Emergent Biliteracy in Young Mexican Immigrant Children

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In this article, we explore the relationship between emergent biliteracy and growing up in a biliterate environment. Our research particularly considers and describes some of the paths that young Spanish-speaking emergent bilingual children follow depending on their specific learning experiences and how these experiences shape their biliteracy development. We adopt the term *emergent bilinguals* instead of *English-language learners* to more accurately describe young children (ages 3 to 5 years) who speak a native language other than English and are in the dynamic process of developing bilingual and biliterate competencies with the support of their communities (e.g., parents, school, community; García, Kleifgen, & Falchi, 2008; Reyes, 2006). We began with the following two research questions:

1. What knowledge of biliteracy (including but not limited to story reading) do young emergent bilingual children (4- and 5-year-olds) develop in the early years?

2. How do context and specific language environments (e.g., home, community) influence the development of biliteracy in young Mexican Spanish–English bilingual children?

Theoretical Frameworks

We situate our study within two major theoretical frameworks: (1) a sociocultural framework and (2) an ecology of language framework. We describe each of these in relation to the purpose of our study.

A sociocultural framework foregrounds how children learn language through interactions with people in their immediate contexts (Harste, Woodward, & Burke, 1984; Pérez, 2004; Vygotsky, 1978). Learning is viewed as a process in which the child's existing knowledge interacts with mediating tools available in the environment to promote the development of new understandings (Rogoff, 1990; Vygotsky, 1978). Children learn through direct interactions with people and what they observe in their sociocultural context (Rogoff, 1990; Vygotsky, 1978). Specific to literacy development, children's understanding and inventions of written language are not individual; rather, they reflect the cultural conventions...
and ideologies within the social contexts of which they are a part (Moll, Saez, & Dworin, 2001). In this regard, the construct of the zone of proximal development by Vygotsky is helpful in identifying the social guidance and scaffolding that “experts”—defined as those adults or peers who are more competent on specific abilities or knowledge; on the other hand, “novices” are those members of a community whose capabilities can be extended via the zone of proximal development by interacting with a more competent member (Williams, 2004)—provide to children who are participating in literacy activities beyond their current abilities (Gregory, Long, & Volk, 2004). It is this scaffolding in social contexts that helps the young bilingual child to advance his or her language and literacy development and independent thinking in two languages (Dworin & Moll, 2006; Moll, 1990; Rogoff, 1990; Tharp & Gallimore, 1988). Writing and literacy development emerges as a result not only of children’s interactions with objects and people but also of their own internal representations and transformation of thoughts and ideas and the biological basis that allows this learning (Ferreiro & Teberosky, 1982; Tolchinsky, 2003; Vygotsky, 1978). The emergence of literacy, like a child’s development, is characterized by “spurts, plateaus, and regressions...development typically is not smoothly uniform and cumulative, but asynchronous and nonlinear” (Yaden, 2008, p. 10).

The second major theoretical perspective that guides our understanding of biliteracy is the ecology of language framework adapted from the work by Haugen (1953/1969) and later used by a number of scholars (e.g., Barton, 1994; Bronfenbrenner, 1986; Hornberger, 1989; Hornberger & Skilton-Sylvester, 2000). Barton argued that an ecological approach to literacy is useful because “it takes as its starting point this interaction between individuals and their environments” (p. 29). This ecological framework also integrates insights from anthropology, biology, educational linguistics, and psychology that “enable an appreciation of the interdisciplinary nature of literacy and language studies” (Pahl, 2008, p. 306). We adopt this perspective to the study of biliteracy to shed light on the ecological environments and the complex interrelationships among the different factors within these environments (e.g., languages used, their speakers, their interpretations of text) that influence young emergent bilinguals’ biliteracy development in Spanish and English.

From Literacy to Biliteracy Development Studies

In this section, we review studies that inform current knowledge of early literacy, including but not limited to development of concepts of print, print awareness, and metalinguistic awareness in monolingual populations. Next, we review biliteracy studies with young children, highlighting those from the sociocultural or ecology of language traditions. Because the research on young bilingual children has tended to focus on oral language development, there is still a great need to understand the relatively underexplored phenomenon of emergent biliteracy (but see Dworin & Moll, 2006; Gregory et al., 2004; Jiménez, 2003; Kenner, 2000; Kenner, Kress, Hayat, Kam, & Tsai, 2004).
Although our focus in this study is early biliteracy development, we recognize that bilingualism and biliteracy cannot be separated, and bilingualism influences biliteracy development. We also believe that the key to understanding young children's development of biliteracy is to consider both languages as interacting together. Therefore, we purposely avoid comparing these children's biliteracy development with the literacy development of monolingual children (see Grosjean, 1998, for further discussion on this point).

**Early Literacy**

Literacy acquisition is a multifaceted process that is different for every child (Whitmore, Martens, Goodman, & Owocki, 2004). Although children exposed to a writing system develop print knowledge, the age at which they become aware of this knowledge and the processes of development vary. Young children are active participants in the learning process, making hypotheses and constructing knowledge about the writing systems they are exposed to and attempting to derive meaning from print in their environments (Ferreiro, 2007; Goodman, 1986). Children interact with print by constructing, organizing, and analyzing its meaning and connecting it with their own personal experiences (Goodman, 1984, 1986; Kirkland, Aldridge, & Kuby, 1991).

From an early age, children begin noticing print through being exposed to it at home and in their communities (e.g., on signs, posters, and flyers). In addition to making discoveries on their own, children are influenced by feedback from others around them as they attempt to understand print in their environment and eventually in different writing systems (Ferreiro & Teberosky, 1982; Tolchinsky, 2003). Although research findings have not pinpointed a direct correlation between the ability to read environmental print and later conventional reading abilities (e.g., word identification, letter–sound correspondence), it has been shown that children acquire knowledge about the written environment through multiple experiences before they enter school (Kassow, 2006). Later, as part of school reading instruction, children learning alphabetic writing systems are guided to pay attention to the one-to-one correspondence between letters and sounds. However, research on phonological awareness has been unclear regarding when, where, and how exactly it develops regardless of the context (Chaney, 1994; Morris, Bloodgood, Lomax, & Perney, 2003; Snow, Burns, & Griffin, 1998). In addition, young children begin developing metalinguistic awareness, that is, the ability to use language to think about, play with, talk about, and analyze language in its different domains (e.g., phonology, pragmatics, semantics; Snow et al., 1998).

Recently, Justice and Ezell's (2001) work has illuminated the impact that low income in a family has on children's emergent literacy. They found that preschool English monolingual children (3- to 5-year-olds) from low-income families “demonstrated difficulty with many of the written language awareness tasks” (p. 130). They concluded that disparities in the experiences and opportunities available to them as compared with children from more financially privileged backgrounds were significant contributors to their lower academic literacy knowledge (see also
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Chaney, 1994; Dickinson & Snow, 1987). However, reviewing multiple literacy studies in which not only schooled literacy was valued, we found that even those children who seem “disadvantaged,” such as those from economically marginalized communities, early in their lives do develop knowledge about oral and written language through daily interactions in their home and community contexts (Heath, 1983; Taylor & Dorsey-Gaines, 1988).

Studies have confirmed that preschool children develop environmental print awareness, integrating their existing knowledge with contextual cues in the environment to understand and make sense of, or read, print in signs, logos, or product labels (Goodman & Altwerger, 1981; Manning, Manning, Long, & Wolfson, 1987; Teale, 1986). Whereas children develop environmental print awareness through natural interactions, they develop concepts of print related to books through multiple experiences with print. These concepts of print include a variety of conventions about books, including how a book is held, directionality of print, and one-to-one correspondence between letter and sound (Clay, 1989).

**Biliteracy Studies**

Edelsky and Jilbert's (1985) early work on naturalistic observations in bilingual classrooms provided descriptions of the writing development of bilingual children and how these children use their bilingual skills when reading and writing in school contexts. However, due to the complexity of such research, only a few researchers have explored young children's biliteracy development in multiple contexts (Dworin, 2003; Kenner et al., 2004; Schwarzer, 2001; Tabors, Paez, & Lopez, 2002; Yaden & Tardibuono, 2004; Zentella, 2005).

In a recent study, Kenner et al. (2004) explored the “keys” to biliteracy and found that “when children have access to more than one writing system, children's ability to distinguish between different scripts is found to develop at an early age” (p. 126). Not only could children in their study distinguish between different writing systems (e.g., alphabetic, logographic), but they also made use of cues in their native languages (Chinese, Arabic, and Spanish) to constantly reinterpret their concepts of writing in what the authors described as engagement in “the process of appropriating the principles [of writing] for themselves” (p. 137). These children used the information presented to them in their school, home, and community contexts to work out some of the underlying principles of different writing systems. From an ecological perspective, Kenner (2004) described how immigrant families in Britain act as supportive “literacy ecosystems” in promoting their children's development of biliteracy, which allows young children and their families to adapt and integrate new forms of literacy related to new life in Britain.

