formal, because now they already...can they speak it? They can speak Arabic...

AP01: Yeah, no I want them to learn to, like how to write it. <Okay> Yeah and the formal, like the classic language. <Okay> because mine is just a dialect of the Arabic, their dialect is different than the classic.

Comment:

Surprises
 3/18
 2nd reading

Parent says she sees a lot of progress in child's art activity. Contrast to one AT's description of parent wanting to see products on art activities.

- Parent seemed to be very proactive in supporting children's writing and language development. She had specific expectations in what the children should achieve (i.e. alphabet, names, words, formal/classic Arabic). She initiated the learning at home, and saw it as "in addition to HS." Maybe she acknowledge the connection/continuation of learning between home and school?

- Parent was invested in children's writing and language, particularly in supporting their home language Arabic. She invested time and probably money (not sure if the Arabic school was charged) on having her children to write and learn formal Arabic.
- Why did the parent want her children to learn the "formal/classic" Arabic, instead of her dialect? Was one dialect more popular than the other? Or was one dialect more socially respected than others?

P 1: Pilot interview - AP01 - translation.docx - 1:34 [I think in Christmas, yes in C..] (77:77) (Super)

Codes: [PB: reactions: child behav/words that provokes uncomfot/disapproval - Families (2): Parent Beliefs, Parent reactions]

No memos

I think in Christmas, yes in Christmas and he get a train so he plays with it. It is a Thomas train, a small Thomas train. He loves it so he's play with it but last time I take him to Children Museum they have a big big table with big train like too many trains and too many is a very long ride for trains and he loves it xxx (12:43) yeah but they problem he wants to play with just himself he doesn't want any other kids take it so he was crying all the time I had to leave that place because I feel so embarrassed to have him cry because he keep taking train from other kids.

- Parent was aware that BCM had resources to extend child's interests. Child loved trains, and the Museum had a big train table. So parent brought child to the Museum and play with the trains.
- Parent felt embarrassed by child's social ability with other children in a public setting. Why did she have to feel embarrassed? Wasn't it normal for young children to struggle and learn from difficulties?
 - o This could be the spot that my view as a former Museum educator and a researcher diverged from the view as a parent of a young child. From the perspective of a parent, the child's behavior in public might be perceived as a reflection of the parent. Meaning that the parent felt responsible to the child's actions, or felt that s/he was seen as responsible for all actions by the child, regardless of the child's developmental stage.
 - o That said, parents may be under a lot of pressure in bringing their young children to outings in public. I wonder if the use of discount admission might also contribute to the pressure too. The Museums and zoos and aquarium usually have a membership program that is usually endorsed by middle to upper class families. They visited the institutions on a regular basis, and might organically create silos that were not intended. I wonder if DLL parents felt that, and how would this influence their experience in such institutions.

P10: Pilot interview - AP02 - translation.docx - 10:3 [I: And, in addition to the par..] (19:20) (Super)

Codes: [Activity: library - Families (2): Activity, Activity: guided/educational outings] [Activity: local walks - Families (2): Activity, Activity: outdoor in nature] [Activity: Museums, zoos, aquariums - Families (2): Activity, Activity: guided/educational outings] [PB: concern for time spent with shared activity - Family: Parent Beliefs]

No memos

I: And, in addition to the park, like you said, what are some other places in your community where your daughter spends time?

AP02: The library, the library, yes, the library. And going out on walks. When we go out, we go places like the aquarium, I take her to places like that, like the other day she was there, last weekend. Because sometimes I can't take her out during the week, we go walking outside and that's it.

- "go out" as going to places like aquarium; "can't take child out" as walking outside and "that's it". It seemed that parents regarded "going out" as a main event, an activity that involved going to a specific destination, maybe also with a specific purpose, and also required a period of time ("can't take her out during the week").
- It seemed that to this parent, "go walking outside" did not qualify as "go out" and spend time.

Query Report for Prog A [PO x edu outings]

HU: Pilot interviews_LL_working
 File: [R:\Atlas\Pilot interviews_LL_working.hpr7]
 Edited by: Super
 Date/Time: 2014-04-16 15:17:22

Document filter:
 "Prog A - Parents"

3 Quotations found for query:
 ("*Parent Observations COOBUR Activity: guided/educational.." | "*Activity: guided/educational outings COOBUR Parent Obse..")

Main ideas;

- (AP01) parent explained child's struggles in interacting with others during the visit to BCM. Yet she felt uncomfortable when her child cried and had to leave the place.
 - (AP01) parent noted the types of questions that children asked in the zoo. "hard questions", children as "a little too young" when asking about death. "appropriate" interactions, comfort level for parent
-

P 1: Pilot interview - AP01 - translation.docx - 1:15 [at home like, I was gonna ask ..] (76:83) (Super)

Codes: [Activity: Museums, zoos, aquariums - Families (2): Activity, Activity: guided/educational outings] [HM: manipulative toys]
 [PO: child interested in obj/activity - Family: Parent Observations]
 Memos: [Questions for JM]

at home like, I was gonna ask what kinds of things do they have, like do they have trains at home?

AP01: Yeah, actually [name of child 1], yeah [name of child 1] I think, oh no I'm sorry [name of child 2], got three gifts from [name of preschool] last year like at Christmas? I think in Christmas, yes in Christmas and he get a train so he plays with it. It is a Thomas train, a small Thomas train. He loves it so he's play with it but last time I take him to Children Museum they have a big big table with big train like too many trains and too many is a very long ride for trains and he loves it xxx (12:43) yeah but they problem he wants to play with just himself he doesn't want any other kids take it so he was crying all the time I had to leave that place because I feel so embarrassed to have him cry because he keep taking train from other kids.

I: Yeah, a lot of kids are, you know, it's that part of it. Are there other things that they like to play with at home? Or...

AP01: They like to play with cars <cars> yeah, [name of child 1] loves cars. He loves cars. I think that's normal for boys. Yeah if I see them playing with, I don't know, like girls toys, then I got a little xx. But yeah I think, they like play with cars they like to, I have a bike home so they

ride the bike.

I: A bike?

AP01: Yeah, small ones not like big ones, it's a medium size.

I: For the kids?

AP01: Yeah for the kids, the apartment I'm trying to empty all the <all the space> to have the space for play with it

- Child likes trains. Parent was aware that BCM had a big train table to match the child's interest on trains. Brought child to BCM. "problem" as child just want to play by himself, but the museum setting was open and public, hence struggle with playing with others. Parent had to leave because child was crying from the struggle and parent felt embarrassed.
 - o Parent was aware that her child was struggling to learn to social with other children in public. She could identify the way her child's crying as (1) wanting to play by himself (2) struggling to not take trains from others.
 - o Parent felt embarrassed by child's crying and hence had to leave the Museum.
 - o So parent could be aware of community resources, and had the intention to give child the experience of using the resources. But the child's developing social skills and the parents' feeling of comfort could be factors that affect parent's use of the community resources.

P 1: Pilot interview - AP01 - translation.docx - 1:17 [Like he, when I took them to t..] (91:99) (Super)

Codes: [Activity: Museums, zoos, aquariums - Families (2): Activity, Activity: guided/educational outings] [PO: child interested in seeing/interacting with obj/animals - Family: Parent Observations]

No memos

Like he, when I took them to the park there were so happy to see animals. They were looking for giraffe, the giraffe. But they didn't have the giraffe at the time, it was March, it was a little cold for the giraffe to be outside.

I: Okay and this is in the zoo? Or no...

AP01: When I took them to the zoo. Like in the zoo, the Franklin Zoo. It was a little cold so the giraffe wasn't there but they loved, we loved to see the monkey and lions and tiger yeah they loved it.

I: So they enjoy it also.

AP01: Yeah, they enjoyed the animal too.

I: Okay is there a, like in terms of, like when you go with them, what are the kinds of questions they ask you and...like when you spend time with them in the zoo or when you go to the park?

AP01: Like for the zoo...

I: Do they ask you questions? Like you were talking about the giraffe and...

AP01: I think, they just ask me like the names, question names, like # like when I went to the Franklin Zoo to see the baby monkey I think there is one, maybe [name of child 1] was asking where is the mother where is the son like this curious question. Like when he see the skeleton of, I don't remember what kind of animal, he ask me if it is dead, what is the death, like this question, these hard questions. So I think [name of child 1] is more curious to know <about those things> but I think he is still a little young. He just scared of monsters... it's like, is this monster? Is this gonna eat me? Like these questions <okay so imaginary> imaginary questions, yeah.

