



Center for Early Care and Education Research Dual Language Learners

Language and Literacy Development in Dual Language Learners: Annotated Bibliographies from a Critical Review of the Research

U.S. & Canada Articles

Anderson, R. (2004). Phonological acquisition in preschoolers learning a second language via Immersion: a longitudinal study. *Clinical Linguistics & Phonetics*, 18, 183-210.

The purpose of the study was to examine speech sound development of children who are learning a second language and to examine potential cross-language influences of the languages' speech sound systems. Participants included 5 children who spoke Korean, Russian or French as their "native language" as well as English. Compared to English, the native languages ranged from having more similar speech sound systems (e.g., French) to more contrasting speech sound systems (e.g., Korean). Children's initial ages at the start of the study ranged from 3 years 9 months to 4 years 9 months. Speech sound development was assessed in both languages at each time point by analyzing spontaneous language samples for speech sound accuracy using a measure developed by the researchers. Children's speech sounds were analyzed every 1 to 2 months for a maximum of 5 sessions. Results indicated that children had higher speech sound accuracy in their native language compared to English. Native language accuracy remained constant over time for all children. Accuracy rates in English varied according to the speech sound attributes of the native language and their contrast with English. Korean-English bilingual children's accuracy rates in English remained stable over time. Sounds in the native language that were not shared with English were not present in the speech sound inventory of the native language. The researchers concluded that children maintain separate speech sound systems for each language based on the speech sounds appropriate for each language, with some cross-language influences based on native language differences to English speech sounds.

Anthony, J.L., Solari, E.J., Williams, J.M. , Schoger, K.D. , Zhang, Z., Branum-Martin, L. & Francis, D.J. (2009). Development of bilingual phonological awareness in Spanish-speaking English language learners: The roles of vocabulary, letter knowledge, and prior phonological awareness. *Scientific Studies of Reading*, 13, 535-564.

The purpose of the study was to evaluate the relationship between vocabulary, printed letter knowledge and phonological awareness (e.g., speech sound awareness) in Spanish-speaking children learning English. Participants included 130 Spanish-English English Language Learners (ELLs) with a mean age of 4 years, 5 months who were enrolled in 40 preschool classrooms. Children's vocabularies were assessed twice during their preschool year through the Expressive One Word Picture Vocabulary Test and the Receptive One Word Picture Vocabulary Test. Letter knowledge was assessed using a printed letter identification task and a letter sound identification test developed by the researchers. Phonological awareness was evaluated using the Elision and Blending portions of the Preschool Comprehensive Test of Phonological and Print Processing in both Spanish and English. Results indicated that ELLs phonological awareness abilities in one language transferred to their phonological awareness abilities in the other language. Spanish vocabulary predicted a small amount of variance in English and Spanish phonological awareness, and English vocabulary predicted a small amount of variance in Spanish phonological awareness. Spanish and English letter knowledge did not predict phonological awareness abilities. Results supported cross-linguistic effects of prior phonological awareness and Spanish vocabulary on the development of phonological awareness in ELLs.

Bedore, L. M., Fiestas, C. E., Peña, E. D., & Nagy, V. J. (2006). Cross-language comparisons of maze use in Spanish and English in functionally monolingual and bilingual children. *Bilingualism: Language and Cognition*, 9, 233-247.

The purpose of the study was to compare bilingual children's verbal fluency (as measured by the number of mazes) in both languages and to compare the fluency of bilingual children with monolingual peers. Mazes were defined as a measure of language fluency characterized by revisions, false starts and other methods of repairing statements. Because mazes or grammatical revisions typically occur in monolingual language learners as they learn to be productive in their language, the relationship between mazing and language productivity was also investigated. Participants included 22 Spanish-English bilinguals, 22 Spanish monolinguals and 22 English monolinguals ranging in age from 4 years 3 months to 7 years 3 months. Children's language production of mazes was assessed by spontaneous language samples conducted in their applicable languages. Language productivity was measured by evaluating language samples for mean length of utterance and number of words produced. Results indicated that bilingual children produced similar percentages of mazes when compared to the monolingual children. Also, similar types of mazes were used by monolinguals and bilinguals. The length of maze was related to language productivity in bilinguals, but differently in Spanish and English. In Spanish, higher levels of productivity were related to higher levels of maze use with the exception of pauses and repetitions. Higher levels of pauses and repetitions were associated with lower measures of productivity. As exposure to Spanish decreased, grammatical revisions increased in English. The researchers concluded that bilinguals have similar mazing patterns to their monolingual peers, indicating that two languages did not negatively influence fluency. Also, as both monolingual children and bilinguals learn language, they may experience different mazing patterns depending on their native language.

Bedore, L. M., Peña, E. D., García, M., & Cortez, C. (2005). Conceptual versus monolingual scoring: When does it make a difference? *Language, Speech, and Hearing Services in Schools*, 36, 188-200.

The purpose of the research was to examine the cross-language overlaps of semantic abilities of bilingual children and whether monolingual standards can accurately classify bilingual semantic development. Two studies were conducted. In study 1, participants included 55 children ranging in age from 4 years to 7 years who were Spanish-English bilingual (either Spanish dominant or English dominant), monolingual Spanish speakers or monolingual English speakers. Semantic development was assessed using the Semantic Subtest and the Characteristic Properties Subtest of the Bilingual English Spanish Assessment (BESA). Results indicated that bilingual children were more likely to "code switch" (e.g., change languages depending on context) when tested in Spanish compared to English. Bilingual children also demonstrated more knowledge of basic concepts in the language in which they learned them. In study 2, 40 bilinguals from the larger pool were matched on age and language; children ranged in age from 5 to 6 years. Children

were administered the Phase 2 Semantics Subtest and the Expressive Language Subtest, also from the BESA. Bilingual children's semantic abilities were best represented by using conceptual scoring (scoring based on the meaning of the response regardless of language used) instead of standardized scoring procedures as used for monolingual children. The researchers concluded that conceptual scoring rather than standardized scoring should be used for bilinguals to more accurately represent their abilities because semantic knowledge appeared to be specific to the language in which concepts were learned for bilinguals.

Bland-Stewart, L., & Fitzgerald, S.M. (2001). Use of Brown's 14 grammatical morphemes by Hispanic preschoolers: A pilot study. *Communication Disorders Quarterly*, 22, 171-186.

The purpose of the study was to compare the English grammatical development of bilingual preschoolers attending bilingual daycares to pre-existing data on monolingual children. The study included 15 Spanish-English bilingual children. Spontaneous language samples were recorded during interactive play and were coded for mean length of utterance. In addition, the production of early-developing English morphemes (i.e., Brown's 14 morphemes) was examined. Analysis of the speech samples indicated that bilingual children demonstrated emergent use of Brown's 14 morphemes, but that mastery of the morphemes did not occur at the same ages as previous findings on monolingual children. The researchers concluded that grammatical development of bilingual children should not be assumed to be identical to monolingual children's grammatical development.

Bohman, T. M., Bedore, L. M., Peña, E. D., Mendez-Perez, A. & Gillam, R. B. (2010). What you hear and what you say: Language performance in Spanish-English bilinguals. *International Journal of Bilingual Education and Bilingualism*, 13, 325-344.