It is important to note that the scripts of some languages share many characteristics in common, whereas others differ greatly. In the case of English and Spanish, they both share an alphabetic script, which makes it easier for Spanish-speaking children to identify the letters, although the frequency and sound of certain letters vary between the two languages. Even when children can identify...
certain universal features across the alphabetic systems of their two languages (e.g., syllabic structure, number of letters in the alphabet), they also make a cognitive effort to understand the particular written symbols (e.g., the graphic variations in size and shape, the differing lengths of strings) that distinguish each language (Ferreiro & Teberosky, 1982; Tolchinsky, 2003; Verona, 1993).

In terms of the development of print awareness in emergent bilinguals, Romero (1983) addressed preschool (4- to 5-year-olds) Spanish–English bilinguals, a very similar population to our study. The preschoolers in her study showed that they were print aware, and they began reading print in signs and labels using contextual cues. In line with results of previous studies with monolingual children, she observed that as she systematically removed contextual cues from labels, children's ability to recognize and identify the words diminished. In terms of language use, more than 75% of children's responses were in Spanish, 23% were in English, and only 2% were bilingual (i.e., in a mixture of Spanish and English). Romero concluded that the children had associated each item's specific function with a particular language and used that language to respond. As described later, we used a modification of Romero's environmental print task (EPT) with the children in our study.

In Latin America, Ferreiro and Teberosky (1982) studied the emergent literacy of monolingual Spanish-speaking children living in Argentina. They evaluated children at different ages (4- to 6-year-olds) and from different socioeconomic groups on emergent writing and reading tasks (e.g., letter and number identification task, name writing, word reading task). They found that when entering school, and long before knowing how to read and write, young children are capable of creating their own hypotheses about how to write and distinguish between letters, numbers, and words. Later, Yaden and Tardibuono (2004) replicated Ferreiro and Teberosky's study on Piagetian writing tasks with bilingual Latino children living in Los Angeles, California. They found that 4-year-old bilingual children follow the same patterns and construct the same hypotheses about early concepts of writing as do monolingual Spanish-speaking children. Although their findings were not qualitatively different from Ferreiro and Teberosky's, they did find that their children's understanding of different features of written language was similar to that of 5-year-old middle class Argentinian children but more advanced than that of Argentinian children from low-income families. One could speculate that this difference might be due to the children's level of bilingualism; however, Yaden and Tardibuono did not investigate what children understood about the principles of the two written languages to which they were exposed in their different contexts. Nonetheless, their findings argue that being exposed to two languages does not hinder the natural development of literacy (see also Hakuta, 1986).

Li (2006) and Reyes (2006) described the biliterate and trilingual practices of Chinese–Canadian and Spanish–Mexican children and their families, respectively. Of relevance for the present study is that the home context was found to be a crucial environment for children's successful development of biliteracy. Both
studies showed that children's bilingualism and development of biliteracy allowed them to participate in different literacy practices regardless of their level of fluency in either language. These children used their bilingual abilities to participate in various family and academic activities both at home and at school. In general, these studies point to a multitude of factors, including language ideologies of parents and teachers, that shape the development of biliteracy.

If we want to move toward a more integrated view of biliteracy, it is important to adopt an ecological perspective to account for the different individual and social factors and their effect on children's biliteracy development (Dworin, 2003; Grosjean, 1998).

Multiple-Approach Method to the Study of Biliteracy

In our study, children participated in reading assessment tasks and an interview at school to elicit their concepts of print and environmental print awareness. They were also observed in their home environments during literacy interactions with family and community members. By using a multiple-approach analysis within an ecological framework, we can identify how family, community, educational practices, and macro-level forces (such as English-only laws) may influence biliteracy development in young emergent bilinguals.

Participants

The participants were twelve 4- and 5-year-old (M age = 5 years, 4 months) emergent bilingual children (7 girls, 5 boys) whose first language (L1) was Spanish and second language (L2) was English and who had been exposed to both languages from an early age. The children and their families live in an urban setting in the U.S. Southwest and are part of a larger cohort of children who are participating in a 3-year longitudinal study (the Emergent Biliteracy and Language Development project with Mexican immigrant families in Tucson, AZ) focusing on the study of literacy practices at home (Reyes, 2006; Reyes, Alexandra, & Azuara, 2007). In this article, we focus on data collected during the 1st year, when children were in preschool. These 12 children were selected randomly from among the children whose parents gave permission for participation in the larger study at the beginning of the school year. The 12 children participated in all literacy assessments conducted in the classroom.

The Community, Home, and School Contexts of Children's Bilingualism

The Community. The families in this project are part of the Tucson, Arizona, community, which is more than 30% Latino. The children live in a predominantly bilingual and bicultural neighborhood with a strong presence of Mexican culture. Signs and announcements are typically printed in both Spanish and English (e.g., at the supermarket, local library, tax offices, clothing store). Thus, the children and their families are exposed to bilingual print in their environment. In addition,
the families participated in several organized social and community events, such as carne asada barbeques, rodeo weekend, bilingual library time, and religious practices (e.g., attending Spanish-language catechism classes).

The Preschool Program. The 12 children attended a public, state-funded preschool that is part of an early childhood education program in the local school district. All children qualified for a free- or reduced-cost school lunch. Although English was the language of instruction in this preschool program, the classroom teacher and teacher’s aide did use Spanish during social interactions and to provide clarification during instruction (about 40% during classroom interactions). Moreover, the native language was honored when parents volunteered in the classroom; as many of them were Spanish dominant, the teacher invited them to use Spanish in their classroom interactions.

During an interview with the teacher, we learned that Ms. Vásquez (all names are pseudonyms) is a fluent bilingual though nonnative Spanish speaker who had lived in Mexico for more than 20 years. She was committed to promoting the children’s bilingual and bicultural abilities. Although her program was not officially bilingual at the time of our data collection, she incorporated Spanish in her instruction. Because of her training as a bilingual teacher and her experiences living in Mexico, she empathized with students’ and families’ specific needs and tried to support the children’s native language development within the parameters of a state-level English-only law and concordant district policies. In keeping with these restrictions, she shifted from liberal use of both Spanish and English in the fall semester to almost exclusive use of English for instruction during the spring semester, with Spanish used only when needed for clarification. In explaining her decision to shift to English during the spring semester, Ms. Vásquez stated that she was preparing the students to make the transition to an English-only kindergarten classroom the following fall (Teacher interview, January 14, 2005).

To assess the children’s language development in Spanish and English at the beginning of the school year, we administered the English and Spanish versions of the Peabody Picture Vocabulary Test—Revised (Dunn & Dunn, 1981; Dunn, Padilla, Lugo, & Dunn, 1986), to obtain a basic index of their comprehension ability (receptive vocabulary) in each language. All reading and writing assessment tasks were administered at school during regular school hours. We learned about the children’s family and community language environments by interviewing their parents and teachers. According to the teacher, who assessed the children using the State of Arizona Language Assessment test, most children were either Spanish monolinguals or Spanish dominant. We corroborated this information with parents’ own assessment of their children’s language fluency. Table 1 shows that, with two exceptions, the children were Spanish dominant in that their vocabulary scores were higher in Spanish than they were in English (10 out of 12). One exception was Dariana, whose scores were similar in each language; we learned that she was a simultaneous bilingual who had been exposed to both languages at home since birth. The other was Adam, also a simultaneous...
bilingual, who scored higher in English vocabulary than he did in Spanish. Both his mom and teacher considered him English dominant at the beginning of the school year.

Our Roles as Bilingual Mexican “Maestras” and Researchers

We engaged in the study through multiple positions. First, we are also immigrants to the United States. Through this common experience (although under very different circumstances), we could identify with the parents and their families in different ways; I, Iliana Reyes, shared with the families that I self-identify as a Norteña, from the state of Sinaloa, from which many of the families in our study come; Patricia Azuara is from Mexico City but has lived in Arizona for more than 10 years and has worked in the local schools in various roles, including as an elementary literacy teacher. Families were aware of our advanced education and at times had asked us to serve as resources (e.g., by making referrals to services). In addition, they have trusted us not only because they see us as a special kind of maestra (teacher) but also because, having been in contact with them for more than 3 years now, they see us as friends of the family who are genuinely interested in learning about their day-to-day family successes and challenges.

Data Collection and Analyses of Reading and Writing Assessment Tasks

We presented the 12 children with various reading and writing assessment tasks during the beginning of the preschool academic year, assessing environmental print, book handling, and concepts of print. During the spring semester, we also interviewed them about their knowledge of print and writing. To maintain

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<th>Participant</th>
<th>Age (yrs; mos)</th>
<th>PPVT standard score Spanish</th>
<th>PPVT standard score English</th>
<th>CAP score</th>
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<td>72</td>
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<td>73</td>
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Note. PPVT = Peabody Picture Vocabulary Test; CAP = concepts about print.

*Case-study children
 ecological validity, we administered these assessments at school while children were involved in center activities; the children viewed the reading and writing assessment tasks as part of the established daily classroom routine.