- When children was in the zoo, parent noticed what kind of animals the children were interested in.
- Upon the sight of the skeleton parent said that children would ask "hard questions," "imaginary questions." She was aware of the children's curiosity, and yet she considered them to be "a little young"
 - o Parent was aware of the types of questions that her children would ask. She also talked about her comfort level in answering such questions. She

considered the questions on death as “hard” and the children were “a little young” to know. Echoed with her account on visiting BCM and felt embarrassed. Parents’ comfort level in interacting with children in educational outings seemed to be a recurring theme.

P 1: Pilot interview - AP01 - translation.docx - 1:19 [AP01: Like for the zoo... I: Do..] (97:99) (Super)

Codes: [PO: child ask question: obj or animals property - Family: Parent Observations]

No memos

AP01: Like for the zoo...

I: Do they ask you questions? Like you were talking about the giraffe and...

AP01: I think, they just ask me like the names, question names, like # like when I went to the Franklin Zoo to see the baby monkey I think there is one, maybe [name of child 1] was asking where is the mother where is the son like this curious question. Like when he see the skeleton of, I don't remember what kind of animal, he ask me if it is dead, what is the death, like this question, these hard questions. So I think [name of child 1] is more curious to know <about those things> but I think he is still a little young. He just scared of monsters... it's like, is this monster? Is this gonna eat me? Like these questions <okay so imaginary> imaginary questions, yeah.

Appendix H

A Sample Conceptual Memo

Parent Belief and Observation on home-bound activities such as household duties, reading, watching/playing media at home, and writing

April 24th, 2014

Main ideas from the set of quotes that the code families "PB" (parent belief) co-occurred with "Activity: home-bound":

Program A:**PB x home bound:**

- This set of 8 quotations are generated from 3 out of the 5 EP parents.
- The parents in this sample mentioned activities related to child's participation in household tasks and the use of media.
 - o Regarding child's participation in household tasks: A parent described the way she involved her children in baking, because she expected the children to learn from watching, just like the way the parent did when she was young. The parent was also aware of children's desire to help. Another parent mentioned the way she negotiated with the child on the need for the outdoor-loving child to stay home, so that the parent could finish household tasks.
 - o Regarding the use of media: a parent intentionally had her children watch tv to learn English and Spanish.
- A parent mentioned her concern about child's safety, and it seemed that she saw her role as the supervising a safe space for her children to play. The idea of "safety" seemed to touch upon two areas: (1) ensure that the child did not get into accidents or meet strangers and (2) ensure that children/siblings were not fighting with each other.

TO x home bound:

- (AP01) parent's compromise between meeting children's interests and safety
- (AP02) parent noticed how the child wouldn't do some task alone, and the kinds of tasks that she was interested in
- (AP02) compromise between the need to do household chores and meeting child's interests in going to the park. Home as enclosed and child stay for the parent; playing outside as calling more for children's attention

Program B:**TB x home bound:**

- The list of 60 quotations is generated from 4 out of 5 B parents.
- There were three core activities covered by this pool of quotations: the use of media and electronics, the process of practicing writing, and child's participation in household tasks.
 - o The use of media and electronics seemed to provide parents the opportunity to evaluate their children's learning style. Some of the parents mentioned the way their children learned from observing others, and their children's ability exceeded the parents' expectations. However, a parent showed explicit disapproval towards children's unmonitored use of media as an obstacle to healthy life style: the frequent use of computer contributed to bad eyesight, bad memories, and lack of interests in active play and interaction with peers. The keyword here was not computer, but the *monitored use* of computer.

- The sample of Program B parents seemed to share the common idea that children must learn to write, particularly in English. Several parents shared the way they utilized multiple resources in providing materials that support children's writing practices (e.g. making booklets from the abundance of flyers; getting Chinese crossword tables from China). One parent identified the way school was for children to learn from playing, and might not offer enough time for writing. Parents often assumed the role of teaching children to write at home, and also acknowledge the different expectations between home and school: at school teachers might encourage children to write freely, but at home, parents guided children to write neatly, clearly, with right amount of spacing between characters.
 - Writing activities at home also tended to occur around dinner time or bedtime. Some of the parents were working parents, thus they might not have time until later in the day. However, some of the parents mentioned the way their child were not patient, felt tired, or not being persistent in their writing task at home. It is possible that the timing of the day, as well as the condition of the parent and child were very different than doing writing at school during the daytime. It would be interesting to contrast writing in home setting with parents, versus writing in school setting with teachers.
 - For child's participation in household tasks, parents often addressed the way their child took the initiative in helping, as well as the children's actual ability to complete the task. While most parents prioritize children's safety over the completion of the task, most of the parents did seem to sound satisfied in seeing their children having the intention to help, and to do things by themselves.
 - There were a few references to the way moving to a new place influenced home activities. Parents often emphasized on the locations rather than the process of moving itself.
 - Parents shared their observations of how their children functioned: they mentioned the way child state (e.g. good mood, tiredness, occupied with video games) directly affect the way children participated in activities with parents. Repetition seemed to play a big part in children's daily lives and interests: one parent would reward her child by allowing him to watch the same video twice; and another child would ask his parent to read the same book every day. Parents also seemed to share a common skill of keeping track of recurring activities (e.g. how often and when the Curious George TV show is on). This skill seemed to be the same as the way parents kept track of the discount admissions dates for various community institutions.
-

TO x home bound:

-
- Parents' methods in supporting children's learning:
 - TV characters
 - (BP02) Child's interests on cartoon characters as the core, and parent use media or buy materials that revolved around the interest. E.g. child liked Elmo, Barney, Thomas train etc, parent would search for those videos from YouTube, and buy children books related to those characters.
 - (BP05) watching Elmo as also watching messages about healthy food
 - (BP03) child liked Curious George: hence watch TV show and read books about CG
 - FK:
 - (BP04) stapled flyers as copy book for child; saved flyers for child to use when writing (a way to support child's interest?)
 - Reading:
 - (BP05) even though parent described child's interests on book as "just turning pages" but provided interactions, space, and materials to support child's interests on books.
 - (BP03) parent used the book language as a way to categorize the types of books
 - (BP03) parent was not able to read the book to child every day. Echoed with BT comment on having other family members to read to child
 - Writing:
 - (BP04) parent thought it was good that child was interested in writing (and possibly showing persistence and initiative in learning to write, despite young age)
 - (BP04) parent's view on the way writing was taught by teacher and parent
 - Parent as emphasized on the personal quality and how much one knew; and the strategy

able to find a Chinese cartoon series that were not available in US for her child to watch. A Program B parent (BP01) commented on the way he noticed the child was able to learn from observing cousin playing video games, and could catch up quickly. These parents provided examples of the merits that electronics had in their children's learning.

BP03, on the other hand, provided an anecdote on the usage of media as exerting negative influence on her child and resulted in unpleasant emotions in the parent. Her child watched scary movie with the elder sister without adults' supervision, and then the child formed his own theory about death and his recent minor surgery. The parent felt guilty and heart-broken upon the child's seemingly innocent comments about the hospital visits. Then the parent and interviewer engaged in a conversation regarding controlling the use of media in young children. I found this example having the potential of providing rich cultural information, as both the parent and interviewer emphasized on the usage of electronics, and they did not comment on ways to address the child's assumptions regarding life and death (based on the scary movie). It feels like the missing part of attending to the child's thoughts could be giving hint on some cultural beliefs or attitudes about ideas that children came up by themselves.

There were a very uneven number of quotations from each program: with 8 quotations from Prog A and 60 quotations from Prog B. While these numbers did not represent the way parents of each program find the topic significant or not, it was quite difficult to comment on findings from both programs because of the larger breadth and depth of quotations from Program B.

Based on my own experience volunteering in a classroom in one of the Programs, it seems that home-bound activities provided some food for thought on the relations between particular events and the setting/people involved in them. For instance, at school, all activities were planned and facilitated through a strict schedule. Compare to home setting, children don't have the chance to watch TV or play with computer for extensive period of time. Thus this made TV-related, media-related activities seemingly more prevalent in home settings or with parents. But that doesn't mean that the parents or the home settings are the causes of the use of TV and media. Similarly, from the narratives some parents mentioned the way their child were not patient, felt tired, or not being persistent in their writing task at home. At school, writing-related activities occurred during the daytime—when children were mostly fresh and energized. School also provided an array of materials to support the exploration of writing. In contrast, from the parents' narratives, writing activities at home tended to occur around dinner time or bedtime. It is possible that the timing of the day, as well as the condition of the parent and child were very different than doing writing at school during the daytime.