The purpose of the study was to examine the relationship between language exposure and demographic variables (i.e., age, free/reduced lunch and school district) and Spanish and English semantics and grammar. The study included 757 Spanish-English bilinguals, monolingual English-speakers or monolingual Spanish-speakers who were pre-kindergarteners and kindergarteners from three different school districts. Language exposure and usage, free and reduced lunch eligibility, and age were gathered by parental report. Participants were given the "Bilingual English Spanish Oral Language Screener" to evaluate semantics and grammar in both Spanish and English. Spanish semantics and grammar were influenced by Spanish language exposure and usage as well as qualifying for a free or reduced lunch. English semantics and grammar, however, was affected by English language usage and the children's age. In addition, English semantics was influenced by qualifying for a free lunch. The researchers concluded that a variety of factors, including language exposure and usage should be considered when interpreting the semantic and grammar test results of all young language learners.

Brice, A. E., Carson, C. K., & O'Brien, J. D. (2009). Spanish-English articulation and phonology of 4- and 5-year-old preschool children: An initial investigation. *Communication Disorders Quarterly*, 31, 3-14.

The purpose of the study was to examine differences between Spanish and English articulation (pronunciation of sounds) and phonology (speech sound system). The study included 16 Spanish-English bilingual children ranging in age from 4 to 5 years. Children's articulation and phonological abilities in Spanish were assessed using the Comprehensive Assessment of Spanish Articulation-Phonology. Children's articulation in English was assessed using the Goldman-Fristoe Test of Articulation-2 and their English phonology was assessed using the Khan-Lewis Phonological Analysis-2. Bilingual children's productions of English sounds were more accurate than their Spanish productions. Bilingual children's production errors differed from monolingual children's production errors. The researchers concluded that a relationship between articulation accuracy and increased English exposure in school environments compared to Spanish may have contributed to higher accuracy in English productions. They also concluded that learning two languages had an effect on speech sound production errors.

Buckwalter, J. K., & Gloria Lo, Y. (2002). Emergent literacy in Chinese and English. *Journal of Second Language Writing*, 11, 269-293.

The purpose of the study was to investigate emergent literacy development in Chinese and English and possible cross-language effects on literacy development. The study included one 5-year-old Chinese child who was learning English. Emergent literacy was assessed using reading, writing and matching games which corresponded with books read with caregivers. Data were also collected while reading and writing familiar books/stories, mail and looking at words with caregivers. Measures were taken in both languages for 1.5 to 2 hours a week for 15 weeks. Results indicated that the child understood basic concepts of literacy in both languages, including awareness of print intentionality, matches between written and spoken words, and the conventions of print. Literacy in Chinese was influenced by print materials in the home. The child was aware of the morphosyllabic nature of both oral and written Chinese, the nature of Chinese characters and that Chinese characters do not provide speech sound information. Examination of literacy in English indicated that the child knew the alphabet and knew the difference between a letter and a word but that sound-symbol correspondence was still emerging. Results indicated that literacy awareness appears to be unique to each writing system and that learning two separate writing systems simultaneously did not appear to negatively impact emergent literacy.

Bunta, F., & Ingram, D. (2007). The acquisition of speech rhythm by bilingual Spanish- and English-speaking 4- and 5-year-old children. *Journal of Speech, Language, and Hearing Research*, 50, 999-1014.

The purpose of the study was to compare rhythmic patterns [i.e., vocalic (vowel) and intervocalic (consonants occurring between two vowels) speech sounds] in the speech of bilingual children to monolingual children as well as bilingual and monolingual adults. Child participants (n = 30) included 10 Spanish-English bilinguals, 10 Spanish monolingual children and 10 English monolingual children. Children were categorized as "younger children" (i.e., ages 3 years 9 months to 4 years 5 months) and "older children" (i.e., ages 4 years 6 months to 5 years 2 months). Adult participants (n = 18) included 6 Spanish-English bilinguals, 6 Spanish monolinguals and 6 English monolinguals. Speech rhythms were assessed using the pair-wise variability indices (PVIs), which elicit and analyze vocalic (vowel or "vowel-like" sounds) and intervocalic sounds (occurring between vowels). Bilinguals used distinct rhythm patterns in their two languages, and their overall speech rhythms differed from English monolingual children. For bilinguals, differences were also observed with vocalic PVI between younger and older children while no significant differences occurred for intervocalic PVI. Bilingual adults showed separation of their languages and performed similarly to their monolingual children. The researchers concluded that demonstrated speech rhythm patterns vary based on the rhythmic qualities of the individual language. They also posited that vocalic PVI is a more robust measure of language rhythm than intervocalic PVI, but that additional research is necessary.

Bunta, F., Fabiano-Smith, L., Goldstein, B., & Ingram, D. (2009). Phonological whole-word measures in 3-year-old bilingual children and their age-matched monolingual peers. *Clinical Linguistics & Phonetics*, 23, 156-175.

The purpose of the study was to compare the phonological (speech sound) complexity of 3-year-old bilinguals to their monolingual peers. Comparisons were also made between the two languages of bilingual children. Participants included 24 Spanish-English bilingual, Spanish monolingual and English monolingual children ranging in age from 3 to 4 years. The Spanish and/or English phonology subtest of the Bilingual English Spanish Assessment (BESA) was administered to examine speech sound patterns. Phonological complexity was measured using phonological mean length of utterance (pMLU), percent consonants correct (PCC), and proximity (i.e., how closely to adult productions sounds were approximated). Results indicated that English monolinguals scored higher on all phonological complexity measures when compared to bilinguals. Spanish monolinguals obtained higher PCC than bilingual children although no significant differences occurred for pMLU and proximity. Results indicated that structural phonological differences occurred between Spanish and English except for proximity. The researchers concluded that bilingual status may influence phonological accuracy.

Castilla, A. P., Restrepo, M. A., & Perez-Leroux, A. (2009). Individual differences and language interdependence: A study of sequential bilingual development in Spanish-English preschool children. *International Journal of Bilingual Education and Bilingualism*, 12, 565-580.

The purpose of the study was to evaluate the relationship between performance in a first language and learning of a second language. Participants included 49 Spanish-speaking children ranging in age from 4 years 4 months to 4 years 11 months. All children attended English pre-kindergarten classrooms. They were assessed in Spanish at the beginning of the school year and assessed in English nine months later. The Bilingual English Spanish Assessment (BESA) was administered to assess grammar and semantics in both languages. A Spanish language sample was also collected using a story-telling task. Spanish language samples were coded for mean length of utterance in words as well as lexical (vocabulary) diversity. After 9 months, when exposure to English significantly increased, children were assessed in English using the English form of the BESA. Results indicated that semantics and grammar in Spanish predicted later performance in semantics and grammar in English. The researchers concluded that native language skills predict success in learning a second language.

Castro, D., & Gavruseva, E. (2003). Finiteness and aspect in Spanish/English bilingual acquisition. *First Language*, 23, 171-192.

The purpose of the study was to investigate similarities and differences in English and Spanish verb morphology (finite and non-finite root predicates), as used by a Spanish-English bilingual child. Specifically, researchers examined the use of finite (i.e., primary verbs that are inflected for tense or mood, such as “the boy walked to the store”) and non-finite verbs (i.e., secondary verbs that are not inflected, such as “he wanted to walk to the store”). The researchers sampled the spontaneous speech of one Spanish-English bilingual female child while she played with family members. Eleven recorded language samples were collected when the child was between 15 to 30 months of age. Language samples were coded to examine the child’s use of verb predicates (e.g., “dances” in the sentence “she dances”) in both languages. The findings revealed that the child’s use of either non-finite or finite verb predicates in both languages was informed by the meaning of the verbs. The child differed in her use of predicates in English and Spanish based on the differing rules and needs of each language. This finding supported the “separate systems” hypothesis of bilingual language acquisition (i.e., bilinguals have two separate language systems).