EPT. To find out what these 12 children knew about the print in their environment, we adapted the environmental print awareness task developed by Goodman and Altwerger (1981) and later used by Romero (1983) with bilingual children. Based on our home observations and information parents provided, we selected labels in Spanish and English that the children frequently saw in their everyday bilingual/bicultural context, such as a can of Rosarita refried beans and a bag of Dos Ranchitos tortillas (see Appendix A for a complete list of items).

The task was divided into two parts that were presented in two different sessions conducted a few days apart. In the first session, we presented the actual objects and asked children to identify each item. In the second session, children were presented with pictures showing only the labels from these items without the product; thus, they had to rely on the print, format, and color of the label for cues.

We developed a coding scheme for the children's responses, based on both the actual responses we received in this study and the coding schemes of Goodman and Altwerger (1981) and Romero (1983). That is, we identified patterns and grouped children's responses into six different categories: (1) not recognized, (2) named only the function of the object, (3) used the generic name of the item, (4) used another brand name to name the product, (5) partially recognized the brand, and (6) named the exact print on the label (see Appendix B for the complete coding scheme).

We were also interested in the hypotheses children made regarding the languages used in their environment. Therefore, we asked them during the first and second administration of the task to identify the language of each label and rationalize their answer. (“¿En que idioma está escrito? ¿Porqué crees que está escrito en español [o inglés]? “In what language is this written? Why do you think this is written in Spanish [or English]?”). Children's responses were audiotaped and later transcribed and analyzed to identify the language they selected and their reasons for identifying it as Spanish or English.

Concepts About Print (CAP) and Book-Handling Knowledge. To get a general sense of the children's understanding of books and their use, we administered a book-handling task adapted from the work of Clay (1972) and translated to Spanish by Escamilla, Andrade, Basurto, and Ruiz (1996). We also adopted items from the book-handling task developed by Goodman and Altwerger (1981) and translated into Spanish as “Conocimiento pre-escolar del manejo de libros” by Romero (1983) in her dissertation. We used Spanish and English editions of the same book—Stones by Clay (1979) and Las Piedras translated by Andrade, Ruiz, and Basurto (1995). Based on each child's relative proficiency in the two
languages, 11 of the 12 children were presented with the Spanish edition of this book, *Las Piedras*.

The task was administered to each of the 12 children individually in one session during center time at the preschool. Each child was presented with the book and asked to read it for the researcher. If the child refused to read or said she or he could not read, then the researcher read the book, asking the child to help by following along and pointing to the text with one finger. Following Clay’s (1972) procedures, the researcher then asked questions to elicit the child’s understanding of general concepts of print.

For coding, we followed Clay’s (1972) and Goodman’s (1986) criteria: “1” for a correct answer or “0” when the child either gave the incorrect answer or did not respond at all. We computed the total points for each child and then averaged the number of correct responses that were identified under several categories, such as book format, directionality of print, identification of word sequence, and book terminology (e.g., page, author) among other concepts (e.g., letter–sound correspondence, letter and word concepts, and punctuation), to derive the total percentage correct.

**Interview About Children’s Metalinguistic Awareness of Concepts of Print and Writing.** Eleven of the 12 children (1 participant was absent on the day this interview was conducted) participated in a one-on-one interview conducted in the child’s dominant language by a bilingual researcher. The interview protocol, based on Owocki and Goodman’s (2002) interview, was designed to explore children’s perceptions and attitudes about concepts of print, writing, and the process and functions of writing. Some of the questions included the following: ¿Sabes escribir? ¿Cómo aprendiste a escribir? (Do you know how to write? How did you learn to write?); ¿Escribes en inglés o en español, o en los dos? (In what language do you write, in Spanish, English, or both?); ¿Por qué escribe la gente? (Why do people write?; see Owocki & Goodman [2002] for additional questions). The children were also asked to produce samples of writing and of drawing. As previously mentioned, we conducted these interviews during the spring semester at the same time that we were conducting observations at home.

**Data Collection and Analyses From Home Observations**

During the first year of the study, we collected data through participant observations in all 12 children’s homes and during their preschool classroom interactions. One of the researchers visited each family an average of twice a month, for at least two hours per visit, and videotaped children’s interactions in different contexts (e.g., mealtime, playtime, school-related activities). We also interviewed the parents individually at the beginning of the project, which allowed us to understand each family’s ideologies about language and their literacy practices and how these impacted children’s language environment at home. Through ongoing conversations and continuous contact with the families, we additionally obtained anecdotal information that gave us a representative picture of the literacy
practices and activities children engaged in with their families. We scheduled our visits at different times and days of the week, including weekends, to capture a wide range of the child’s and family’s routines. We videotaped continuously for about an hour, following the target child as he or she moved through various activities (this included going from an activity inside the house to one in an outside area, such as the backyard, a nearby park, or the store). Our observations were written down as part of our field notes.

**Case Studies.** From the 12 children, we selected 3 to describe in detail as case studies. We selected these 3 children, Dariana, Frida, and Sercan, because according to the teacher’s and parents’ assessments, they could be considered representative of the diverse range of language and literacy experiences and competencies of the children. We used a case study approach (Dyson & Genishi, 2005) to facilitate the examination and interpretation of the literacy events in which children and their families participated during daily activities at home. Through a triangulation process, we analyzed our field notes and coded video data from observations of these children participating in different literacy events at home with adults, with peers, and on their own (Howe, 2003). The conversations during family interactions were transcribed for analysis using Gumperz and Berenz’s (1993) transcription conventions and the TRANSANA video software (Wood & Fassnacht, 2005). With regard to participation in family literacy events at home, we wrote detailed field notes of instances where these case study children were observed engaging with and around print at home with adults (parents, grandparents, relatives) and other children (siblings and peers). Decisions regarding what to record in our field notes and later to analyze from these notes and the videotapes were made according to a coding scheme we developed based on Heath’s (1983) and Teale’s (1986) categories of literacy events (e.g., daily living routines, entertainment, school-related activity), as well as from categories that we identified when the target child was participating in a literacy event (see Appendix C for details about literacy categories).

**Results and Discussion**

**Reading and Writing Assessment Tasks**

All findings presented and discussed in this section relate to the 12 children who participated in the reading and writing assessment tasks. We describe and discuss particular patterns of responses as well as general solutions children provided when faced with particular challenges in some of the stimuli (no further statistical analyses were conducted due to the small N of 12).

**EPT.** In the EPT, we observed that the children’s responses did not differ significantly depending on whether they were presented with the actual objects or labels alone (see Figure 1 for frequency of responses; we only analyzed the responses of 10 of the 12 participants as we were not able to complete two of the
Out of children’s 100 responses, 46 of the responses to objects (RO), and 40 of the responses to labels (RL) provided the generic name (e.g., “pasta [toothpaste]” for Colgate, “frijoles [beans]” for Rosarita, and “soda” for Coca-Cola).

Children gave responses that exactly matched the print on the label (26 times for RO and 27 for RL) for only three of the objects: McDonald’s fries, Food City grocery bag, and stop sign. A few children identified an item and then labeled it using a different brand name (11 times for RO and 7 times for RL) with which they were more familiar (e.g., “Pepsi” for Coca-Cola and “Peter Piper’s” for Domino’s Pizza). On some occasions, a child used a different brand name from the one shown as the generic name for an object (e.g., “ChocoMilk” for Nesquik). Less frequently, some children described the function of the item (10 times for RO and 6 times for RL) instead of the printed label, as in the following examples:

- “Para lavarse los dientes” (to brush your teeth) for Colgate toothpaste
- “Para parar los carros” (to stop the cars) for the stop sign
- “Para que pasen los niños” (for kids to pass) also for the stop sign

In these responses to the EPT, children focused on the functions of the items rather than their specific brand names. As adults do, these 5-year-olds typically used generic names to identify the objects presented. It is not uncommon for people to use generic referents, such as “toothpaste” or “milk,” except in very specific situations, such as when choosing among specific brands in a store (Romero, 1983). It was interesting to observe that two of the children already associated the examples of print with product advertisements. For example, in his responses, Sercan changed his tone of voice to mimic that used in media advertisements while pointing to the print on the Colgate toothpaste box and saying, “lava los dientes [brush your teeth].”

In terms of language use, from our observations, children’s identifications of the language of print were not based on the size or style of the font or on the
product itself. Based on previous findings with young Spanish-speaking children (Romero, 1983), we had expected that children would say that the products most familiar to them in their environment were written in Spanish, such as the can of Rosarita beans and the Food City grocery bag (a local grocery store where all of these families shop). About equal percentages of children identified the print as English (46 for RO and 39 for RL) or as Spanish (44 for RO and 42 for RL). We could not identify any pattern that would predict their responses. For example, 8 out of the 10 children said the print on the object was in one language but when later presented with the label for that item alone, identified it as written in the other language. For only 3 out of all the children did we observe that the language they identified for the print seemed to correspond with their relative language fluency. We speculate that these three children might be becoming metalinguistically aware by associating the language they can speak the best with the one they can read from the articles and labels presented to them in this activity. In addition, when asked to rationalize their responses, none of the children used specific features of print or context-related cues as an explanation for the language chosen. This is not surprising as Spanish and English are closely related languages with similar scripts, differing only in diacriticals and letter frequency. Instead, children created hypotheses, such as

* “*porque aquí dice*” (because it says so here) while pointing to small print
* “*porque mi papi me dijo*” (because my father told me)
* “*[porque] en inglés no sé como se llama*” ([because] I don’t know what it’s called in English)

Less frequently (8 for RO and 10 for RL out of 100 responses), children identified the print in the label as bilingual and provided explanations using their two languages. For example, one child pointed to the print on the can of beans and read “*frijoles*” (beans) with a Spanish pronunciation, reporting that the word was in Spanish; then he pointed to the same word and changed his pronunciation and elongated the second syllable to indicate he was speaking in English: “*frijool*” (bean). This example led us to speculate that this child knew that there are cognates for English and Spanish words, and given the cognitive demand of the question, he was attempting to find an explanation by making generalizations and marking one of his languages with a different pronunciation.