Appendix I

Emerging Themes with Participants’ Quotations

Parents’ understanding of learning opportunities

Theme: The Use of Media

Parents’ discussion of children’s media use suggested that they regarded tools that complemented children’s exposure to home and/or the English language as learning opportunities.

Subtheme	Description	Illustrations
TV programs as a way to reinforce language learning	<p>Parents encouraged their children to watch TV programs that were in their home languages (i.e., Chinese, Spanish, Arabic) or in English, as a way to support children’s language learning. The programs were not limited to the ones broadcasted on television, but also the ones accessible through borrowing DVDs from the library or watching through internet sites. Some programs in Chinese included the cartoons “Armor Hero” (in Chinese, 鎧甲勇士) and “Xiyangyang” (in Chinese, 喜羊羊與灰太狼), and the channel BTV. Programs in English included cartoons such as Dora, Mickey Mouse, Elmo, and Barney. Parents also mentioned watching programs in Spanish, or subscribing to Arabic channels.</p>	<p>Oh, they watch videos on computer. <Interviewer: Use computer?> Yes. You can find anything you want on the Internet. They watch cartoons. They watch Dora, <What is Dora?> Dora is a girl <a girl with short hair?> Yes, a little girl. And Mickey Mouse, <Oh, Mickey Mouse> and superman... and what else... “Armor Hero”? <What’s that?> A superman who can change shape <What shapes can this superman change into?> Cars, armor <Oh, Transformers?> Maybe, I don’t know, they see that in cartoons. They usually watch cartoons on computer.</p> <p>- BP01</p> <p>He also watched videos online, such as Elmo, Barney... He watched them on YouTube... I typed the words in for him; he would watch the videos there, by himself.</p> <p>- BP02</p> <p>He also watches the Xiyangyang cartoon... <Interviewer: Did you buy him the DVDs? I don’t think this show is on the TV channels in the US.> No, he watches it online.</p> <p>- BP03</p> <p>Because we just got here, we are learning English. She learns a lot faster than I do. I was learning on the internet, and the computer read fast. She taught me by my side.</p>

Subtheme	Description	Illustrations
		<p>- BP04</p> <p>She knew which was which. In the US the computers are all in English, but she could open the folders and watch the pictures and other things while I was cooking. Sometimes she even knew how to open a movie and then sat down watching it.</p> <p>- BP04</p> <p>Sometimes my husband uses the computer to learn English. We just emigrated from China so we don't know much English. We are learning as much as we can. She does exactly what we adults do. She uses the computer herself.</p> <p>- BP04</p> <p>My computer is a laptop. If he presses the keys too hard, the computer will be broken. So I can't give him the laptop. I gave him a keyboard instead, and the ABC. You can look at the difference between ABC ...</p> <p>- BP05</p> <p><i><Interviewer: Oh, then what do you usually play at grandpa's?></i> He loves watching TV the most... Just Chinese channels, CCTV, they speak in Chinese. I don't know if he can understand, but he just likes the cartoons.</p> <p>- BP05</p> <p>sometimes we watched TV together. I went online to download the programs and we watched together...</p> <p>- BP05</p> <p>I'm trying to even like, sometimes is a little expensive, is the Arabic channel, I keep them home like all the time just like for them to understand.</p> <p>- AP01</p>

Subtheme	Description	Illustrations
		<p>sometimes I'll put on an hour of dolls on TV in English for her, from there she learned her ABCs, I also put them on for him too so he learns in Spanish, I also put them on in Spanish.</p> <p>- AP03</p>
<p>Appropriate the use of media abiding to developmental stages</p>	<p>Parents noted children's ability to navigate computer use. They expressed their thoughts on when and how it would be appropriate for children to use media. They also described how they encourage their children to go outside instead of staying indoors with accessibility to electronics.</p>	<p>Comments on children's ability to use electronics</p> <p>Right, he is good at operating these things, such as computer. He is just four and a half years old. [his ability] is like an eight-year-old kid. I find that seven or eight -year-old children still need their parents [to help them to operate the electric equipment; but my child doesn't need us.] I didn't teach him so much about how to operate.</p> <p>- BP01</p> <p>he learned things fast as long as I taught him once or twice. My friend hid the cat and mouse app icon but he could find it out (...) he is smarter than I am. I don't know how to use an iPhone.</p> <p>- BP05</p> <p>Computer use as related to child development</p> <p>I used to work and not at home, he would watch TV with his sister, watching something horrible. When his sister watched that, he would watch that, too. He also watches scary movies at home. I told him not to watch that even his sister was watching, just play toys there, don't watch that.</p> <p>- BP03</p> <p>I just, I told them every day, I said, "Don't watch too much TV at home, especially weekends."</p> <p>- BP03</p> <p><i><Interviewer: and he's so young, always watching the computer is bad for his eyes and+...> Yeah, I know, it's bad for his eyes... and it's bad for him, it's easy... bad for his thought.</i></p>

Subtheme	Description	Illustrations
		<p>- BP03</p> <p>She likes it, but I don't let her play computer. In some days, like the days I took a break from work, I allowed her to play for half an hour. She is too young to play a lot with it.</p> <p>- BP04</p> <p>Yea, yea, she usually picked up from what we did. We didn't teach her, because she is still young. We don't want to teach her when she is still little. You don't need to worry that children can't learn computers. Sometimes we used computers.</p> <p>- BP04</p> <p>Distracting children's computer use with outdoor activities</p> <p>I think they are always sitting watching stuff on the computer, not willing to go out. So, when I went to work and on Saturdays, I asked them to go [out] with their grandmother.</p> <p>- BP03</p> <p>I asked him not to watch [cartoons on] the computer... [I] took him out, or asked him to play with his toys, or asked him to write or draw something.</p> <p>- BP03</p> <p>He just stays at home when I go to work... He's able to open the computer himself nw. If he doesn't know which button to press, he will ask us. So he may spend too much time on it, yes... that's why I sometimes called his grandparents to take him out, not just staying at home whole day long.</p> <p>- BP03</p> <p>Sometimes I asked my son to open the door, to go to the park by himself. I would ask his sister to go with him, to play the sliders, ride the thing, or walk with him.</p> <p>- BP03</p>

Subtheme	Description	Illustrations
		<p>I think they need to be a little more active, like running and playing better than just sitting and playing; I don't like the video game. I don't want them to use it.</p> <p>- AP01</p>

Theme: The Use of Community Resources

Interviews with parents from both Program A and Program B revealed their shared experience in visiting public institutions such as museums, libraries, aquariums, and zoos.

Subtheme	Description	Illustrations
<p>Expertise in manipulating community resources to support children's learning</p>	<p>During the interview, parents listed the kinds of community resources they usually took advantage for their children. Accessibility to resources and meeting children's interests were important factors that influenced their use of public resources.</p>	<p>Ways that motivated one to visit community institutions</p> <p>I try sometimes like, the discount they have, like the library pass ... most of the time like, two weeks ago I took them to the Children's Museum because they have the half price... and I have the pass I will try to take them on the 23 to the museum of science ... I will take them on the 23. I reserve the pass... I go just online and I reserve the pass for the day... if it is available, so I will just take it. So I reserve one for the 23 for the museum of science and April 1st, the aquarium which is gonna be free.</p> <p>- AP01</p> <p><i><Interviewer: ...and does she attend events or festivals in your community?></i> Not really <i><if there are any?></i> Yes, yes there are events, yes. But... we don't really go...unless there are some, and that I'm invited by Head Start and they'll tell me to go see something in some park and the child can see it then we'll go. But if that's not it, we don't really go out. At least we go to the park, as I told you.</p> <p>- AP02</p> <p>This 29th will be a night open day in Children's museum... we have been there before, on last 19th. On 29th I will be on the night shift, maybe ... my wife will take him there.</p> <p>- BP01</p>