Chung, H. H. (2006). Code switching as a communicative strategy: A case study of Korean-English bilinguals. *Bilingual Research Journal*, 30, 293-307.

The purpose of the study was to examine the use of code switching in Korean-English bilingual children. Code switching refers to the practice of changing languages and/or dialect based on social context. The study included 2 Korean-English bilingual children (siblings) ranging in age from 4 years 5 months to 11 years. Spontaneous language samples were collected at one time point during a 3 hour taping session during which the conversation between the two children and their father (first generation Korean-English bilingual adult) was recorded. Examples of code-switching were identified, and three of these were qualitatively analyzed for purpose and meaning of code-switching. The results revealed that code-switching was influenced by the relationship between the speaker-addressee and the conversation partner’s language proficiency. Additionally, cultural features of the Korean language played a role in use of code-switching.

Conboy, B. T., & Mills, D. L. (2006). Two languages, one developing brain: Event-related potentials to words in bilingual toddlers. *Developmental Science*, 9, F1-F12.

The purpose of the study was to examine links between electrical activity in the brain (“Event Related Potential”) to known and unknown words in Spanish and English of bilingual children. The resulting brain activity elicited by known or unknown words was theorized to have a relationship to language exposure and brain maturation. Thirty Spanish-English bilingual boys and girls, ranging in age from 19 to 22 months, lived in either Spanish monolingual, English monolingual or Spanish-English bilingual households. Researchers used the children’s age as the measure of brain maturation. Caregivers reported on children’s known and unknown words using the MacArthur-Bates Communicative Development Inventory and its Spanish equivalent. The researchers measured electrical brain activity with external electrodes while presenting these individualized lists. Differing brain activity occurred for known as compared to unknown words in both languages. This brain activity also differed depending on whether participants were monolinguals or bilinguals, with additional differences noted based on dominant language. Researchers concluded that language experience shaped brain processing rather than brain maturation.

Conboy, B. T., & Thal, D. J. (2006). Ties between the lexicon and grammar: Cross-sectional and longitudinal studies of bilingual toddlers. *Child Development*, 77, 712-735.

The purpose of the study was to examine whether grammatical complexity (as indicated by use of closed class words) and proportion of nouns and predicates by Spanish-English bilingual children were related to overall vocabulary size in each language. These features of language were also compared to pre-existing data on monolingual children. The study also examined if children’s grammatical complexity growth over time (increased use of inflectional morphology, closed class words and predicates) were similar or different

across languages. Participants included 64 bilingual children ranging in age from 19 to 31 months. Total conceptual vocabulary size and classification of vocabulary into morpho-syntactic groups were determined by caregiver report using the MacArthur Communicative Development Inventory and its Spanish equivalent. Of the 64 children, 34 were tested at a second time point, and 31 were assessed at a third time point. Number of different words (NDW) as well as Mean Length of Utterance (MLU) were calculated. A hierarchical growth curve was used to determine change over time. Similar to previous findings on monolingual English speaking children, production of social words decreased as vocabulary increased. Also similar to monolingual expectations, vocabulary size was positively related to proportion of nouns for children with under 100 words in their vocabulary, and negatively related to proportion of nouns for children with over 100 words in their vocabulary. No cross language differences were found for nouns. Children used more predicates and closed class words as their vocabulary size grew in both languages. Language growth appeared language specific. That is, patterns of growth in English and Spanish differed for all language measures. One exception was noted; the number of words produced exclusively in English at 28 to 31 months was related to length of utterance in Spanish. The researchers concluded that bilinguals' patterns of development are similar in both languages and resemble the overall developmental trajectory of monolingual children.

Davidson, D., Raschke, V. R., & Pervez, J. (2010). Syntactic awareness in young monolingual and bilingual (Urdu-English) children. *Cognitive Development, 25*, 166-182.

The purpose of the study was to evaluate syntactic awareness and vocabulary of Urdu-English bilingual and monolingual children. Two experiments were conducted. Study 1 included 20 children ranging in age from five to six years who were either Urdu-English bilinguals or English monolinguals. Study 2 included 72 Urdu-English bilinguals and English monolinguals divided based on age group (younger: 3- to 4-year olds ; older: 5 to 6 year olds). In both studies, children's receptive language was assessed using the Peabody Picture Vocabulary Test-III in either English or Urdu. English syntax or sentence construction was examined using researcher-designed measures that required children to judge whether sentences were grammatically correct ("grammaticality judgments"). Results from both experiments indicated that both monolinguals and bilinguals performed well in judging whether sentences were grammatically correct; no significant differences between bilinguals and monolinguals emerged in identification of grammatically correct sentences. Bilingual children in the older age group performed better at detecting grammaticality in both languages than monolinguals. Younger bilingual children were better at detecting grammatically incorrect sentences than their monolingual peers, but only when tested in Urdu. Neither bilinguals nor monolinguals could explicitly explain why a sentence was not grammatically correct. Receptive vocabulary scores were significantly related to the children's ability to make grammaticality judgments. The researchers concluded that grammatically correct and incorrect sentences can be used to measure syntactic awareness with both monolinguals and bilinguals.

Dickinson, D. K., McCabe, A., Clark-Chiarelli, N., & Wolf, A. (2004). Cross-language transfer of phonological awareness in low-income Spanish and English bilingual preschool children. *Applied Psycholinguistics, 25*, 323-347.

The purpose of the study was to assess the development of speech sound awareness in Spanish-English bilinguals and possible cross-language influences. Participants included 123 bilinguals with a mean age of 49.1 months. Vocabulary was assessed using the Peabody Picture Vocabulary Test-III in Spanish and English. Emergent literacy was assessed using the Emergent Literacy Profile in Spanish and English. Phonological or speech sound awareness was assessed using the Early Phonological Awareness Profile in Spanish and English. Data were collected in the fall and spring. The strongest predictor of phonological awareness in one language was phonological awareness in the other language, indicating cross-language influence. Receptive vocabulary in Spanish predicted phonological awareness in Spanish, and receptive vocabulary in English predicted phonological awareness in English. English receptive language was not related to Spanish phonological awareness. Literacy scores in the stronger language did not predict phonological awareness in either language.

Fabiano, L., & Goldstein, B. (2005). Phonological cross-linguistic effects in bilingual Spanish-English speaking children. *Journal of Multilingual Communication Disorders, 3*, 56-63.

The purpose of the study was to examine cross-language influences in phonology (speech sounds) between the two languages of bilingual children. Participants included 3 Spanish-English bilingual children ranging in age from five to seven years old. Children's phonology was assessed using the Bilingual English Spanish Assessment (BESA), spontaneous language sampling analyzed using the Systematic Analysis of Language Transcripts (SALT) in both languages, and narrative language sampling analyzed by SALT. Results indicated that bilingual children had separate English and Spanish speech sound systems. However, cross-language effects occurred between the two speech sound systems. These cross-language effects appeared to decrease with age. The researchers concluded that speech systems of the two languages of bilinguals remain separate with some system interaction and influences.