In addition, three children indicated that one part of the print was written in English and another part in Spanish. For example, when asked about the Coca-Cola label, Sercan read “*soda*” while pointing to the word “Coca,” and he said “*Pepsi*” while pointing to the word “Cola,” explaining “*Aquí dice soda Pepsi, pero soda es en español y Pepsi es en inglés*” (Here it says soda Pepsi, but soda is in Spanish, and Pepsi is in English). Responses like this one suggest that children are metalinguistically aware that languages are represented in different ways, although they do not use features of the print to identify the language of writing. Children who identified the print on the label as bilingual seemed to have internalized that, in their particular sociocultural context, it is not unusual to
find print in both languages in books, labels, or advertisements (Ernst-Slavit & Mulhern, 2003). Another possible explanation for the language identification is that it seemed the fewer the cues that were available on the label, the more likely the child was to identify it as bilingual. It might be that the child was less willing to take a chance on identifying the label as Spanish or English when no contextual cues were available.

**CAP and Book-Handling Knowledge.** The preschool book-handling task allowed us to identify what concepts children have developed relative to books and their use in Spanish and English. When they were shown the book and the researcher asked, “¿Qué es esto?” (What is this?) all the children responded in Spanish with “libro” (book). Eleven out of 12 also demonstrated an understanding of the function of books with responses such as “para leerlo” (for reading) when asked, “¿Qué haces con él?” (What do you do with it?) Because we were interested in the children’s ability to differentiate whether a book was written in Spanish or English, we placed the two books (Stones and Las Piedras) in front of each child and asked him or her to select the book that was in Spanish (“Por favor, escoge el que está en español” [Please select the one that is in Spanish]). The presentation of books was counterbalanced, so that the Spanish version appeared on the child’s left for half of the participants and on the right for the other half. In addition, we manipulated the book covers to include orthographic markers in the Spanish version of the book (e.g., ¡!). We matched the size, color, and font of the print in both languages. Overall, 9 out of the 12 children (75%) selected the correct book. However, they gave a variety of rationales for how they knew that the book was in Spanish and not English:

- “porque lo ando leyendo” (because I’m reading it)
- “porque aquí dice que está en español” (because it says here that it’s in Spanish) while pointing to the title of the book
- “porque mi mamá me lo lee en español” (because my mom reads it to me in Spanish)

From these responses, we could not draw any conclusions in terms of whether children could distinguish Spanish from English print based on particular grammatical or orthographic aspects. They were not necessarily able to explain to the researcher how they were able to identify the language of the books. Instead, they could provide general information about the language they used when reading at school or at home with their mom or dad (see Example 9 above). Of interest here is the children’s ability to talk about their two languages in relation to print, interlocutors, and context. That is, they demonstrate metalinguistic awareness about which language they speak with particular individuals and in specific contexts (Baker, 2001).

Most of the children (10 of 12) demonstrated knowledge that the print carried the message when asked to show the researcher where to start reading the book. Specifically, they pointed directly to the title of the book and then opened
the book and indicated where the beginning and end of the text was. In addition, they also paid attention to the pictures throughout the book, showing recognition that pictures also help construct the meaning of the story (see Whitehurst et al., 1994 for similar results). On encountering a page that was purposefully placed upside down, 8 out of 12 children either turned the book to read the text or pointed out the mistake. This indicates that the children were using many cues—such as color, size, shape of print, and pictures—to decode the print in the book (Goodman, 1986).

In terms of directionality, 83% of children had developed this concept in both languages. They knew that in both Spanish and English, people read from left to right and top to bottom. To determine whether the children had developed the concepts of letters and words, we asked them to show us first one letter and then two letters. All the children were able to do so correctly. However, in this task, only one child was able to identify a word when asked to “Ahora enséname nada más una palabra” (Now show me one word) on the last sentence of the CAP Stones book. This result shows that these 5-year-olds have developed some knowledge about letters but are still developing their letter and word knowledge (Justice, Pence, Bowles, & Wiggins, 2006). We will come back to this point in the General Discussion section.

In sum, these young emergent bilinguals showed general knowledge of book handling (e.g., they identified correctly the beginning and end of the text, the title, and how to turn the pages). They had also developed the concept of directionality of print; none, however, was able to point word by word as the adult read or to attend to letter or word order in the text (see Reyes & Hernández, 2006, on word-order development). In terms of punctuation conventions, these emergent bilingual children had started to formulate hypotheses about some marks. Specifically, three of the children noticed that some phrases throughout the book had question marks or exclamation points at the beginning and end (e.g., ¡Las Piedras!, ¿Va a parar en el cerco? [Stones! Will the stone stop by the fence?]). Children identified these as print errors, explaining that the punctuation mark was al revés (upside down) or se equivocaron las señoras (the ladies made a mistake—presumably referring to the authors). We interpret these responses as indicating that the children had developed more familiarity with punctuation conventions of written English than of Spanish. This conclusion is corroborated by both our observations in the classroom, in which we documented teachers’ direct explanations about English punctuation to the children, as well as the dominant presence of English written materials in the preschool classroom. Some of the children were also developing hypotheses about the function of the period; four of them said that the period was “para parar” (for stopping) but were unable to explain the functions of any other punctuation conventions (e.g., comma, accent mark, capital and lowercase letters).

The results from this task are in line with Clay’s (1989) findings that, in general, young children develop some knowledge and hypotheses about the function of the period and a few about initial letters and sounds in words to finger-point.
while they read a story. Young children may not be able to complete all the different aspects of this task until they have developed conventional literacy through direct instruction at school.

**Interview About Children’s Metalinguistic Awareness of CAP and Writing.** During the interview, all children responded that they could write and provided examples of writing and drawing ($M$ age at time of interview = 5 years, 3 months). All children produced different kinds of representations when asked to write versus draw. As observed in earlier studies (Ferreiro & Teberosky, 1982; Goodman, 1986), in addition to scribbles, they could make actual letters or symbols that represented letters. Children distinguished between drawing and writing when asked to identify each sample for us. Figure 2 shows Jazlynn’s examples, which show clear differentiation between writing and drawing.

The children also demonstrated different levels of metalinguistic awareness of their biliteracy abilities during the interview. For example, 10 of the 11 children said that they were able to write in both languages. The other child said she could write only in Spanish because that was the language her family used at home. Each of these children provided examples where they indicated which language they used for writing during specific interactions. In terms of their awareness of language use according to context, children’s responses clearly differentiated between the language they use when writing at home and the language they use at school. At home, most children (7 out of 11) reported writing in Spanish, 2 in English, and 2 in both languages. The children’s responses about their language

**Figure 2. Jazlynn’s Drawing and Writing Samples**

![Image of Jazlynn’s Drawing and Writing Samples]
use at school are less straightforward because they are fairly evenly split among English only, Spanish only, and both English and Spanish. Interestingly, from our observations at home, we corroborated that children’s responses regarding the language used for writing at home were consistent with their language use during family interactions. However, their responses regarding school language use did not necessarily correspond with their language competencies but instead seemed to relate to their language preference. This is an important observation because the children were older at the time of this interview (compared to when they participated in the other two assessments); therefore, they seemed to be able to better express some of their theories and preferences about language and literacy use.