Subtheme	Description	Illustrations
		<p>We get the tickets regularly... For example, the Aquarium provides tickets for Chinese on that Sunday. The school provides [the information], as well as the Chinese community. You can get leaflets in Chinese community, and you can see the open day information on the leaflets... This 29th will be a night open day in Children's museum... we have been there before, on last 19th. On 29th I will be on the night shift, maybe ... my wife will take him there.</p> <p>- BP01</p> <p>our whole family went there together. It's free. Last year the zoo is free. If it charged for the tickets, it would be at least tens of dollars.</p> <p>- BP02</p> <p>Last time we went to the, umm, aquarium, the aquarium...several days ago there was a ## free, free admission... last week, it's free on a day last week, ## free for Chinese people... it's once a year.</p> <p>- BP02</p> <p>There was once a...a...at BCNC...there was a form for us to fill in, so we could go to the aquarium for free.</p> <p>- BP03</p> <p>I know there are some activities in the church so I take her, to play with other kids, it's free, you know. But I don't go to church, I don't listen to that... There's some place in the second floor, like the house here, it's kind of a school in the second floor... there are volunteers. The volunteers there may also be teachers, they can teach kids to do things.</p> <p>- BP04</p> <p>Public transportations as learning opportunities sometimes I take them to the like downtown Boston because they like the</p>

Subtheme	Description	Illustrations
		<p>train ride, the subway <okay> so they love it every time because I take them to the park nearby the airport so every time they see the train they ask me to go and take the <the train, okay> train because especially the youngest one, he like Thomas train, so every time he see the train he will ask me to go...</p> <p>- AP01</p> <p>Sometimes taking the subway, looking around, there are sceneries outside the train, like [Charles] river... Right, she likes it. Sometimes she sits there, seeing many yachts parking in the river these days, she enjoys watching that... so I take her to the train, because some trains will pass there, to the riverside, to see the yachts.</p> <p>- BP04</p> <p>We took the bus and saw what there were on the way. I would talk to him. For example, when we saw water, we would talk why the water looked black.</p> <p>- BP05</p>
<p>Considerations in the personal fit with the public resources</p>	<p>While parents appreciated the availability of the community resources, they shared some common challenges. Most parents in this study listed the fit between child's characteristics and setting, as well as the caregivers' availability.</p>	<p>The pressure of parenting in public</p> <p>... last time I take him to Children Museum they have a big big table with big train like too many trains and too many is a very long ride for trains and he loves it ... he wants to play with just himself he doesn't want any other kids take it so he was crying all the time I had to leave that place because I feel so embarrassed to have him cry because he keep taking train from other kids.</p> <p>- AP01</p> <p>I haven't been to the library. His daddy brought them there once... Because people need to be quiet in the library. I, umm, his daddy said that he [the kid] had no patience, so we were afraid that he would make noise or cry out, and it would be bad to disturb others. So we didn't bring him there, we just took him to shopping, and to parks, just like that.</p>

Subtheme	Description	Illustrations
		- BP03
		<p>Evaluating adults' comfort level in their supportive roles I just don't feel comfortable sometimes to get with other people from community, yes... You know it's like, it's just sometimes you have to talk about your personal life and ask question about your personal life and you don't wanna get through your business and... keep it private that's why I will just keep, stay, sometimes you just want to stay away other than be uncomfortable and talk about your personal life in front of other people.</p>
		- AP01
		<p>They um, they like Chucky Cheese better but Chucky Cheese is more spending money so there is always like a, like around budget, like I cannot spend too much so as soon they finish what I have I take them to the park play. I think they need to be a little more active, like running and playing better than just sitting and playing; I don't like the video game. I don't want them to use it.</p>
		- AP01
		<p>Usually just with my brothers or with other children because we don't really know, like, I don't have a lot of friends who go out with their children. I'm not very social but I love to have friendships, but it's not like I go out often. It's usually just in the parks, we'll meet up with our children and we chat and play, but that's it. To the contrary, I almost never go out to my friends' houses. In my home it's just me, my father, two other tenants, and my children.</p>
		- AP04
		<p>Well actually, I don't visit the tenants on the third or second floor. If the children from upstairs come down, that's fine. But I don't like my children going up, it's not good. From my point of view, it's not good to let them go out alone. I like to be watching them; if the children from upstairs come</p>

Subtheme	Description	Illustrations
		<p>down to play, it's fine. I don't feel confident letting my children go upstairs because it's not safe. I like to always be watching them, in case one of them gets hurt or anything. You know? It's no good.</p> <p>- AP04</p>
		<p>we usually go to the Chinese supermarkets, because [American supermarkets], such as BJ, are too far from here... It's far away from my house and need to drive. We usually go to Chinatown because we are more familiar with this area... the supermarket is near the school because both of them are located in Chinatown. Moreover, the people at the Chinese supermarket can speak Chinese... My wife's English isn't good enough. And she can't drive, either. So she usually doesn't go too far.</p> <p>- BP01</p>

Theme: Program-specific Values on Writing as Knowledge and Character Building

Program B parents' narratives of their home routines revealed their shared value regarding their children's writing development. Their descriptions often included details regarding the actual practices and references to children's attitude towards learning.

Subtheme	Description	Illustrations
Writing practices at home	<p>Program B parents often mentioned their active participation in children's writing practices at home, and discussed the expectations of their child's education through the way they guided their children's writing practices at home.</p>	<p>Direct support for children to practice writing</p> <p>I brought some crossword tables of Chinese characters from mainland China, and I'll let my child do it alone. He cannot write Chinese yet, I just let him write or draw as he likes.</p> <p>- BP01</p> <p>There are some flyers with one side blank. I'll staple those into a book for her to practice writing... Because we received a lot of flyers, I would put them together... She kept doing this [writing] for the whole morning.</p> <p>- BP04</p> <p>I thought she must learn how to write her name, so I taught her at home. She didn't like to write. I taught her in my own way. I used an empty piece of</p>

Subtheme	Description	Illustrations
		<p>paper and wrote all 26 letters on it. That day I was on a leave from work, so I stayed at home all day to help her, writing with her... When she learned at home, I was like... If she didn't write this one well, I erased it and asked her to write it again. Maybe her teacher let her write whatever she does, but I didn't. I said "This one is not good. Erase it and write it again."</p> <p>- BP04</p>
		<p>Before we moved to South Boston, I made a lot of things for my son to do, such as writing. I've seen those things at school and the teacher gave me some ideas on how to teach the child. At home I took a piece of paper and wrote ABC, asking him to copy... Now he can write A to... Anyway 26 letters, all capital. I asked him to just write. Also I drew something for him to copy, like the tree, tree, and let him color it.</p> <p>- BP05</p>
		<p>Writing practices or attitudes that parents value Right now, he can only write his name. I taught him to write his Chinese name. A person needs to spend a lot of time to really get Chinese [words].</p> <p>- BP01</p>
		<p>Yes, [children need to spend time in] writing the word well... even the primary school, [the children only study at the school] from 9:30am to 3pm. What do the children really learn from the school? they just learn a little! But they play to develop his creative thinking instead of writing</p> <p>- BP01</p>
		<p>When other children were 5 years old, they knew all 26 letters, but my son just couldn't recognize the letters. He didn't know or write them. He didn't even write the letters at school. When I asked him to read or write [the alphabet] at home, he would say "I knew them", but didn't write them down anyway.</p> <p>- BP02</p>

Subtheme	Description	Illustrations
		<p>He writes his name. I taught him to write the 26 letters at home all the time. He still can't write some of them. But he, I mean I said to him about the "n" and u. I asked him to slow down, and don't write it too long. He said, teacher, I said, he just said this was the right way to write it. I've asked his teachers. The teacher said it was okay because he was still little.</p> <p>- BP03</p>
		<p>She would copy the book to follow what's on the book. I think it's pretty good, because she is interested in it.</p> <p>- BP04</p>
		<p>Sometimes she doesn't write very well, but I think it good enough that she is willing to write. When she just came here she couldn't even write her name. Now she is happy all day long, so I want to give her a happy thing for her to do.</p> <p>- BP04</p>
		<p>She said "Is it nice if I write small?" I said "No, small isn't nice. You must write clearly." At the beginning, she just wrote across the paper, not in lines. So later I used a ruler to draw some lines for her to write. Because she was a little child, she wrote everywhere. It was very easy for her to write across the paper. I said that was not good, so I helped her with drawing lines for her.</p> <p>- BP04</p>
		<p>I wrote ABC with him. If he finished writing all of them once, I would give him his favorite snack, or let him watch TV. It was like a contract.</p> <p>- BP05</p>
		<p>After he has been writing the letters for fifteen minutes or half an hour, I would give him a sticker, or allow him to watch TV for a short while, or give him some snacks.</p>