Fabiano-Smith, L., & Barlow, J. A. (2010). Interaction in bilingual phonological acquisition: Evidence from phonetic inventories. *International Journal of Bilingual Education and Bilingualism, 13*, 81-97.

The purpose of the study was to develop normative data for bilingual phonetic (speech sound) development and compare the phonetic development of bilingual and monolingual children. Participants included 24 Spanish-English bilinguals, Spanish monolinguals and English monolinguals ranging in age from three to four years. Phonological acquisition was assessed using the phonology subtest of the Bilingual English Spanish Assessment (BESA). Results indicated that bilinguals had phonetic inventories that were comparable in

complexity to monolinguals. Bilinguals had acquired two phonetic inventories on a comparable time line to monolinguals' development of one phonetic inventory. Bilingual phonetic inventories were also as complex as monolinguals' phonetic inventories. The two phonetic inventories of bilinguals appeared to be separate although low levels of transfer between languages occurred. The authors discuss the implications of these findings for speech-language pathologists who are attempting to differentiate language difference from disorder in bilinguals.

Fabiano-Smith, L., & Goldstein, B. A. (2010). Early-, middle-, and late-developing sounds in monolingual and bilingual children: An exploratory investigation. *American Journal of Speech-Language Pathology*, *19*, 66-77.

The purpose of the study was to examine differences in early, middle and late developing sounds between bilingual and monolingual children. Participants included 24 Spanish-English bilingual, Spanish monolinguals and English monolinguals ranging in age from 3 to 4 years. Phonological (speech sound) acquisition was assessed using the phonology subtests of the Bilingual English Spanish Assessment (BESA). Results indicated that bilinguals maintained separate phonological systems between their two languages with minimal transfer between the two languages. Monolingual Spanish speakers demonstrated higher levels of consonant accuracy compared to bilinguals. No differences in consonant accuracy existed between bilinguals and English monolinguals. More errors occurred on sounds that were not shared between the two languages of bilingual children. Previous findings on the development of early, middle and late sounds in English were supported for English speaking children; however, the researchers concluded that new categories were needed for Spanish monolinguals and Spanish-English bilinguals. The researchers concluded that further examination of categories for non-English monolinguals are needed as well as further research the exploration of the speech sound acquisition order of sounds for non-English speakers.

Fabiano-Smith, L., & Goldstein, B. A. (2010). Phonological acquisition in bilingual Spanish-English speaking children. *Journal of Speech, Language, and Hearing Research*, *53*, 160-178.

The purpose of the study was to examine cross-language phonological influences in bilinguals and compare the phonological development of bilingual and monolingual children. Participants included 24 Spanish-English bilingual children, Spanish monolinguals and English monolinguals ranging in age from 3 to 4 years. Children's phonological acquisition was assessed using the Spanish and English phonology subtests of the Bilingual English Spanish Assessment (BESA). Results indicated that Spanish-speaking monolingual children's consonant accuracy was higher than bilingual children's accuracy in Spanish. Bilingual children also differed overall from Spanish monolingual children in early, middle and late developing Spanish speech sounds. No differences were found between bilinguals and monolingual English speakers. Transfer ap-

peared to occur between the two speech sound systems of bilinguals. Sound frequency in either language's speech sound system did not predict increased accuracy with either similar or dissimilar sounds. Researchers concluded that separation and interaction occurred between bilingual's languages and that typical monolingual speech sound acquisition cannot be generalized to bilinguals.

Farver, J. A. M., Xu, Y., Eppe, S., & Lonigan, C. J. (2006). Home environments and young Latino children's school readiness. *Early Childhood Research Quarterly*, *21*, 196-212.

The purpose of the study was to assess the relationship of preschool Latino children's home environments to their school readiness as indicated by social functioning and receptive language. Participants included 43 Spanish-English bilinguals, 57 Spanish monolinguals and 22 English monolinguals (mean age of 3 years 9 months) from low-income families. Receptive language in both languages was assessed using the Peabody Picture Vocabulary Test. Parents completed questionnaires on their stress and home literacy environment. Preschool teachers rated children's social functioning using the Behavior Assessment System for Children. Results indicated that school readiness skills were related to parents' involvement in and encouragement of literacy-related activities. School readiness was also related to parental perceived stress. Children's literacy interest mediated the relationship between parents' literacy involvement and school readiness (both receptive language scores and social functioning). Language spoken in the home was not significantly related to any variables. The findings highlighted group variations in home literacy environments as well as the influence of parental home literacy activities and stress levels on school readiness.

Fennell, C. T., Byers-Heinlein, K., & Werker, J. F. (2007). Using speech sounds to guide word learning: The case of bilingual infants. *Child Development*, *78*, 1510-1525.

The purpose of the study was to determine whether bilinguals respond to the same phonetic detail (i.e., speech sounds) when learning new words at similar ages when compared to data on monolingual children. Data were derived from two experiments. Experiment 1 included 40 bilingual infants who spoke English and a non-English language and who ranged in age from 13 to 24 months. Experiment 2 included 25 Chinese-English and 28 French-English bilinguals who ranged in age from 16 to 24 months. Experimental trials used two sets of presented stimuli and the "Switch Procedure." During this procedure, spoken nonsense words were paired with familiar pictures (switch trials) and spoken actual words were paired with their correct pictures (same trials). Infant gaze time was measured in switch and same trials. Similar to monolingual data, bilingual infants looked significantly longer at unfamiliar stimuli. At 20 months, bilingual infants looked significantly longer at switch stimuli compared to same stimuli with no significant correlation between level of bilingualism and task performance. The researchers concluded that bilingual children used the sounds of words to guide their learning of words at a later age when compared to previously existing data derived from monolingual children.

Gildersleeve-Neumann, C., Kester, E. S., Davis, B. L., & Peña, E. D. (2008). English speech sound development in preschool-aged children from bilingual English-Spanish environments. *Language, Speech, and Hearing Services in Schools, 39*, 314-328.

The purpose of the study was to compare specific phonological (speech sound) patterns of English monolingual and Spanish-English bilingual children. Specifically, researchers examined consonant, vowel, word and syllable shape inventories, phonological error patterns and accuracy rates. Participants included 33 Spanish-English bilinguals, English-dominant Spanish-English bilinguals and English monolinguals ranging in age from 3 years 1 month to 3 years 10 months at the beginning of the study. Children's English phonology was assessed by a single-word picture-naming task developed by the researchers. Children were assessed in the fall and in the spring. Results indicated that bilinguals and English monolinguals had similar speech sound inventories. Some bilinguals produced Spanish sounds when speaking English words. Bilinguals who were relatively equal in Spanish and English exposure produced more speech sound errors than bilinguals who were English dominant in exposure. Both groups of bilinguals had higher consonant sound error rates than English monolinguals. The researchers concluded that bilingual status appears to have a relationship to speech sound errors but that bilinguals and monolinguals have similar speech sound inventories.

Gildersleeve-Neumann, C., Peña, E. D., Davis, B. L., & Kester, E. S. (2009). Effects on L1 during early acquisition of L2: Speech changes in Spanish at first English contact. *Bilingualism: Language and Cognition, 12*, 259-272.