In addition, all of the children had developed hypotheses about the functions of writing when asked for what purpose people write. Their responses fit one of the following categories:

- *para aprender* (to learn; 3 children)
- *para escribirle a mi mamá* (to write to my mom; 2 children)
- *porque les gusta escribir* (because [people] like to write; 4 children)
- did not respond (2 children)

These responses suggest awareness of three different functions of writing: to learn, to communicate with others, and for entertainment. Of interest here is that children seemed to connect the functions of writing with the immediate contexts where they use writing: to learn at school and to write to Mom at home. Two of them, Dariana and Jimena, responded that they used only English when writing at school or when writing to the teacher. On the other hand, Frida and Sercan said that they used both languages, Spanish and English, for writing in the classroom. Interestingly, they said they used English with their main teacher but “las dos” (the two [languages]) when writing to us, the researchers. In fact, we did interact with the participant children in the classroom using both languages because we wanted to let them know that it was acceptable to speak both languages with us and that we valued their two languages; therefore, the children seem to have identified us as being bilingual and recognized that they could use either or both languages with us. In contrast, they seem to have associated the lead teacher, the main authority figure in the classroom, with English. From our classroom and home observations, we learned that for these children English is the language of communication in formal interactions with teachers. During our classroom visits, we observed that children were not encouraged to write in Spanish; however, Spanish was often used for clarification and disciplinary purposes (field notes, February 5, 2005). These children had developed the awareness that English was the dominant language of instruction within the school context, implicitly recognizing that English had more power and prestige than did their native language (Li, 2006).
Home Observations of Children’s Biliteracy Development

In addition to assessing the children’s performance on specific tasks, we were also interested in observing their development of early biliteracy in their natural contexts. As indicated earlier, we selected 3 out of the 12 children, Dariana, Frida, and Sercan, to describe in detail as case studies. (We limited the analysis to three case studies due to space limitations.) These children’s performances on the reading and writing assessment tasks yielded a score that indicates they, like the remaining children in the cohort of 12, have not yet developed all concepts of print (see scores in Table 1). These 3 young emergent bilinguals showed general knowledge of book handling by correctly identifying the beginning and end of the story, the title, how to turn the pages, and the concept of directionality of print. However, only Dariana was able to point to a word in a sentence when asked. From both the CAP task and the EPT, we learned that these emergent bilingual children had started to formulate hypotheses about the functions of some punctuation conventions. Based on their responses in the EPT, we can determine that they are not yet able to indicate whether a particular text is in Spanish or English. The reading assessments yielded a low score for each child (based on a total score of 34), but that does not tell us about how these young emergent bilingual children are constructing meaning from their two linguistic resources and whether they might demonstrate greater literacy knowledge within their natural contexts; it is for this reason that we turn to the home observations.

Table 2 presents the types of literacy events we observed during our first year of home visits across the three case-study families. In our case-study description and discussion, we also include information about parents’ beliefs about bilingualism. We interviewed parents individually at the beginning of the project to understand the families’ ideologies about language and their literacy practices and how these influenced the children’s language environments at home. As we will share in the following case studies, each child’s language environment influenced his or her own individual solutions and family strategies in relation to bilingualism and biliteracy. Some solutions were considered “localized” to a particular language environment, whereas others seemed more general because they recurred across case studies.

The three case-study children made remarkable progress in terms of their oral language development throughout the year and were able to develop their bilingual competencies to near native fluency. The children’s bilingual environment varied (see Table 3 for details on the bilingual environment of each case-study family), and because of the nature of this study, it is important to highlight children’s bilingual support (or lack thereof) at school and in their community.

Sercan: “Que rico de los que me gustan a mi” (How delicious, like the ones I like). Sercan was born in a rural area of Oaxaca, Mexico, and migrated to the United States with his family when he was 1 year old. Sercan’s family lives in a trailer park where there is a large concentration of Mexican-origin residents. He lives with his mom, dad, and 1-year-old sister. The primary language of the
Table 2. Domains of Family Literacy Practices (Observed Events Across Case-Study Participants)

<table>
<thead>
<tr>
<th>Daily living routines</th>
<th>Entertainment/recreation</th>
<th>Educational/school-related</th>
<th>Religion</th>
<th>Interpersonal communication</th>
<th>Literacy for the purpose of teaching or learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Commercial: receipts, flyers, product labels</td>
<td>1. Family cards (e.g., Christmas and Mother’s Day)</td>
<td>1. Report cards</td>
<td>1. Church newsletters</td>
<td>1. Reading the newspaper</td>
<td>1. Child wanting to practice the ABC’s while writing</td>
</tr>
<tr>
<td>2. Work: job applications</td>
<td>2. Storybook readings</td>
<td>2. Fieldtrip letters (bilingual)</td>
<td>2. Catechism course materials</td>
<td>2. Writing letters to relatives or friends</td>
<td>2. Playing la escuelita</td>
</tr>
<tr>
<td></td>
<td>4. Internet reading</td>
<td>4. Homework for target child and siblings, homework for parent (ESL or early childhood classes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Song lyrics</td>
<td>5. Internet reading</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Bilingual Backgrounds of the Three Case-Study Children

<table>
<thead>
<tr>
<th>Child</th>
<th>Place of birth</th>
<th>Family and community language environment</th>
<th>Language used by parents and caretaker</th>
<th>Early childhood education setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frida</td>
<td>Sonora, Northern Mexico</td>
<td>Spanish at home; bilingual in community</td>
<td>Spanish</td>
<td>English-dominant with some L1 use</td>
</tr>
<tr>
<td>Dariana</td>
<td>Arizona, Southwestern United States</td>
<td>Bilingual at home and in community</td>
<td>Spanish and English</td>
<td>English-dominant with some L1 use</td>
</tr>
<tr>
<td>Sercan</td>
<td>Oaxaca, Southern Mexico</td>
<td>Spanish at home; bilingual in community</td>
<td>Spanish</td>
<td>English-dominant with some L1 use</td>
</tr>
</tbody>
</table>

Note. L1 = first language.
household is Spanish, although there are some English influences. The family’s bilingual community context and Sercan’s formal schooling in English permeate their home interactions. Sercan uses some phrases (e.g., “whatever” and “never mind”) and borrows some English words (especially for academic concepts related to colors and numbers) in his conversations with his parents. Sercan’s mom and dad try to learn English words from their son, and we frequently observed them asking him to translate words or phrases. From a sociocultural perspective, this type of everyday interaction points to the switching between expert and novice roles by Sercan and his parents depending on whether the interaction is in Spanish or English (Reyes, 2006; Rogoff, 1990).

The family’s physical living space is very constrained, and they do not have easy access to public recreational spaces (transportation is also an issue as they do not own a car). During our conversations, Sercan’s mom stated that she does not allow her children to play out in the streets because she is “scared they will be run over by a car” (field notes, September 1, 2006). We believe that this constraint has in fact been of benefit to the children's literacy development because their mother provides them with reading and writing materials to explore almost every evening, such as books in English and Spanish, pencils, coloring books, and notebooks. The family enjoys engaging in reading and writing activities, and it was not uncommon during our home visits to find all members of the family writing in their personal notepads. For this family, daily experiences literally become stories, and the living room walls become canvases on which drawings and letters are printed. Children scribbled in their pads and on couches and the walls, but even though Mom complained about having to wash the walls, she also laughed about and expressed pride in the children’s attempt to write (field notes, February 9, 2005). During an interview, the mother and father reported that they promoted Spanish maintenance at home. Specifically, they emphasized speaking Spanish at home with the children, but because of their limited proficiency in English, they relied on the school system to teach their children reading and writing in English (interview, November 27, 2004).

In one home observation, the family had just returned from the grocery store. Mom gave the children a yogurt to eat while she finished unpacking the groceries. Sercan showed his container of yogurt to the researcher and asked what color it was, initiating the following conversation:

Child begins eating his yogurt (S = Sercan, R = Researcher, M = Mom. Translations from Spanish in parentheses; # = commentary).

S: Ven mira. ¿Mira, qué color tiene (el yogurt)...¿Qué, qué color tiene? (Look, look. What color is my yogurt...What color is it?)
R: ¿Qué color es? (What color is it?)
S: Yo no se...es blue? (I don’t know...is blue?)
#“Blue,” he said, answering his own question.#
R: Uh huh.
S: Mira esto. Se está saliendo. (Look at this. It’s coming off.)
R: ¿De qué sabor es? (What flavor is it?)
    #S starts to open his yogurt.#
    < Three-second pause >
M: ¿No sabes qué sabor es? (You do not know what flavor it is?)
S: Ay!
    #He spits out the plastic he bit off in order to open the container and then notices
    that the print is upside down and turns the package around.#
S: Es sabor de... de, mira. (The flavor is of...of, look.)
    #He shows the researcher the writing on the yogurt container.#
R: ¿Qué dice? ¿De qué sabor es? (What does it say? What flavor is it?)
    #S studies the package and label for a few seconds and then, with a marked
    change in his discourse intonation, “reads”#
S: Es sabor de...de...es de...de...de que rico de los que me gustan a mí. (The flavor is...is...
    is how delicious, like the ones I like.)
R: ¿Eso dice? (That’s what it says?)
S: Uh huh.
    #He nods his head yes.#
(March 6, 2005, video clip 03)