Subtheme	Description	Illustrations
<p>Writing practices as strengthening one's persistence in learning</p>	<p>Program B parents would make references to their children's personal characteristics as they mentioned their children's learning practices. Their narratives provided insights on the way one's persistence to achieve excellence was one of the valued attitudes in learning.</p>	<p>- BP05</p>
		<p>Right, watching TV, shopping, will interest him. But when it turns to study, he will lose his interests. It's weird. He's lazy, I think.</p> <p>- BP02</p>
		<p>I wake him up every morning. He is very lazy. He is not willing to go to school.</p> <p>- BP03</p>
		<p>Yea, and handwriting. He wouldn't write for very long. He would say he was tired from writing for a little while. Nah, he is not persistent... No, no patience. His father and I criticized him about that. My son has no patience on anything... He has no patience no matter where you take him to.</p> <p>- BP03</p>
		<p>Because people need to be quiet in the library. I, umm, his daddy said that he [the kid] had no patience, so we were afraid that he would make noise or cry out, and it would be bad to disturb others. So we didn't bring him there, we just took him to shopping, and to parks, just like that.</p> <p>- BP03</p>
		<p>I used to teach her at home, but she didn't like to learn. Maybe she didn't know at the beginning and she wasn't patient</p> <p>- BP04</p>
<p>That day I was on a leave from work, so I stayed at home all day to help her, writing with her. She probably only wrote 10 letters before she got tired. She didn't want to write.</p> <p>- BP04</p>		
<p>Many children just sat there not willing to move or write. She wrote very</p>		

Subtheme	Description	Illustrations
		<p>fast. She did it immediately and then went to play. So sometimes her teacher said she wrote pretty fast, and she was a little cunning. She is. I think she is a little cunning too. So she sometimes writes fast, but doesn't have enough patience.</p> <p>- BP04</p>

Theme: Thought Processes on Learning as Based on Cultural Contrasts

Several parents illustrated the way they identified learning opportunities through constantly contrasting in two dimensions: place and time. They made judgments on the types of abilities that their children would need to achieve, as well as the methods of supporting their learning based on their first-hand experiences in the home country and in the U.S. They also addressed how they expected their children to develop based on their perspectives of their own childhood and their children's present conditions.

Subtheme	Description	Illustrations
<p>Reflection upon parenting experiences, between home and host countries</p>	<p>BP01 and AP01 contrasted their perception of providing resources to their children as a caregiver by recalling their experiences in the country of origin and in the U.S.</p>	<p>BP01's contrasts in the resources available in Guangzhou and Boston</p> <p>We can also let the kids play on the beach without stress and worries, which could not happen in China since it would be too crowded on the beach and you need to pay for the tickets.</p> <p>- BP01</p> <p>While there was fewer children's playground like the kind in Boston in Guangzhou, we only had playgrounds in some communities, and they just had some recreation facilities like a trampoline, and you need to pay too. However in the U.S., anyone can play in the playground anytime, and there are more options to choose like slides, swings, etc. I think there are less people in the U.S., Guangzhou is too crowded.</p> <p>- BP01</p> <p>There are many ones for children in the library, not like in China. In China, generally. (...) I was in Guangzhou. I had never been to the library. (...) it is not convenient. And it is very far away, a large library. It is useless. It is impossible for us to go there. Even if you drove there, it would not be convenient to park. It is not convenient to take a bus, either. (...) Not for kids.</p>

Subtheme	Description	Illustrations
		<p>Basically for adults. Sometimes I went there once or twice.</p> <p>- BP01</p> <p>AP01's contrasts in the resources available in Morocco and Boston</p> <p>When I grew up in Morocco we, like the weather is nice, we can play outside is very sociable, everybody like go outside, they play with the kids and like, the neighbor can take care, like pay attention to you if something happen. We, more like, go outside like have some sun, here is so cold. It's so hard; it's so hard to take them outside. And here I live in like an apartment, I don't have like a porch, I don't have anything. I don't have a backyard or anything, no I don't.</p> <p>- AP01</p>
<p>Reflection upon childhood experiences, between parents' and children's</p>	<p>AP01 and BP04 contrasted their own childhood experiences with their children's present contexts in determining what would be a valuable learning opportunity.</p>	<p>I make sure that everything is fresh so, like the egg, mix the white egg itself and then mix the other things like yellow with the other stuff and maybe Zachariah he can add the flour at the end and I ask like if he can give me something and add it, like, simple thing and he does it. He starts crying, but I'm trying to give this job and the other one job. I like to watch things. I like them to watch how I do things.</p> <p>- AP01</p> <p>I start cooking like when I was 7 years old. I start cleaning the house and everything. You know, it's different than here, than in America. Where in our country you need to cook, you need to clean, you need to do everything even when you go to school. (...) I was responsible, so I want my kids be responsible too. And they need to do a lot of things by themselves. Because that's how I used to it.</p> <p>- AP01</p> <p>I have brothers, even like, they are boys, but I have brothers. Like one of them, he was in Morocco, he went to Germany, and the government help him for his school but it is like, you know how sometimes you cannot afford</p>

Subtheme	Description	Illustrations
Manifestation of the thought process	Parents' beliefs shaped their actual practices and had direct influences on their children's development in the U.S. The following examples illustrated the way these parents' thought processes were manifested in the way they shape their children's learning opportunities.	<p>to go to the restaurant all the time and eat outside all the time, you need to cook it yourself, it's saving money. So if my kids, if they gonna be in the same situation, I want them to do things by themselves.</p> <p>- AP01</p> <p>I think [learning kungfu] can exercise her body and strengthen her will, so that she can bear hardships. Children nowadays have an easier life than when we were little, as they don't have to do many things to make a living. Children nowadays don't have much to do, just doing homework, eating and walking around. There is no chance for her to exercise her body and her will.</p> <p>- BP04</p> <p>BP01 adapted his perceived definition of American Education to his parenting style</p> <p>In China, parents raise children, and then children are also responsible to raise the parents. (...) but there is no such concept [in the US]. Here, [the parents' goals to the child are] to give him a healthy environment, to guide the thoughts, and to let him grow up healthy. [Parents] never expect the child what he will be in the future don't have expectations for the child in the future. As parents, we must, just guide the child enough so they can be independent, that's it! (...) I respect his passion, ah, and what he thinks about.</p> <p>- BP01</p> <p>I began to read these books when I in China. <So you have learned a lot before you came to USA, right?> Yes. I am appreciative, and I won't say if something is wrong or not good; instead, I guide him by saying "Can we try another shape/way/ etc. to do that?" I won't say that is totally wrong. <You just provide some constructive suggestions>. Yes, constructive suggestions, I will guide him to think.</p> <p>- BP01</p>

Subtheme	Description	Illustrations
		<p>AP01 sought to preserve home culture and practices among her children We speak two languages. I'm trying to have them to speak; to keep speaking Arabic because it's good for them to learn other languages than English, I think is for their future.</p> <p>- AP01</p> <p>I think is something natural, like who they are, with like people who speak English speak English with them. And when we are with me and like home when sometimes they forget and just start talking English between each other so I will try to stop them and I try to speak with them in Arabic. I told them I don't speak English so they need to speak with me Arabic.</p> <p>- AP01</p> <p>And next year I'm planning to have them go to Arabic school to learn the Arabic language. (...)I want them to learn to, like how to write it. Yeah and the formal, like the classic language. Because mine is just a dialect of the Arabic, their dialect is different than the classic.</p> <p>- AP01</p> <p>BP04 formed her own perspective on creating opportunities for her daughter We are not native people here, we are just new immigrants. So now if I have time, don't need to work, I'll take her to the subway, to go around...To get to know more about here, to take some photos, something like that. Actually my daughter and I are both trying to accommodate to the new life here, in United States. There're a lot of things which I don't quite understand, so I always ask others. If there's someplace nice, I will take her to the place.</p> <p>- BP04</p> <p>About the Sunday thing, you know, a lot of people go to the church here, but it's just for adults, kids can't understand, so there's a place just for kids. But I don't go to church, I don't listen to that. I know there are some activities in</p>

Subtheme	Description	Illustrations
		<p>the church so I take her, to play with other kids, it's free, you know.</p> <p>- BP04</p> <p>It's very big. There are a lot of things to see in there... She likes listening to each of [the greeting cards], because we usually won't buy the cards. Since she can't read, sometimes I would look at the cards with her. Also we read some books, for there are books in the supermarkets. After she reads the books we would do some shopping. And then we drive home and she takes a nap after lunch. This is almost a day's activity.</p> <p>- BP04</p>

Teachers’ understanding of learning opportunities

Teachers in this study generally perceived the children in their classes as inherently curious and attentive to their environment.