The purpose of the study was to examine the Spanish phonological development in Spanish-English bilingual children when first exposed to English and eight months after first exposure. Effects of English vowel and consonant inventories on Spanish were also examined. Participants were 6 Spanish-English bilinguals ranging in age from 3 years 2 months to 3 years 10 months. Children's phonology in Spanish was assessed by single-word picture identification speech samples collected at the beginning of their Head Start school year and eight months later. Change over time was examined using percent of consonants correct (PCC), percent of vowels correct (PVC), and examination of phonological error patterns. All children demonstrated the majority of sounds used in Spanish. Speech sound accuracy in their first language, Spanish, was influenced by introduction of their second language, English. This effect occurred primarily in vowels. Typical developmental errors occurred in similar patterns to monolingual children. Increases in vowel errors occurred in areas of greater difference between the two languages. All children were able to obtain an adult-like speech sound system over time, leading to the conclusion that increased exposure and practice will lead to higher speech sound accuracy for bilinguals. The researchers also concluded that exposure to both English and Spanish may lead to higher English error rates and slightly higher overall error rates.

Golberg, H., Paradis, J., & Crago, M. (2008). Lexical acquisition over time in minority first language children learning English as a second language. *Applied Psycholinguistics, 29*, 41-65.

The purpose of the study was to assess the language development of bilinguals by comparing expressive and receptive vocabulary sizes as assessed by tests designed for monolingual children. The study also explored the relationship between second language development and mother education, English use in the home, age of English learning onset and nonverbal IQ. Participants included 19 bilingual children whose first language was Korean, Mandarin, Cantonese, Spanish, Romanian, Arabic, Japanese or Farsi. Age at the beginning of the study ranged from 4 years 2 months to 6 years 9 months. A parental questionnaire was used to gather information on maternal levels of education, use of English in the home and the age of English learning onset. Children were assessed every 6 months for 2 years. Children's receptive vocabulary in English was assessed using the Peabody Picture Vocabulary Test-III (PPVT-III). Their expressive vocabulary was assessed using a spontaneous language sample conducted in English. Their nonverbal IQ was assessed using the Columbia Mental Maturity Scale in English. Children's receptive vocabulary scores met native speaker standards from the PPVT-III after an average of 34 months of English exposure. Children over-extended the semantically flexible verb "do", demonstrating a stretching of lexical resources to accommodate their communicative needs. Older age of second language onset and higher levels of mother's education were associated with faster vocabulary development. English use in the home had no effect on vocabulary development. The researchers concluded that bilinguals obtained the vocabulary that was similar to monolingual children over time and that encouraging English use in the home do not necessarily improve English skills.

Goldstein, B. A., Fabiano, L., & Washington, P. S. (2005). Phonological skills in predominantly English-speaking, predominantly Spanish-speaking, and Spanish-English bilingual children. *Language, Speech, and Hearing Services in Schools, 36*, 201-218.

The purpose of the study was to determine if a relationship exists between language output (i.e., percentage of time each language was spoken) and phonological skills and to compare the phonological abilities of Spanish-English bilingual children to monolingual children. Specifically, the researchers examined phonological skills by considering consonant accuracy, percentage of occurrence for phonological processes and syllable accuracy. Participants included 15 children ranging in age from 5 years to 5 years 5 months who were Spanish-English bilingual, further classified as bilingual Spanish-English speakers, predominantly Spanish speakers or predominantly English speakers. Researchers used a researcher-designed single-word phonological (speech sound) assessment that tested sounds produced in both Spanish and English at the word level. Percentage of phonological processes, or developmentally related simplifications of adult speech sound forms, and syllable accuracy were calculated. The percentage of time

children responded in Spanish or English (language output) during the testing was calculated. No significant differences existed in English language output or phonological skills for bilingual and predominantly English speaking children, and no significant differences existed in Spanish language output or phonological skills for bilingual and predominantly Spanish speaking children. The researchers concluded that the language dominance of bilinguals has little relationship to language output and speech sound patterns.

Goldstein, B., & Washington, P. S. (2001). An initial investigation of phonological patterns in typically developing 4-year old Spanish-English bilingual children. *Language, Speech, and Hearing Services in Schools, 32*, 153-164.

The purpose of the study was to study the Spanish phonological (speech sound) development of Spanish-English bilingual children. Participants included 12 Spanish-English bilingual children ranging in age from 4 years 4 months to 4 years 11 months. Phonological development was assessed using the Phonological Measure of bilingual Latino/a Children in Spanish and English. Bilingual children had a high percentage of consonants correct (PCC), indicating strong speech sound abilities. Bilingual children showed higher PCC in English than monolingual English speakers but lower PCC in Spanish than Spanish monolingual speakers. Bilingual children's phonological abilities were determined to be similar to those of monolingual children. The researchers concluded that bilinguals at the age tested had acquired similar speech sound systems compared to monolingual children.

Gonzalez, J. E., & Uhing, B. M. (2008). Home literacy environments and young Hispanic children's English and Spanish oral language: A communality analysis. *Journal of Early Intervention, 30* (2), 116-139.

The purpose of the study was to explore the relationship between the home literacy environment to Spanish and English oral language development in children from Spanish-speaking families. The study included 48 Hispanic children from Spanish-speaking families ranging in age from 3 years 4 months to 4 years 8 months. Literacy environment (including library use and literacy activities with extended family) and oral language skills in both languages were assessed using The Familia Inventory in Spanish or English and the PreLAS 2000. Results indicated that scores on the Library Use subscale were associated with children's English oral language proficiency. Scores on the Extended Family subscale (literacy activities with extended family) were associated with Spanish oral language proficiency. Findings suggested that the literacy activities of family members, including extended family members, have a relationship with higher levels of oral language, a precursor to success in school.

Guiberson, M. M., Barrett, K. C., Jancosek, E. G., & Itano, C. Y. (2006). Language maintenance and loss in preschool-age children of Mexican immigrants: Longitudinal study. *Communication Disorders Quarterly, 28*, 4-17.

The purpose of the study was to explore the characteristics of Spanish language maintenance or loss in Spanish-English bilinguals. Participants included 10 Spanish-English bilinguals ranging in age from 2 years 9 months to 3 years 1 month at the beginning of the study. Language usage was assessed using a bilingual language proficiency questionnaire modified to include detailed information about language usage, demographic and child development information. Language was also assessed using a spontaneous language sample obtained from naturalistic parent-child interactions as well as a videotape behavior scale. Children's expressive vocabulary was assessed at three time points over the course of three years. All children attended preschools where English was used. Results indicated that children who showed Spanish maintenance had larger Spanish vocabularies and stronger language abilities than those who demonstrated language loss. Children who showed Spanish language loss produced more grammatical errors. Children in the Spanish loss group reportedly used more English at home than children in the language maintenance group, while children in the language maintenance group had little exposure to English at home. The researchers concluded that continued language exposure and support was necessary for language maintenance, and without support at home, home language loss may occur.

Hammer, C. S., Davison, M. D., Lawrence, F. R., & Miccio, A. W. (2009). The effect of maternal language on bilingual children's vocabulary and emergent literacy development during Head Start and kindergarten. *Scientific Studies of Reading, 13*, 99-121.