During this interaction, we learn about Sercan’s knowledge of print awareness and some concepts about print he is able to use spontaneously. When the researcher asks him what the label says about the flavor of the yogurt, Sercan looks at the package and immediately turns it around. We assume he noticed that the print was upside down because, by turning the package around, he could read it from left to right. He studies the label for a few seconds and then changes his intonation to “read” the label in the style of a television commercial. From this example, we can infer that Sercan has developed various concepts of print. First, he knows that the print on the package carries meaning and that it provides the information requested from him, the flavor of the yogurt. In addition, he knows that the letters need to be oriented in a certain direction to read them from left to right (evidence of the concept of directionality and of word identification). Although he was not able to decode the message on the package, he predicted what the label might say. He also used style shifting as a discourse strategy to mimic an advertisement, thereby demonstrating his knowledge of how this genre is used in food packaging and television advertisements. Sercan demonstrated the same strategy when identifying toothpaste during the EPT, showing the importance of the media in mediating his use of the two languages (Dyson, 1993). Of significance here is that within this linguistic environment, Sercan takes risks to explore the print and make hypotheses about it without any constraints. We learned that he can indeed identify a word, something we were not able to observe from his responses in the controlled tasks. The advantage of analyzing these data across multiple methods is that in naturalistic activities relevant to the children's daily lives, they are able to demonstrate knowledge that they cannot show in the more artificial setting of the reading assessment tasks.
In another event, Sercan was playing with markers and paper early in the morning (field notes, November 10, 2005). He made several pictures and an ABC chart. When the researcher came to look at his pictures, he showed her a picture of a tree with monkeys in the branches. He explained that the monkeys were making noise in the tree. The researcher then prompted him to write a story. He eagerly took a marker and attempted to write the word “chango” (monkey) in Spanish. Sercan sounded out the word and wrote “EHGg” (reversed first “G”). Then he looked at his writing and got frustrated with the product. To encourage him, the researcher then turned the page over and asked him to try again. On the flip side of the paper he had drawn a face. “Este es un chango” (This is a monkey), he explained to the researcher (see top of Figure 3). She responded to the drawing by saying playfully “un chango marango” and prompted him to label his picture. The word marango is not found in most Spanish dictionaries; however, it is used as an adjective in Mexican popular songs and jokes to refer to a funny monkey. Sercan then wrote near the top of the paper something that he identified as “Chango Marrano,” using one letter to represent each syllable of the words. He continued by adding two more faces to his drawing. The researcher then asked him what language he had used to write the phrase. The child explained, “Lo escribí en español” (I wrote it in Spanish). Taking him a step further, she then asked whether he could write it in English. Sercan paused for a second and then answered, “Oh... con los chiquitos lo hago en inglés” (Oh... with the small ones I write it in English). He then copied the same combination of letters, this time in lower case. Finally, he read rapidly with no change in intonation “CHANGO MARRANO [first line], chango marrano [second line].”

This example can be analyzed at two linguistic levels. On the first level, Sercan evidently was not familiar with the word marango, so he changed the researcher’s marango to marrano (pig), a word familiar to him that is similar in terms of the
patterns of sounds and number of syllables. By exploring the sounds in the word \textit{chango} and finding a word that rhymes with it, Sercan demonstrates that he is developing an awareness of the phonological structure of Spanish. In addition, this example suggests that Sercan has developed a hypothesis in terms of his two languages. He knows that to write the same word in two different languages, he needs to write an additional string of letters and that somehow he needs to differentiate between the two languages. To mark this distinction, he uses uppercase letters to write in Spanish and lowercase letters to write in English. This emergent bilingual boy has internalized that languages are represented differently, and he has found a \textit{local}, that is, context-specific, solution to mark these differences. Sercan was not able to use this solution when participating in the concepts of print task because there he was presented with specific stimuli that did not differ in case. As will be evident in the next two case studies, each child came up with individual solutions to the problem of representing Spanish versus English text.

\textbf{Frida:} “\textit{La ‘i’ no es; es la ‘e’!” [It’s not the “i”; it’s the “e”!]. Frida was born in a small town in Sonora, Mexico, and migrated with her parents and grandparents when she was 2 years old. Frida speaks mostly Spanish at home with her parents and grandparents but speaks some English with relatives (her aunt and younger cousin) who visit their home every evening. Frida lives with her parents, baby sister, and grandparents in a trailer park located on a busy street just a couple of blocks south of her preschool. The family’s physical living space is very limited, with four adults and two children living in a two-bedroom trailer. However, the yard space in front of the trailer has enough space for the children to play, and they have a jumping platform where Frida and her cousins spend their afternoons playing.

At school, Frida is a curious and attentive student. According to her teacher, she is “ahead of her class” and has been able to develop fluent bilingual competencies. We visited Frida and her family in the evenings. During these visits, we observed how Frida and her cousin, Raúl (a year younger than Frida), played together at home, participating in different literacy events, including coloring, writing, and reading together (see Table 2 for a summary of these events across families). Her mom, Ceci, explained that the cousins like to play together often and that they spontaneously gather around the dining table to color and write with different materials. Frida, according to her mom, always plays the role of the more expert writer when interacting with Raúl. She also reported that Frida is able to spell some words and recognize sound–letter correspondences in both Spanish and English, particularly when dictating to Raúl how to spell words. We were able to confirm these abilities during our home visits. We consider in detail a transcript of a conversation between Frida and her cousin while they wrote and colored from an activity book. Frida’s mom, Ceci, and aunt, Isela, interact with the children by providing scaffolding and supporting their biliterate abilities.
Participants: F = Frida, RL = cousin Raúl, M = Frida's mom, T = Tía, Frida's aunt

Conversation (Translation in parentheses)

F: *Yo no sé escribir Iliana.*
(I do not know how to write Iliana.)

M: Iliana, Iliana. (Mom corrects Frida's Spanish pronunciation.)

T: *Mira, yo les voy a decir. Pues, escribe Miss y después yo te voy a decir como se escribe Iliana.*
(Okay, I'll tell you how to do it. [First] write Miss and then I'll tell you how to write Iliana.)

RL: *¿Y después que sigue?* (And after that, what is next?)

F: *Tienes que saber tu nombre.* (You have to know how to write your name.)

M: Ahora si pon Miss Iliana pues. (Now you can write Miss Iliana.)

F: Miss (Frida reads aloud what she is writing.)

T: *Luego, la I...la I* (Then the I...the I)

F: *Y aquí le voy a poner...* (and later I'll write here...)

#Interaction continues.#

(From field notes and video clip, April 7, 2005)
The aunt helps both Frida and Raúl to spell and write letters and names on the activity sheet. In a later exchange, Frida’s mom also helps by reading aloud what Frida is writing. Of significance here is the fact that Frida and Raúl are becoming aware of print and pronunciation in two languages because of the direct teaching and scaffolding by adults that mediate their learning of writing during the activity. In this example, Frida is able first to write her own name independently and then to write the researcher’s name with the help of her aunt and mom. During this interaction, we observe how the aunt’s distinction between the Spanish and English pronunciations of a couple of letters (the vowels “i” and “e”) helps the child realize that even when the sounds are similar in the two languages, the sound-letter correspondence is different for each language. Specifically, the letter “i” in Spanish sounds like the letter “e” in English. In this instance, Frida reacts by stopping what she is writing; after she listens to her aunt, she thinks for a few seconds and then rewrites the first letter of the name she’s spelling. She is making use of her phonological awareness to connect the sound representation to the printed letters on her paper. Frida’s metalinguistic awareness and phonological awareness are enhanced by her active use of two languages to write names and by her aunt relating the spelling of Spanish letters to proper names already familiar to Frida in both English and Spanish. From this home interaction, we learned that this literacy practice and the strategy of identifying the sounds that correspond with particular letters in the two languages were very common activities in this family; often while the mom and aunt made flour tortillas with the grandma, the children engaged in this type of literacy event to entertain themselves. The data show how learning is embedded and mediated within this particular situation in which the children sometimes engage in literacy activities for entertainment and at other times to complete school homework (school-related activity). When we compare the demands of various home literacy events with those of the various reading assessment tasks in which children participated, it becomes clear that these contexts are different, and the options available to children are constrained by the context.

In terms of language use, both adults help Frida and her cousin to spell in Spanish, but they also draw from English to help them—even though the mom and aunt do not consider themselves bilingual. This shift reflects the adults’ acknowledgment of the children’s biliterate competencies. This interpretation is based on our comparisons with previous home observations where Mom helped Frida with homework and school assignments using Spanish exclusively (field notes, January 2005). The adults provide the language environment and context to support and encourage the children’s biliteracy knowledge. Mom explained during an interview that Spanish was the main language of interactions at home and that she liked to help Frida read and write in the language she knows best, Spanish; however, she considered English “vital” as it would open better job opportunities for Frida in the future. The mother’s scaffolding and support increase Frida’s level of understanding in both languages. Later on, during the concepts of writing interviews at school, we observed Frida using the same strategy of drawing from her L1 to write and spell in the L2. For example, when we asked Frida to
write something, she wrote the word “July” (see Figure 4), and when asked immediately after she finished writing in what language she had written this word, she responded that it was in Spanish. Of interest here is that when Frida was asked to read the word, she actually read the word “July” in English and spelled it as “LLULI,” using double “L” to indicate the same sound in both English and Spanish (in Spanish, double “L” makes a similar sound as the “Y” in English). This example illustrates that she is becoming phonologically aware in her two languages and that she uses her knowledge of Spanish when spelling in English (using the resources in her L1 helps her to produce and interpret written language in the L2), the same strategy we had observed at home with the interactions among Frida, her mom, aunt, and cousin.