Theme: Learning as Manifested in Structured Weekly Themes

As children shared their keen observations from their neighborhoods, teachers would assess their comments to see if they could recall the core ideas they learned from classroom themes

Subthemes	Description	Illustrations
Thematic learning in group and individual settings	Themes were consistently used throughout the day, whether it be in a group or individual settings.	<p>For instance, like “springtime,” and we learned about life cycle of a butterfly or a caterpillar. So we order caterpillars and then we observe the changes in the life cycle of the caterpillar. We also read books that go along with the theme.</p> <p>- AT05</p> <p>when we talk about animals, we find books about animals, and read with them</p> <p>- BT01</p> <p>Just like this week we are talking about farm animal, so our small group activity... we have some stencils, you can draw what you know about farm animals</p> <p>- BT03</p> <p>They read books and we just prepare for the morning activities which are centered on the theme for that week</p> <p>- BT05</p>
Thematic learning through verbal scaffolding	Teachers regarded learning as occurring when one’s daily observations were deepened with intentional and focused instructions.	<p>So, we go outside and then we let them, you know, listen, you know, different kinds of sounds outside. And, “what kind of sound do you hear? And what do you think that car does for people? What does the driver does for people?” So it’s all different open-ended questions, and then we make a chart and see how many police cars did you see, how many, you know, fire trucks...engines did you see, or...so on and so forth, until we get the chart and see which one is the most and which one is the least.</p>

Subthemes	Description	Illustrations
		- AT05
		<p>Small circle – small circle is a way for us to prepare the children for transitioning to free play. So we do some kind of, you know, songs or some kind of questions, open-ended questions, and then once they give us the answer, then they're ready to, you know, play.</p>
		- AT05
		<p>For example this week we talk about animals right? We go to the zoo this week. When we talk about animals I ask them, using questions to ask “what do you know about the zoo animal.” Then we give them thinking skills, to let them think: “Do you know what a zoo animal is?” Or “What do you want to learn about zoo animals?” I ask them some questions. Usually KWL... they are called “KWL” questions okay. On Friday we review, and ask them what they have learned. We will record every day, every week, we have white paper underneath... right below the poster over here, we have these three questions to give them, to ask them.</p>
		- BT01
		<p>... I introduce the theme and ask them to see if they know anything about the theme. Then I start teaching them, if they don't know, then I will ask them questions, which is to keep [asking] opening questions, so to let them ask questions and talk. If they don't know then we can give them some back up, to give them hints (...) Each child can raise their hand to express their opinion, and what they know, like that.</p>
		- BT03
		<p>Before we go out, if we have talked about... talk about this theme, then we will tell them (...) ‘We are going out, then you will observe according to the questions, then tell us about it later’.</p>
		- BT04

Subthemes	Description	Illustrations
Program Variations in Thematic Learning	While the goal of deepening children understanding of their daily experience was shared among the teachers in this study, the implementation methods seemed to suggest that there was a difference in what aspects of learning were targeted.	<p>We do, when we got outside today, (...) they do connect like what they are learning in class. But more than often I do ask a lot of questions, open ended questions and get them to think beyond, you know, what they see.</p> <p>- BT05</p> <p>-</p> <p>Program A: collect and bring back materials to the classroom for projects</p> <p>Well, we’ve collected stuff... we do a fall, a winter, and a spring discovery box. So like different things we’ve found outside – whether it’s, you know the big seed pods from the trees. Sticks, branches. We have a worm farm, we’ve collected worms – yeah, I know, they’re really gross, too. Worm farms. Just about anything, you know, like – actually in the butterfly garden is a piece of a tree that I kind of pulled down so that they had a branch. A lot of, you know, organic, natural stuff of course. Rocks – we collected rocks for our rock garden. We’ve had leaves, rocks, seed pods, worms, what else is out there? That’s about it, I guess, from the environment.</p> <p>- AT01</p> <p>before like we go out, like if we go out on a walk, a discovery walk, we’ll say “today we’re going to go look for whatever, whatever, whatever.” So we’ll bring a bag or whatever with us. We’ll collect them. When we come back, we talk about – usually I’ll have a chart book. We’ll talk about what we saw, what we collected. After the stuff is clean, you know, then they’ll go into a discovery box... The big seed pods, we’ll let dry out so they make noise. And I did break some open so that they could see what’s inside it, and we compared it to a bean, and compared it another seed. And then I explained the process - like you know, when it falls, when it breaks open, then it can grow another tree.</p> <p>- AT01</p> <p>So we’ll go out – during the fall, we’d go out and they’d collect leaves, they’d all get a little bag and we’d make art projects out of it.</p>

Subthemes	Description	Illustrations
		<p>- AT03</p> <p>we've collected all the rocks in the area. 'Cause we always paint them – we take them in and paint them.</p> <p>- AT04</p> <p>we'll bring bags, and we'll collect...in the fall, we'll collect pine cones, and all the leaves, different kinds of leaves. And sort them, and trace them, and rub them... We had a tree get cut down that cracked... we took the tree. We asked them - we watched them, we took pictures, we drew what we saw. We actually asked the guy to give us a piece of the tree. We did rubbings. We actually used it as a...at the end, it was a hammer and nail activity.</p> <p>- AT04</p> <p>Well, we always love to collect rocks; we take our collection bag out with us, so whatever we find. The pinecones, we did lots of things where we weighed them, we took it apart, we dissected them, we could smell them. And then we used them as decorations for them – they got to paint them and put glitter and all that jazz. With the rocks, we always do weighing – everything we bring in, we try to weigh. Usually we clean them up, wash them, and paint them and they get to keep them as their special rock. All kinds of things with leaves. That goes on for like a month. Yeah. We make art, we rub them, we draw them.</p> <p>- AT04</p> <p>If it's snowing, then we just grab snow and take magnifying glasses and stuff like that.</p> <p>- AT05</p> <p>Also they sometimes... for the ants, “[You] shouldn't touch them, [they are] very dirty, [they] have germs.” They have to wash their hands when they come back, like that.</p>

Subthemes	Description	Illustrations
		<p data-bbox="989 233 1115 266">- BT03</p> <p data-bbox="940 310 1864 375">Program B: engaged children in conversations as they went on local walks</p> <p data-bbox="940 383 1923 558">We talk to them about whatever we see in the streets. For example, when we talk about plants, we talk about, “Take a look at this tree: there wasn’t that many leaves before, but now look, it is getting more leaves. The size of the leaves are getting bigger, right, and flowers are blooming too.” We talk about these with them.</p> <p data-bbox="989 566 1115 599">- BT01</p> <p data-bbox="940 639 1892 815">when they see those homeless people, they know that, ‘this person doesn’t have a house to live in, so this person has to sleep in the streets.’ Then we say, ‘Yes, so you need to study hard, and be a good person, don’t be like that.’ So we need to explain to them why they sleep over there, and don’t have food, like that</p> <p data-bbox="989 823 1115 855">- BT01</p> <p data-bbox="940 896 1913 1110">Sometimes they see ants on the ground, since we talked about ants and spiders before, “Teacher, there are ants and worms” like that. (...) It is because we talked about that before. I said, “Where do they live? Where do you see them?” “On the ground, in the soil, in the soil, I see them wiggle; there is a house, a nest... anthill.” Something like that. Which is, sometimes as we pass by, they see it and they will remind you, to tell you.</p> <p data-bbox="989 1118 1115 1151">- BT03</p> <p data-bbox="940 1192 1913 1403">They talk a lot. As we talk along those themes, those that we usually talk about, the theme teaches them where can bird nest be built, then they willingly [say], “sometimes at the house, at the tree” like that. So we see the bird nest at the church, “Teacher, there is a bird nest over here. They built it over here.” Then as we pass by the trees and see some, they will [say], “Oh there is a bird nest” like that. (...) Yes, they are very smart, they really are.</p>

Subthemes	Description	Illustrations
		<p>They learn more as they talk.</p> <p>- BT03</p> <p>Sometimes they see in the street... like mail truck, and some mailbox. Since we talked about these in a theme before, then they know (...) Which is, in daily lives, they... we have taught them these things, so when they see it they will remind you. Which is, I learned it and I know what that is for.</p> <p>- BT03</p> <p>Before we go out, if we have talked about... talk about this theme, then we will tell them “today we are going out, pay attention and see what are some changes on our trees?” Like that, we have to tell them, “We are going out, then you will observe according to the questions, then tell us about it later.”</p> <p>- BT04</p> <p>So yeah they do connect like what they are learning in class. But more than often I do ask a lot of questions, open ended questions and get them to think beyond, you know, what they see.</p> <p>- BT05</p>