The purpose of the study was to evaluate maternal home language usage and its effects on Spanish-English bilinguals' vocabulary and emergent literacy. Participants included 72 Spanish-English bilinguals with a mean age of 4 years 1 month. Information on language usage between mothers and their children was collected using a researcher-developed questionnaire during children's two years in Head Start and in kindergarten. Children's receptive language was assessed using the Peabody Picture Vocabulary Test-III and early literacy skills (emergent literacy) were assessed using the Test of Early Reading Ability-2. Results indicated that mothers reported using more English with their children over the three years. Mothers of boys were more likely to speak to their sons in English whereas mothers of girls were more likely to speak Spanish to their daughters. Changes in mothers' usage of Spanish or English was not related to children's development of their English vocabulary and emergent reading skills. Increases in English usage was negatively related to children's Spanish vocabulary development. Children whose mothers used more Spanish had faster rates of Spanish vocabulary growth. The authors conducted that maternal use of Spanish appears necessary to maximize bilinguals' Spanish vocabulary development. Also, maternal usage of Spanish does not negatively affect English vocabulary or emergent literacy, development.

Hammer, C. S., Lawrence, F. R., & Miccio, A. W. (2007).

Bilingual children's language abilities and early reading outcomes in Head Start and kindergarten. *Language, Speech & Hearing Services in Schools, 38*, 237-248.

The purpose of the study was to assess the relationship between home literacy experiences and early reading abilities of children who were simultaneous (SI, i.e., exposed to both languages from birth) and sequential (SE, i.e.; exposure to English at school entry) Spanish-English bilinguals. Participants included 88 Spanish-English bilinguals with a mean age of 3 years 9 months. Receptive language was assessed using the Spanish and English Peabody Picture Vocabulary Test-III. Oral language comprehension was assessed using the Spanish Auditory Comprehension subtest of the Preschool Language Scale-3 and the English receptive language subtest of the Test of Early Language Development-3. Emergent reading ability was assessed using the Letter-word identification subtest of the Woodcock Language Proficiency Battery-Revised in Spanish and English and the English version of the Test of Early Reading Ability-2. Children's vocabulary and oral language were assessed in the fall and again in the spring of children's two years in Head Start; emergent reading was assessed in the spring of their kindergarten year. Children's receptive language in both English and Spanish increased throughout their two years in Head Start. Children classified as SI bilinguals had higher English skills than those in the SE group. All bilinguals performed within expectations for monolingual children at the end of kindergarten in English reading abilities. Children's scores in letter word identification in Spanish were below their English scores. Growth in English language receptive language skills predicted English and Spanish reading abilities. Similarly, Spanish language ability growth predicted both English and Spanish reading abilities. The findings suggest that measures of growth over time provided a more accurate picture of language abilities.

Hammer, C. S., Lawrence, F. R., & Miccio, A. W. (2008).

Exposure to English before and after entry into Head Start: Bilingual children's receptive language growth in Spanish and English. *International Journal of Bilingual Education and Bilingualism, 11*, 30-56.

The purpose of the study was to examine growth in the Spanish and English receptive vocabulary and language comprehension of Spanish-English bilingual children attending Head Start. The study also investigated differences between children exposed to both languages from birth (SI) and children who were exposed to English upon entry to Head Start (SE). Participants included 83 Spanish-English bilingual children. Children averaged 3 years, 9 months of age at the beginning of the study. Children's receptive vocabulary was assessed using Spanish and English versions of the Peabody Picture Vocabulary Test-III. Children's Spanish language comprehension was assessed using the auditory comprehension subtest of Spanish version of the Preschool Language Scale-3 and their English language comprehension was measured with the receptive language subtest of the Test of Early Language Development-3 (English). Assessments were conducted at four time points:

the fall and spring of the children's first and second years of Head Start. SI children's English receptive vocabulary and language comprehension skills were significantly higher than SE children at the beginning of the study, whereas SE children had significantly higher Spanish receptive vocabulary and language comprehension skills than SI children. The difference was maintained in English and Spanish for raw vocabulary scores and raw and standard language comprehension scores. However, for standard vocabulary scores, SE children widened the difference in Spanish receptive vocabulary and narrowed the difference in English receptive vocabulary. With few exceptions, children's English and Spanish language development followed a linear trajectory; exceptions noted were SE children's raw scores on English receptive vocabulary accelerated and both group's standard scores on Spanish language comprehension demonstrated a decline after initial growth. The researchers concluded that exposures in home and school environments have a significant effect on vocabulary growth and timing of language exposure should be considered when making conclusions about language aptitude or ability.

Hammer, C. S., Lawrence, F. R., & Miccio, A. W. (2008).

The effect of summer vacation on bilingual preschoolers' language development. *Clinical Linguistics & Phonetics, 22*, 686-702.

The purpose of the study was to examine bilingual language development of children living in poverty with a second emphasis on the effects of summer vacation on language development. Participants included 83 Spanish-English bilingual children with an initial mean age of 3 years 9 months at the start of the study. Children were followed over a two year period while they attended Head Start. Language comprehension was examined using the auditory comprehension subtests of the Spanish version of the Preschool Language Scale-3 and the Test of Early Language Development-3 (English). Children were classified into groups based on whether their receptive language scores in Spanish and English increased or decreased throughout their first year of Head Start. Children who showed receptive language increases during their first year continued to show positive growth in language comprehension during their second year. Children who showed decreased scores continued to decrease in their scores in both Spanish and English during their second year. Summer vacation was negatively related to language development for children who increased in receptive language during the school year but positively related for children who decreased in receptive language during the school year. The researchers concluded that children may require different forms of support depending on their growth or decline in language during preschool.

Hammer, C. S., Miccio, A. W., & Wagstaff, D. A. (2003). Home literacy experiences and their relationship to bilingual preschoolers' developing English literacy abilities: An initial investigation. *Language, Speech, and Hearing Services in Schools, 34*, 20-30.

The purpose of the study was to evaluate home literacy experiences and literacy outcomes in Spanish-English bilinguals. Participants included 43 Spanish-English bilinguals with a mean age of 3 years 8 months who were attending in Head Start classrooms. Children were divided into two groups based on whether they first learned English at school entrance (i.e., sequential learners, SE) or learned it from birth (i.e., simultaneous learners, SI). Parents completed a questionnaire about children's early home literacy experiences including value placed on literacy, press for achievement, number of reading materials and frequency of reading with their children. Children's emergent literacy skills were assessed using the TERA. Assessments were conducted sixth months into their first Head Start year and again in the fall of their second year. The results showed that SI mothers engaged their children in pre-academic and early literacy activities more frequently than SE mothers. However, no differences existed between groups with regard to the frequency of mother to child book reading, frequency of maternal reading and the availability of children's books. During the first year of Head Start, no differences were found in children's English early literacy abilities. During year two, SE children scored slightly below SI children with both groups falling below average monolingual means. A significant relationship existed between value placed on literacy and pressure to achieve and value placed on literacy and mother-child book reading. No relationship was found between home environment factors and scores on early literacy tests.

Hammer, C. S., Rodriguez, B. L., Lawrence, F. R., & Miccio, A. W. (2007). Puerto Rican mothers' beliefs and home literacy practices. *Language, Speech, and Hearing Services in Schools, 38*, 216-224.

The purpose of the study was to examine relationships between home literacy beliefs and practices in Spanish-English bilinguals of Puerto Rican descent. Participants included 51 simultaneous (SI) and 30 sequential (SE) bilingual preschool children who were attending their second year in Head Start and their mothers. The children averaged 4 years 8 months of age. Mothers reported on their beliefs about parenting and education by completing the Parental Modernity Scale and the Rank Order of Parental Values. Parents reported on their home literacy practices by completing a home literacy activities questionnaire. Mothers in both groups held beliefs that were traditional (e.g., children should obey adults, schools should primarily educate children and parents should not question teacher's practices) and progressive (e.g., parents should teach children new skills, children should be permitted to hold their own views). Both groups also valued the development of social skills, with the SE mothers placing more emphasis on self-direction than conformity when compared to the SI mothers.