Dariana’s Bilingual Prayer Book
Dariana was born and grew up in the southwestern United States. She is exposed to both languages at home and switches from one language to the other comfortably, depending on the interlocutor and context. Dariana has grown up close to her grandma and grandpa, who are Spanish-dominant speakers. Grandma takes care of Dariana and her younger sister (2 years old) every afternoon until Mom and Dad return from work. This language environment, as we will see in the following examples, has a significant impact on supporting Dariana’s biliteracy.

During our home visits, we observed that Dariana loves to write, make signs containing her name to decorate her room, and read books to her sister. Dariana’s mother is a paraprofessional; thus, even though she does not always read to her daughters at night, they engage together in different literacy activities, such as writing notes to each other and writing letters. Books (mainly in English) are part of her home environment, and the girls have numerous educational toys (e.g., minicomputers, alphabet puzzles).

During our observations, we learned that English was the primary language used between mother and daughter; however, when the grandparents were present...
(practically every afternoon during the week) the family conversed in Spanish. The mother explained to us, “me gusta que ella [Dariana] pueda comunicarse con sus abuelos” (I like for her to be able to communicate with her grandparents). At the time of one visit in the fall, Dariana had recently observed her mother and grandmother grieving over her great-grandmother’s death (field notes, November 27, 2005). In accordance with the novena tradition in the Catholic religion, Dariana’s grandmother had been praying for the great-grandmother’s soul for several days (for nine consecutive days, family and relatives get together to pray for the soul of the deceased). Later on, while visiting her grandmother, Dariana reported feeling sad and went to write by herself. Without the adults noticing, she took her grandmother’s prayer book and made a bilingual prayer book for herself (see Figures 5a & 5b).

This literacy event illustrates what Dariana knows about written language, her knowledge of the function of writing, and her transformation of this practice in a syncretic way that integrates her resources in the two languages (Gregory et al., 2004; Orellana, Reynolds, Dorner, & Meza, 2003). First, she uses both drawings and print to convey meaning. Second, Dariana knows the conventions of writing, such as directionality, use of spaces between words, and use of commas and periods. In addition, Dariana has learned the use and function of written language for a specific cultural practice: praying in remembrance of and grief over the loss of a loved one. Literacy in this family has a religious function. Finally, when analyzing at the micro level the written language Dariana used in her prayer book, we see that both languages are present. The grandmother’s original prayer book was written only in Spanish, but in Dariana’s version, she copied a fragment in Spanish for the inside of the book and used English to design and write on the front cover. Later, when she showed her prayer book to her grandmother, a monolingual Spanish speaker, the grandmother modeled for her how to write “Jesus” in Spanish with an accent mark: Jesús (see Figure 5a). This example clearly shows how family members mediate children’s learning by differentiating particular words in the two scripts, and how intergenerational learning is part of this family’s literacy practices as literacy “experts” help and scaffold the young child’s learning.

General Discussion

In this section, we begin with a summary of the three main findings from this study. We then interpret these findings using both sociocultural and ecology of language frameworks. Finally, we offer an ecological model of emergent biliteracy.

First, we found that children were developing knowledge and metalinguistic awareness about print in both their languages. From the different reading and writing assessments these children participated in, we learned that young bilingual children are beginning to understand that Spanish and English are written in distinct ways; however, these 5-year-olds do not necessarily come up with the same solutions to particular problems, such as identifying the language in which a specific sample of print is written. For example, in the print awareness task,
Figure 5. Dariana’s Bilingual Prayer Book

a. Dariana’s Cover for Bilingual Prayer Book

b. Dariana’s Religious Text and Drawing
many children focused on the function of the items presented rather than on their specific forms (i.e., brand names). In describing the function of specific objects, they used mostly Spanish with the researcher; moreover, some of the children used style shifting as a discourse strategy, indicating their knowledge of the genre of media advertisements (Ervin-Tripp, 2001). Here we see how children’s access and exposure to communication media (newspapers, television, etc.) in their environment influence the kinds of strategies they develop to interpret print in and out of their school surroundings.

In terms of identifying the language of print, none of the children seemed to use specific orthographic or diacritic features. It could have been that some children were in fact using information from the text or the print when they identified it as English or Spanish, but they gave no evidence of this from their explanations at this point in their development. Instead, some children used other strategies, such as pointing to the same word and stating that it was written in different languages, depending on the intonation and phonology used to pronounce the word. This strategy demonstrates metalinguistic awareness that two languages, Spanish and English, are present in the child’s environment and that they are distinct from each other. In other assessments, children demonstrated metalinguistic awareness by inventing solutions, using strategies, and creating hypotheses, expending considerable cognitive efforts to understand print by drawing on their resources in both linguistic systems (e.g., children hypothesized that upper versus lowercase letters signaled whether a word was in English or Spanish). That a high degree of variability is present in “normal” emergent biliteracy is itself an important finding in terms of guiding teachers’ expectations in the school environment. As Yaden pointed out, “variation in the data is the data” (D.B. Yaden, Jr., personal communication, April 25, 2008) and should be considered as such when describing linguistic profiles of emergent bilinguals.

Second, we found that families demonstrated a wide variety of communicative practices and ways in which they used written materials in the two languages. Based on our ethnographic observations, we learned that these emergent bilingual children participate in different literacy events at home. This participation in a variety of literacy events (e.g., daily living routines, entertainment, literacy for literacy’s sake, storybook time, interpersonal communication) helps young children develop biliteracy. Of interest here is that in each individual family, certain kinds of literacy practices tend to take place consistently in a particular language (or combination of languages) and that this pattern varies across families depending on their specific activities and contexts. Moreover, these parents support their children’s emergent biliteracy with various practices and resources at home. They recognize the importance of their children learning to read and write in English, but many also seek to maintain the home language for personal or cultural reasons, such as to maintain relationships with monolingual Spanish-speaking relatives. Children are involved in different everyday literacy routines with their parents, such as writing and reading general notes, cards, letters, and religious texts.
Most of the literacy events in these children’s homes involved the use of the native language (i.e., Spanish) to interpret English printed material. The language used by parents and siblings during these literacy events and the function of these events contribute to language learning and socialization in the community where these young children are growing up bilingual. Interestingly, we observed instances where children modeled English for their parents, an activity that helped them develop higher-order thinking. In addition, differentiating between what is English and what is Spanish in explanations and translations to their parents promotes metalinguistic knowledge (Orellana & Reynolds, 2008). Therefore, both adults and children draw upon a range of linguistic and cultural resources to meet various challenges in their day-to-day activities (Reyes & Moll, 2008).

Third, we found that intergenerational learning occurred in both directions among family members. Adults and more advanced peers, often siblings, serve as experts who scaffold print knowledge as the young child progresses toward biliteracy (Kenner, 2004). Yet parents, peers, and children may switch between expert and novice roles in specific contexts, for example, when a child translates an English word into Spanish for his parents. We conclude that children do not construct meaning on their own but rather transform and build on it while actively participating in literacy events during interactive play and learning with peers and family members, something we could not have observed from the classroom literacy tasks alone (see Rowe, 2006, for a discussion of children’s participatory role in literacy learning). Some researchers have referred to this transformation of knowledge during interaction as hybrid, or syncretic, literacy practices (Gregory et al., 2004; Gutiérrez, 2008); however, we focus here on the process of transformation as part of the natural development of children’s emergent biliteracy.

The strategies these children used provide evidence that parent–child and peer interactions, parents’ and teachers’ literacy practices, and children’s own interpretation and transformation of language interact to facilitate literacy development. The fluidity and dynamic nature of biliteracy were evident in the scaffolding and intergenerational learning among family members.

As indicated earlier, in this study we have drawn on sociocultural and ecology of language perspectives to explore and explain children’s knowledge and development of emergent biliteracy. In addition, the application of a multiple-methods approach to both the analysis and interpretation of the data allows us to examine how children solve particular literacy problems in reading and writing assessments and natural settings, to compare children’s performance in formal tasks versus naturalistic activities, and to identify particular hypotheses that bilingual children develop as they construct meaning from environmental print and learn about conventions and concepts of print in two languages with alphabetic scripts.

The case studies provided evidence that these emergent bilingual children’s development of biliteracy is dynamic and mediated by their immediate sociocultural contexts. Through our observations of children participating in different literacy events at home, we documented that the development of bilingual print concepts and awareness is mediated through social interaction and does
not necessarily come about through exposure alone (Kassow, 2006; Neuman & Roskos, 1993). In other words, children's biliteracy development is highly situated and is influenced, mediated, and transformed in particular ways during peer and family interactions. Even though these students were living in a bicultural community in the Southwest where they used Spanish during their everyday lives, they had limited opportunities to develop their oral and written Spanish proficiency in the classroom.

The naturalistic observations in combination with the reading and writing assessment tasks contributed to a better understanding of the process of biliteracy than would have been evident through either observation or reading and writing assessments alone. If we had evaluated these emergent bilingual children's literacy knowledge from the literacy assessments alone, as is the case in many schools, we would have assumed that they lacked several basic early literacy concepts; however, observation in their natural home environments allowed us to identify concepts that were emerging. We also were able to explore and learn from an ecological perspective about the process and mediation of learning involved in developing biliteracy during experiences embedded in meaningful contexts (Hornberger & Skilton-Sylvester, 2000) in their home environment (such as writing a prayer to come to terms with the death of a family member).