Theme: Challenges in Facilitating Thematic Learning

Subthemes	Description	Illustrations
Time investment on themes for children and teachers.	Teachers expressed the issue of limited time for learning and instruction in the DLL classroom.	<p>But we actually talk about one theme for one week, it’s very fast, very fast, sometimes we feel like, “Is it set in their minds yet?” (...) So for the things to be learned or exposed, we also need to take into consideration of their interests and such. It seems that they don’t have much chance to have them sink-in into their minds.</p> <p>- BT02</p> <p>During circle conversation they want to talk about something else, I try to bring it back, but I do try to spend like a few minutes talking about what they</p>

Subthemes	Description	Illustrations
		<p>want to talk about, I mean I guess it really is a part of like NAEYC's guidelines about encouraging children and gaining their trust.</p> <p>- BT05</p> <p>I am the lead teacher in the classroom and I already do a bunch of things like in and out of the classroom and supporting the supervisor, so a lot of the planning. It's just a lot for me to put like an extra step into something, but I should try at least before the school year is over.</p> <p>- BT05</p>
<p>On following guidelines while providing outdoor experience for children</p>	<p>Teachers described their constant balancing act between fulfilling regulations and meeting children's individual needs.</p>	<p>Well, we go to Shaw's, which now we have to get special permission to go on any of the field trips, and they're considered local field trips. We used to just be able to go to Shaw's or the library, but now we have to get written permission because some people were abusing it by doing their own personal shopping, or doing their banking.</p> <p>- AT01</p> <p>Because we're regulated by where we can stop and let them play, 'cause things have to be...like there's a playground at the end of the street here xx, but we can't use it. Because Central will send out people to look at the area parks and be like "this is up to code; this is not up to code." And if it's not up to code, we can walk through there but we can't let them stop. So, sometimes it's just walking through, and other times if there's a grassy area, we'll check and make sure there's nothing - broken glass or anything like that.</p> <p>- AT03</p> <p>this is something that we do every day and we're supposed to be doing, that we let them do and play whatever they want. Because our philosophy is that children learn through play. So we just make sure, we make sure that we have enough materials for the children to explore, so they can, you know, explore and build or play on their own. And design their own pictures or</p>

Subthemes	Description	Illustrations
		<p>making a little building or something or a little design on their own. So basically they do things here by themselves. They choose their own areas and they choose their own play. It's by themselves. That's something we encourage as a Head Start teacher.</p> <p>- AT05</p>
		<p>Our school requires an hour. Such as going outside, or playing balls, only if the playground is available then we go inside. We can now only go to those areas in Peters Park.</p> <p>- BT01</p>
		<p>but then later on they won't let us go. <Interviewer: Oh? How come?> Limits... Peters Park has age limits. <Oh, so the park itself has age limits?> There is a tiny, small park for kids age 3 and younger; the larger one <which is like a spider web, the huge one> They said our kids can't play there. For safety. Since we can't [go there], we bring them for walks.</p> <p>- BT02</p>
		<p>For now we are limited to certain areas as we go to the park, there are a lot of places that we can't go. There is only a small playground at Peters Park for us to go, but usually there are a lot of people when we are there. So we are not usually able to go there. Sometimes at the field, there are a lot of people, because it is... you know there are 8 classes upstairs, and there are 6 classes with us downstairs, so there are not enough places to play.</p> <p>- BT03</p>
		<p>We do that sometimes or we go down to the Peter's Park, it's further down [name of the street where the school is located], and they have one section which is just the baseball field, grassy area, and they have another section which is actually the playground, but [name of the school] we don't use that section, they actually have to be older to play in that area</p> <p>- BT05</p>

Subthemes	Description	Illustrations
Teachers’ individual resolutions for the scarcity of resources	Teachers also felt limited by the classroom budget.	<p>We haven’t had too many opportunities for field trips this year with the budget. So that’s why I try to bring as much as I can into the classroom, so that they’re not missing out. I mean, only a few classrooms did butterflies. I’m the only one who did ladybugs because I bought it myself. Come on, 8 bucks, give me a break, “you can’t...?” Whatever, it just gets me crazy...</p> <p>- AT01</p> <p>I pick books for the theme to read and I get them from the supervisor, I get them from me going to the library if I can’t find them in the classroom, so it’s been hard to find some books to go with the theme, so I just go to the library and choose what I need.</p> <p>- BT05</p>

Theme: Thought Processes on Learning as Based on Experiences in Private Life

Program B teachers reflected upon their parenting experiences with their own DLL sons and daughters, to inform their understanding of how DLL children learned in the classroom.

Subthemes	Description	Illustrations
Conflict with cultural etiquette	BT01 pointed out the way talking during mealtime was going against Chinese families’ meal-time etiquette of not talking when eating.	<p>When we eat, we can’t just sit there and eat, we need to introduce ‘Ah! Today we are eating such-and-such.’ Sometimes you need to encourage them to talk more. But for us Chinese, we say that we don’t talk when we eat, but it’s different here, right? It’s different in the U.S.</p> <p>- BT01</p>
Conflict with typical home-instruction styles	Teachers would assess their children’s actual needs and implement the regulations accordingly	<p>when the Chinese people teach their children at home, if they see them not holding the pen right, then they naturally teach them how to write their names. To help them, like, holding their hands. But it’s not allowed here... [we have to] let them express freely, you can’t hold the children’s and teach them how to write their name. For us it’s very normal, it’s like if you have children at home, when you teach them how to write their names you say, ‘That’s how you hold the pen’ and hold their hand and write, right? Here you</p>

Subthemes	Description	Illustrations
		<p>can't hold their hands and write.</p> <ul style="list-style-type: none">- BT02 <p>About their knowledge, in general [such areas] are not as popular in Chinese families. It could be because they don't really talk about those at home, which is... to them, science is relatively difficult, advanced level...</p> <ul style="list-style-type: none">- BT03

Baseline perspectives on STE Learning

Parents' Understanding of Children's STE Learning at Home

Subthemes	Description	Illustrations
<p>Commented on children's ability</p>	<p>Parents often commented on children's ability as they described their children's understanding of living and non-living things.</p>	<p><i>I: (...) does your daughter play with living or non-living things? And do you think she knows the difference between living and non-living things?</i> AP02: Yeah, I think she does know how to distinguish, like you said, between living and non-living things.</p> <p><i>I: For example, have you observed a time in which your children realized they could see a difference between a rock and a dog, or something like that?</i> AP04: Yes, yes I notice these things, They are very intelligent. My children are very smart. I think they do know what, sometimes I ask them, and they know exactly what the difference is between living and non-living things. They know perfectly well.</p> <p><i>I: (...) do you think he will understand the concept of living things and non-living things?</i> BP01: he should be able to distinguish them. (...) He knows the difference between dead or living things. For living things, it should be alive. For dead things? it should be cold. He should be able to distinguish [these two.]</p> <p><i>I: Hmm...Has your son ever talked to you? Does he know a cat is a living creature?</i> BP03: Yea. <i>I: What did he say to you?</i> BP03: Just asked he did this...asked me this, this, and why he said this and something I could answer myself, yea.</p>
<p>Difficulty in interpreting STE</p>	<p>Parents were having difficulty understanding the questions on</p>	<p>It seems that he hasn't asked question about living or dead things. He usually asks "will people die if they do not drink water?" "will people die if they do</p>

**concept during
interview** living or non-living things.

not eat food?" He will sometimes ask these questions. Generally he asks these questions. I don't ask him if the car is living or dead thing.

- **BP01**

I: You mentioned dinosaurs, horses and monkeys before; do you think he knows anything about these living things? I mean, can he tell which of these are living creatures which are not?

BP02: I didn't teach him about that.

I: You didn't have any conversation with him about those topics?

BP02: No.

I: When he talked about moneys and other animals, do you think he knew that they are living things?

BP02: I don't think so, he may not know, since no one had ever taught him about this.

I: (...) how much do you think that he knows about living things?

BP03: Well, about this, very little. Because he, umm, how to say, if you (...) Because he just plays with it for a while, and nothing else, he will not ask things about it.

I: (...) does she know that the flowers are alive? Does she know they are living things?

BP04: I think she might not know. I didn't teach her things like that. Maybe that's the thing... Do you have any idea that can inspire me how to teach children? We did miss something; like we didn't tell her the trains or subways can move. The flower thing, something about flowers, I never told her about that.

I: So about whether something is living or dead?