SI mothers reported teaching more early literacy skills and reading more frequently to their children than SE mothers. Number of books found in the home did not differ significantly between SI and SE groups. There was no significant relationship between parents' beliefs and practices. Overall, mothers demonstrated beliefs that were typical of Puerto Rican culture as well as American mainland culture.

Jia, G. (2003). The acquisition of the English plural morpheme by native Mandarin Chinese-speaking children. *Journal of Speech, Language & Hearing Research, 46*, 1297-1311.

The purpose of the study was to evaluate how native Mandarin Chinese-speaking children learn English plural morphemes (e.g. "-s" in "balls") and potential effects of language exposure on plural morphemes. Participants included 10 native Mandarin children ranging in age from 5 years to 16 years who had recently immigrated to the United States. Language exposure was collected from multiple sources: annual parental questionnaire, child and parent interviews, and researcher observations from the interview sessions. Children's productions of the English plural morpheme were assessed using a (a) picture naming task to evaluate use at word level and (b) spontaneous speech sample to evaluate use during connected speech. Children were assessed over 7 monthly sessions during the first year of the study, 4 quarterly sessions during the 2nd year of the study, 2 semiannual sessions during years 3 and 4, and a single session during year 5. Results indicated that only 7 out of 10 children mastered the plural morpheme after 5 years of exposure. Some individual differences existed based on age of initial exposure to English; specifically, older children with more exposure to English performed better with the plural morpheme at the single word level but their abilities reduced during spontaneous speech. The researchers concluded that large variations occurred with developmental trajectories in learning the English plural morpheme, possibly contributed to by differing cognitive abilities amongst participants.

Johnson, C. E., & Wilson, I. L. (2002). Phonetic Evidence for Early Language Differentiation: Research Issues and Some Preliminary Data. *International Journal of Bilingualism, 6*, 271-89.

The purpose of the study was to observe use of a specific characteristic of speech sounds, Voice Onset Time (VOT), and examine its implications for early differentiation between languages in two bilingual language learners. VOT refers to a feature of stop consonants when the consonant ends and vibrations in the larynx begins (e.g., the time between "t" and "ee" in the word "tee"). The participants were two Japanese-English bilingual children who were 34 and 56 months of age, respectively. Researchers recorded three structured conversations between caregivers and the children in both Japanese and English over a of 2-1/2 month period. Time between recorded sessions varied from one to ten weeks. Data was computer analyzed for VOT. The results showed that neither child demonstrated adult-like quality of stop consonants in either language. The younger participant did not show any

differences in use of VOT between English and Japanese, whereas the older participant's VOT was significantly longer in English when compared to VOT in Japanese. The study suggested that the older child showed evidence of distinguishing between her two languages by producing speech sounds differently. The researchers concluded that bilinguals differentiated between the sound systems of their two languages at levels imperceptible to the human ear, indicating a deep neurological basis to language differentiation in bilinguals.

Kan, P. F., & Kohnert, K. (2005). Preschoolers learning Hmong and English: Lexical-semantic skills in L1 and L2. *Journal of Speech, Language, and Hearing Research*, 48, 372-383.

The purpose of the study was to assess the lexical-semantic development of Hmong-English bilinguals. The study included 19 Hmong-English bilinguals ranging in age from 3 years 4 months to 5 years 2 months. Children were classified into two groups based on age, with 3 years 9 months and 5 years 0 months the mean ages of the younger and older groups, respectively. Expressive and receptive vocabulary in both languages was assessed using a custom-designed picture naming task and picture identification task, respectively. Data were collected over four sessions (two Hmong sessions and two English sessions). Older children scored higher than younger children in English but not Hmong. The difference between expressive and receptive language was much greater in Hmong than in English for all participants. Composite scores (i.e., correct response in either language was given credit) were greater than single language scores (i.e., correct answer must be supplied in language of testing session for credit to be given) for both receptive and expressive language. Both groups of children provided more translation equivalents (i.e., item answered correctly in both languages) in the picture identification than the picture-naming task; older children had a higher proportion of translation equivalents than younger children. Findings point to faster growth in language development in the second language whereas development in the first language is stable.

Kan, P. F., & Kohnert, K. (2008). Fast mapping by bilingual preschool children. *Journal of Child Language*, 35, 495-514.

The purpose of the study was to investigate relationships between fast mapping (the learning of new words with few exposures to the word) and vocabulary knowledge in Hmong-English bilinguals. The study included 26 children ranging in age from 3 years to 5 years 3 months who spoke both Hmong and English. Expressive and receptive vocabulary in both languages was assessed using a custom-designed picture naming task and picture identification task, respectively. A separate task was developed by the researchers to examine fast mapping in both languages. The results showed that receptive and expressive vocabulary scores in both languages were similar. Children displayed faster mapping skills in the native Hmong language than in English, their second language. Fast mapping scores were not related to age or existing vocabulary knowledge in either language. Cross-language relationships were found between (a) native language receptive vocabulary and English

expressive vocabulary and (b) native language fast mapping, English receptive language and fast mapping scores. The results suggested that existing native language proficiency, specifically pre-existing vocabulary knowledge, may have an impact on language learning.

Kim, Y. (2009). Cross linguistic influence on phonological awareness for Korean-English bilingual children. *Reading and Writing: An Interdisciplinary Journal*, 22, 843-861.

The purpose of the study was to examine phonological (speech sound) awareness of Korean-English bilinguals and possible cross-language influences. Participants included 33 bilinguals with a mean age of 5 years 2 months. Participants were classified into West Coast or East Coast residence. Speech sound awareness was assessed using the Blending, Matching and Segmenting subtests of the Comprehensive Test of Phonological Processes in English, and a custom-designed speech sound awareness task in Korean. Speech sound features studied included "body coda" and "onset rime" which indicate awareness of the blending of speech sounds into words. Sight word reading abilities were assessed using the Ready-to-read word test: list C in English, a Korean version of a similar test, an English pseudoword task (e.g., reading of non-existent words that follow language patterns), and a custom-designed English real word reading task. Children from the East Coast and West Coast differed significantly on onset-rime awareness and body-coda awareness. Phonological awareness and literacy skills in English were highly associated with onset-rime awareness in Korean, indicative of possible cross-language influences. Phonological awareness between Korean and English was positively and strongly associated. Phonological awareness in Korean positively contributed to English decoding skills even after controlling for English real word reading abilities. Results indicated that phonological awareness in one language positively contributed to phonological awareness in the other, suggesting that the phonological systems of bilinguals may influence each other.

Kitabayashi, K. M., Huang, G. Y., Linskey, K. R., Pirga, J., Bane-Terakubo, T., & Lee, M. T. (2008). Parent-child reading interactions among English and English as a second language speakers in an underserved pediatric clinic in Hawai'i. *Hawaii Medical Journal*, 67, 260-263.

The purpose of the study was to assess the reading abilities of English speaking and English as a Second Language (ESL) children living in Hawaii. Participants included 51 ESL children who spoke English and a variety of second languages and 52 monolingual English-speaking children. Participants ranged in age from 6 months to 5 years. Family reading activities were assessed using a survey developed by the researchers. Parents in the ESL group read to their children significantly fewer days per week and reported having fewer books in the home as compared to monolingual English-speaking families. No significant differences were found between English-speaking and ESL Hawaiian children

for parental reading attitudes or parental educational status. Findings suggested that ESL children in Hawaii may have fewer opportunities in the home to engage in mainstream literacy activities; however, caregivers valued reading at comparable levels to their monolingual peers.