Although this study provides evidence that children's biliteracy development is a complex and dynamic process that is mediated by their everyday participation in various literacy events and learning environments at home and at school, a few words of caution are in order. First, this study involved a limited number of participants. Second, all the participants were Spanish–English bilinguals. Future studies with a larger group of participants and including children with different home languages would allow a more detailed examination of the different linguistic environments and activities that support the development of biliteracy and how these might vary by culture or home language.

Furthermore, we do not claim that the characteristics and profiles of these children can be generalized to all emergent Spanish–English bilingual children. In fact, based on these case studies we would predict great variability, even across Spanish–English bilinguals from similar backgrounds. Nevertheless, these children can be considered representative of the diverse range of language and literacy experiences and competencies developed throughout their particular contexts.

Finally, we argue that the findings contribute toward the development of a theoretical model focusing on the ecology of emergent biliteracy in early childhood. Such a model should consider not only what children learn but also how they learn their native language at home and their second language at school and in the community (Moll, 1990; Tabors & Snow, 2001). Although the preschool children described in this study had not yet developed conventional writing and reading competencies in either language, the bilingual, and in some cases biliterate, interactions in which they participate support them in beginning to construct meaning from print they encounter in their bilingual surroundings (Gregory et al., 2004).
Our work contributes to the field of biliteracy by adopting an ecological perspective to interpret young children's pathways to biliteracy. This perspective has yielded richer information in the interpretation of the data than we could have gleaned from children's responses to the reading and writing literacy assessment tasks alone. These findings have theoretical implications for rethinking how we view children's interactions within the contexts that mediate their learning. This approach to the study of biliteracy development of young children has allowed us to look at how various environments and interactions among participants, contexts, and sociocultural forces shape young immigrant children's biliteracy development. These Mexican-origin parents overwhelmingly support biliteracy and deliberately use Spanish at home to talk, read, and write, while also encouraging their children to become proficient in written and spoken English. Regardless of government-mandated English-only policies and programs that may constrain children's classroom experiences, their daily learning experiences are permeated with bilingualism and biliteracy. The findings in this study point to the potential to develop biliteracy that apparently exists within each child's immediate environment and is enhanced when community members (e.g., parents, peers, schoolteachers, neighbors) provide direct scaffolding during linguistic interactions.

Although previous studies in the field have laid some groundwork toward developing an ecological model of biliteracy, models such as Hornberger's (1989) have focused on the continuum of biliteracy among adult bilinguals and its application to language-planning purposes. No previous studies have embraced an ecological approach to early childhood biliteracy development.

We argue for a model that describes the biliteracy process as part of the natural development of young Spanish–English emergent bilinguals. This model should include theory and research that document the interplay of factors at multiple levels and how they impact the development of biliteracy. Moreover, an ecological model of emergent biliteracy needs to account for time- and place-specific influences from home, community, and school and predict how these would influence children's literacy development (Barton, 1994). Finally, this ecological model should acknowledge that children's development is dynamic, malleable, and influenced by naturalistic opportunities in the environment that tap into any child's potential to acquire multiple languages and literacies.

An ecological model of emergent biliteracy in early childhood can bring benefits to the field by challenging deficit perspectives that tend to devalue bilingualism and biliteracy as impediments rather than potential assets in academic achievement and that stereotype Mexican immigrant families as failing to provide stimulating home environments that prepare children for formal literacy learning at school (Reyes, 2001; Zentella, 2005). An ecological model of emergent biliteracy has implications for pedagogical practice, in terms of helping educators to provide more effective instruction, to understand children's individual ways of responding to school activities and assignments, and to recognize alternate and more nuanced strategies for evaluating children's biliteracy knowledge.
QUESTIONS FOR REFLECTION

1. In what ways do young emerging biliterate children demonstrate metalinguistic awareness about print in both their languages?
2. How does linguistic intergenerational teaching and learning occur in emerging bilingual families?
3. What are the limitations of traditional or standardized reading and writing assessments in determining biliterate students’ literacy competencies?

NOTES

This work was supported by a grant from the Foundation for Child Development Young Scholars Program to the first author. We wish to thank David Bloome, Ian Wilkinson, David Yaden, and especially the anonymous reviewers for their thoughtful and useful feedback. All opinions and conclusions expressed in this article are those of the authors.

REFERENCES


List of Items Used for the Environmental Print Task

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tortillas</td>
<td>Dos Ranchitos</td>
<td>Bilingual</td>
</tr>
<tr>
<td>Refried beans</td>
<td>Rosarita</td>
<td>Bilingual</td>
</tr>
<tr>
<td>Chocolate drink mix</td>
<td>Nestle/Nesquik</td>
<td>English</td>
</tr>
<tr>
<td>Grocery bag</td>
<td>Food City</td>
<td>English</td>
</tr>
<tr>
<td>Cereal</td>
<td>Kellogg’s Corn Flakes</td>
<td>English</td>
</tr>
<tr>
<td>Toothpaste</td>
<td>Colgate</td>
<td>Bilingual</td>
</tr>
<tr>
<td>Soda</td>
<td>Coca-Cola</td>
<td>Bilingual</td>
</tr>
<tr>
<td>Fries</td>
<td>McDonald’s</td>
<td>English</td>
</tr>
<tr>
<td>Pizza</td>
<td>Domino’s Pizza</td>
<td>English</td>
</tr>
<tr>
<td>Street sign</td>
<td>Stop sign</td>
<td>English</td>
</tr>
</tbody>
</table>

Coding Scheme for environmental print task

1. Not recognized (NR): The response was not related to the item shown.
2. Function (F): The child named the function of the item (e.g., “para lavarte los dientes” [to brush your teeth] instead of Colgate).
3. Generic (GN): The child’s response included the generic name of the item but not the exact brand name (e.g., toothpaste instead of Colgate).
4. Other brand name (OBN): The child responded with the name of a different brand (e.g., Pepsi instead of Coca-Cola).
5. Partial brand name (PBN): The child’s response included part of the brand name (e.g., Coca instead of Coca-Cola).
6. Exact brand name (EBN): The child responded with the exact brand of the item as printed on the label (e.g., Domino’s Pizza).

Domains of Activity Related to Literacy

The following is adapted from Heath (1983) and Teale (1986).

1. Daily Living Routines. This domain of activity is concerned with the ongoing recurrent practices of everyday life: obtaining food, maintaining shelter, participating in what is required by social institutions, maintaining the social organization of the family, and so forth (e.g., shopping, cooking, paying bills, traveling from one place to another, maintaining welfare assistance, washing clothes, getting appliances or automobiles repaired).
2. Entertainment. Literacy can mediate entertainment activities in three different ways. First, literacy itself can be the source of the entertainment (reading a novel, doing a crossword puzzle). Second, literacy can be instrumental to entertainment when it is used to select, find out about, or in some other way facilitate or maintain participation in an entertaining activity (e.g., reading a television guide). Third, literacy can be incidental to entertainment (e.g., if a child is watching cartoons on television and there are several written signs that appear at various times during the cartoon).

3. School-Related Activity. This domain of activity is directly related to the social institution of school (e.g., letters from the principal, consent forms, announcements, as well as homework that involve reading and/or writing).

4. Work. This domain of literacy relates directly to employment (e.g., filling out forms for catalog orders or receipts for rent collected, reading a technical manual). Also, literacy related to securing or maintaining employment (e.g., reading classified advertisements, reading a flyer from the employer explaining work-force cutback procedures).

5. Religion. This domain of literacy relates to family members’ religious activities linked directly to the social institution of church (e.g., Bible reading, Bible study sessions, the use of the Bible study/interpretation guides, and reading of children’s pamphlets from Sunday school).

6. Interpersonal Communication. Literacy is used to communicate with friends, relatives, or other persons physically or temporally distant (e.g., sending Christmas and birthday cards with handwritten messages on them, reading a letter from a friend in another state, and writing a letter to grandparents).

7. Participating in “Information Networks.” Literacy in this case is used to gain information for which there is no immediately discernible use and no direct link to any of the previously mentioned social institutions, school, church, or work (e.g., reading regularly or irregularly the sports section of the newspaper).

8. Storybook Time. This activity consists of book-reading episodes in which an adult (e.g., parent, grandparent) or an older sibling reads to the child at bedtime or at another time during the day.

9. Literacy for the Sake of Teaching/Learning Literacy. In this category, the focus of the activity is to help another person to learn to read and/or write or when the target child reads/writes or attempts to read/write for the sake of learning about reading/writing.

10. Cultural Heritage. In this category, the literacy event directly relates to an aspect of the family’s cultural background (e.g., learning about a family tradition, such as posadas, an Hispanic Christian feast that commemorates the journey of Mary and Joseph to Bethlehem in preparation for the birth of Jesus and can include a piñata, Mexican hot chocolate, pan dulce [sweet bread], and music in its celebration).