BP05: I don't know. I'll ask him today to see if he knows about this.

I: Since you know your children best, could you tell us about what they know about living and non-living things? If they see differences?

AP04: How do you mean differences?

Teachers' Understanding of Children's STE Learning in the Classroom

Subthemes	Description	Illustrations
Teachers' perceived efficacy in facilitating STE activities	One's comfort level with science curriculum influenced their description of how they would arrange STE in their classrooms.	<p>Science was always my big thing. (...) But we do a lot of like, everyday, the "w"s, you know. A lot of "why do you think that happens?" And to me, anytime you're trying to figure out – I'll use "hypothesis" – anytime you're trying to figure out either cause and effect or how something works, to me, that's science. (...) But a lot of our experimentation on daily stuff is something that comes up like when the kids go "miss AT01 look at this." (...) So a lot of it is spur of the moment, and it's not planned for. (...) But now there's a new initiative for math and science which I'm excited about <yeah> because I hope we get some really cool stuff out of it, too.</p> <p>- AT01</p> <p>I am not big on science, I was never like a science fan myself, I don't know if that kind of like has something to do with me procrastinating getting materials, but I would have to like have a science lesson.</p> <p>- BT05</p>
Program differences in the use of science area	Program A and Program B teachers provided different emphasis as they described how their respective science areas were used in the classrooms.	<p>Program A teachers: science as engaging in cognitive process</p> <p>For them, for science, it's cause and effect, it's stuff like that, <yes, absolutely> so she'll notice if something happens, she'll tell you why it happens, she'll take guesses as to why it happens. She'll make like a guess and test it out.</p> <p>- AT03</p>

Subthemes	Description	Illustrations
		<p><i>I: (...) What do you think they know about science, technology, engineering – those kinds of things?</i></p> <p>AT04: They...I don't want to say they only know what we teach them, but they don't like to experiment. They don't do a lot of cause and effect on their own. You've really gotta engage them, and plan something or give them ideas.</p> <p>They really make a good connection between one thing to another. I think they really understand about it and...they know, like if you ask the children "what is this about? Tell me about it." When I show them like a butterfly or a worm or something, they will say "nature."</p> <p>- AT05</p> <p>Program B teachers: science as children's ability to manipulate tools</p> <p><i>Map or globe</i></p> <p>We have a map, a globe here, we talk about geography with them, "here are some words, this place is such-and-such."</p> <p>- BT01</p> <p>the objects that are normally placed over there are animals, dinosaurs, globe... if they like it they can roll it: "So this spot is China?" They know to look at it that way, but their talk is mostly about China. "Here is China, here is America, and here is Boston."</p> <p>- BT02</p> <p><i>Magnets</i></p> <p>Just like when we are at the science area, we give them those magnets with colors, let them play with the magnets to pretend... which is... some children learn that they can put one on top and one below, when this one moves, they discover that the one above also moves. So they learn things like</p>

Subthemes	Description	Illustrations
		<p>this, how they attract each other.</p> <p>- BT01</p>
		<p>Those ones, what are they called, joining ones... it's with magnets? Yes, using those to stick together,</p> <p>- BT02</p>
		<p>Sometimes they compare, since I have that board, with magnet, for them to stick: there are some weather[-related] ones, the different seasons. They also have animals, snow, summer, spring, like that for them to arrange on the board. So... even though they don't really know about science, they also play with those, and know those things.</p> <p>- BT03</p>
		<p>take those magnets to attract those stuff such as nails. Things like that. Those iron. There is a... we have a writing board that has some magnetic filling, iron fillings on the bottom, and they use it to write. They draw for a bit and then erase. They are curious: how come the writings disappear; meanwhile as you write it reappears.</p> <p>- BT04</p>
		<p>take a look at the plants they have magnifying glasses, magnets, different things on the shelf that they can look at and play with</p> <p>- BT05</p>
		<p><i>Liquid-mixing tubes</i></p> <p>Then there are things with color, which is to mix two colors and turn into what color. Then they shake, and it moves. (...) when it is settled the two colors break apart. Then I say when these yellow and green colors are mixed, when the two colors are mixed, what kind of color does it become?</p> <p>- BT01</p>

Subthemes	Description	Illustrations
		<p>There is also colorful tubes that have, I call them density tubes, there is like liquid inside and you know there's marbles and they move slowly, so I talk about why they are moving slowly</p> <p>- BT05</p>
		<p><i>Playdough</i></p> <p>Then for other science-related areas, the children... the older ones like to use color play dough, to look at the colors, "Oh, yellow." Then they use this red color play dough, and then to look at the red one and the yellow one, and they know to put both together,</p> <p>- BT03</p>
		<p><i>Magnifying glasses</i></p> <p>Sometimes they use magnifying glasses to see, they like to use the glasses to magnify at great extent, they look over here to magnify, the eyes are magnified...</p> <p>- BT03</p>
		<p>those magnifying glass upon different objects</p> <p>- BT04</p>
		<p>The science, I usually see them using the magnifying glasses which is great, they didn't know what , they don't know what the name is, I have to really like repeat a lot and they just say like 'glass' or... I can't really remember what word to use for it. They like to look closely at the plants which is great and they also use it to look at the little animals that are in the buckets, just looking varying at the sizes and they like to use the balance scale</p> <p>- BT05</p>
		<p><i>Plants in science area</i></p> <p>For now we are planting some potatoes, the children [say], "Oh, we haven't watered them today. When [they are] back in the morning we have a child to</p>

Subthemes	Description	Illustrations
		<p>be responsible for watering [the potatoes]. “Oh, today it is taller in height, the sprout has grown by such-and-such, or it is dried up, or another one is dead.”</p> <p>- BT03</p> <p>we have a few plants along the shelf and I encourage them to you know water the plants, not over-water the plants, but at least in the morning I ask a child or two to go, they have a little water spray bottle, I don’t want every child spraying the water all over the place but you know, take a look at the plants</p> <p>- BT05</p> <p><i>Sand or water table</i> for science then it’s water table and sand table, you learn about it when you play.</p> <p>- BT04</p> <p><i>Animal figurines</i> We have microscope over there, back then I had some slides for them to see. But for now... the children lost them all. So sometimes they will place... try to put some animals, the tiny ones in there, and sometimes they see this and that, like that. Which is, they will report to you. Actually [the children] use a lot of science.</p> <p>- BT03</p> <p>They like to look closely at the plants which is great and they also use it to look at the little animals that are in the buckets, just looking varying at the sizes and they like to use the balance scale</p> <p>- BT05</p>
Teachers’ perceived role as	The way teachers saw themselves as the essential facilitators in	I don’t want to say they only know what we teach them, but they don’t like to experiment. They don’t do a lot of cause and effect on their own. You’ve

Subthemes	Description	Illustrations
a guide in children's STE exploration	children's STE learning in the science area.	<p>really gotta engage them, and plan something or give them ideas. Because when we have discovery as not an activity of the day and it's free choice, it's not one of the areas that they like to choose.</p> <p>- AT04</p> <p>The most important thing is how we guide them. For example, when you are playing with an object, you don't just pick it out, sometimes you need to, you need to do that... which is to give them ideas... to play like that.</p> <p>- BT01</p> <p>Since they haven't seen a lot of things, they [learn] through the teachers, through our teachings, as well as learning from the books.</p> <p>- BT02</p> <p>They are very curious, and they don't know about things they haven't seen or come into contact before. But for the adults, as teachers we remind them (...) where you have seen it before (...) Then sometimes as they go to those places then they will pay particular attention</p> <p>- BT03</p> <p>I really feel like I have to like facilitate that because they don't really know what to do in science and it's been an ongoing challenge for me to get.</p> <p>- BT05</p>
Teachers' association of technology to electronic use	Teachers described children's effortless uses of game consoles and computers	<p>A lot of them have Nintendo's and Wiis and stuff like that, so they know how to operate that kind of stuff. Some of them have computers at home, they know how to operate that.</p> <p>- AT01</p> <p>since technology these days is relatively popular: everyone knows about iPhone, iPad, computers and all those.</p> <p>- BT03</p>

Subthemes	Description	Illustrations
		<p>They are even smarter, because sometimes when I can't figure it out I ask them for help.</p> <ul style="list-style-type: none">- BT04
		<p>Because for the children who are on their second year, they are already familiar with how to play with the computer. Sometimes the children, who are on their first year, don't know, then I encourage the ones who are on their second year to guide them, to teach them how to play.</p> <ul style="list-style-type: none">- BT04