Kohnert, K., Kan, P. F., & Conboy, B. T. (2010). Lexical and grammatical associations in sequential bilingual pre-schoolers. *Journal of Speech, Language, and Hearing Research, 53*, 684-698.

The purpose of the study was to examine lexical and grammatical development in Hmong-English bilinguals. The study included 19 Hmong-English bilinguals ranging in age from 2 years 11 months to 5 years 2 months. Children's grammatical development was evaluated using a Story Re-tell activity in Hmong and English. The Story Re-tells were evaluated using the Systematic Analysis of Language Transcripts to code for mean length of utterance (MLU) in morphemes in English and MLU in words for Hmong as well as number of different words (NDW) in both languages. Lexical development was assessed using a picture-naming task developed by the researchers for both languages and a picture identification task in both languages to test receptive language. The study found that all bilinguals produced a higher number of different words in Hmong than English. The average MLU was also longer in Hmong than English. Strong positive relationships were found between MLU and language measures in English. Less strong positive relationships were found between MLU and lexical measures in Hmong. Limited cross-language links were also found for number of different words. Relationships between words and grammar within a specific language indicated that different aspects of language are interconnected and specific to that language. Cross-language influences suggest that language systems occasionally interact and influence each other.

Kyratzis, A., Tang, Y., & Koymen, S. B. (2009). Codes, code-switching, and context: Style and footing in peer group bilingual play. *Multilingua, 28*, 265-290.

The purpose of the study was to examine "code-switching" in Spanish-English bilingual children enrolled in Head Start. Participants included 4 Mexican Spanish-English bilinguals and 1 English monolingual ranging in age from 3 years to 5 years 5 months. Code switching refers to the practice of changing languages and/or dialect based on social context. Code switching was assessed using spontaneous language samples in Spanish and/or English. Children were assessed twice weekly for one year. Results indicated that all children were able to code switch based on context and used a broad range of linguistic devices. The researchers concluded that bilingual children used individual communicative styles, code switching and other resources to reflect their social identities.

Lao, C. (2004). Parents' attitudes toward Chinese-English bilingual education and Chinese-language use. *Bilingual Research Journal, 28*, 99-121.

The purpose of the study was to explore Chinese-English bilingual parents' views on bilingual education as well as their practices in supporting both languages. The study included the parents of 86 Chinese-English bilinguals who were divided into groups based on Chinese or English language dominance. Attitudes and expectations regarding bilingual education were assessed using a custom-designed questionnaire presented in either Chinese or English depending on the parent's needs. The majority of the parents reported encouraging their children to speak Chinese at home. However, gaps were observed between expectation and practice as less use of Chinese at home was reported. Parental expectations of Chinese proficiency differed between Chinese dominant and English dominant parents. Chinese dominant parents expected more Chinese proficiency than English dominant parents. Chinese dominant parents also expected their children to participate in bilingual programs through middle school while English dominant parents reported expecting their children to participate through high school. The results suggested that Chinese-English bilingual parents are supportive of continued Chinese education and use, with a need for opportunities to practice outside the home to meet the expectations of Chinese proficiency and practice shared by all parents.

Levey, S., & Cruz, D. (2003). The first words produced by children in bilingual English/Mandarin Chinese environments. *Communication Disorders Quarterly, 24*, 129-136.

The purpose of the study was to examine the first words produced by Mandarin Chinese-English bilingual children and possible effects of caretaker language on their language development. The study also compared first words produced by the bilinguals to previous findings on the Mandarin Chinese and English-speaking children. The study examined 17 bilingual children ranging in age from 22 to 48 months who spoke both Chinese and English in the home. Parents were interviewed about children's first words, and parents supplied personal records (baby books, home recordings, etc.) of their children's earliest words. The parent interview also assessed whether children lived with monolingual caretakers. Significantly more words were reported in Chinese compared to English. More nouns were produced than verbs in both languages. Nouns were produced in both English and Chinese but only verbs were produced in Chinese. No significant differences were found between average number of words produced in Chinese or English for children from bilingual homes (without monolingual caretakers) than for children from homes with monolingual caretakers. Results mirrored findings on English monolingual children in that early language learners typically produced more nouns than verbs. However, the results contrasted with findings on Mandarin Chinese children, where early language learners typically produce verbs more or as frequently as nouns. The researchers concluded that structural differences between languages of bilinguals may be a factor in first word production in both languages, and that cross-language influences may occur between the two languages of bilinguals.

López, L. M., & Greenfield, D. B. (2004). The cross-language transfer of phonological skills of Hispanic Head Start children. *Bilingual Research Journal*, 28, 1-18.

The purpose of the study was to examine the relationship between phonological awareness and language skills in Spanish-speaking children learning English. Participants included 100 Hispanic children enrolled in Head Start ranging in age from 4 years 5 months to 6 years. Receptive and expressive language was assessed using the PreLAS in Spanish and English. Phonological awareness in Spanish and English was assessed using a researcher-developed instrument entitled the Phonological Sensitivity Test. Results indicated that phonological awareness in English was significantly related to phonological awareness in Spanish. Also, phonological awareness in English was related to both English and Spanish receptive and expressive language. English language measures and Spanish phonological awareness were predictors of English phonological awareness. Results indicated that multiple cross-language influences may be observed between the phonological and language systems of Spanish-speaking children learning English.

Marchman, V. A., Fernald, A. & Hurtado, N. (2010). How vocabulary size in two languages relates to efficiency in spoken word recognition by young Spanish-English bilinguals. *Journal of Child Language*, 37, 817-840.

The purpose of the study was to examine the relationship between vocabulary size and the processing necessary for spoken word recognition in bilinguals and to examine any potential cross-language effects. Participants included 26 Spanish-English bilingual students ranging in age from 29 to 34 months. Children's vocabulary size for both languages was assessed with the MacArthur-Bates Communicative Development Inventory and its Spanish equivalent. The 'looking-while-listening' procedure was conducted during separate sessions in both Spanish and English to assess language proficiency as indicated by processing speed. This procedure determined the time it took for toddlers to process words by measuring the length of time spent looking at pictures (i.e., eye gaze) paired with these words. Longer eye gazes, occurring when children heard new or unfamiliar words, indicated that more processing was necessary. Shorter eye gazes indicated less processing and, according to the researchers, more proficiency. Processing time in both Spanish and English was negatively related to vocabulary size in the same language. For example, toddlers with larger vocabularies in English spent less time processing as indicated by shorter eye gaze reactions. There was no cross-language effect as evidenced by no significant relationship between children's English and Spanish processing speeds or between English and Spanish vocabulary size. The researchers concluded that the present study support the Dual Language System hypothesis of bilingualism.

Marchman, V. A., Martinez-Sussmann, C., & Dale, P. S. (2004). The language-specific nature of grammatical development: Evidence from bilingual language learners. *Developmental Science*, 7, 212-224.

The purpose of the study was to examine the relationship between lexical (i.e., vocabulary) and grammatical development in Spanish-English bilinguals; the relationship was examined within each language as well as across English and Spanish. Participants included 113 Spanish-English bilinguals ranging in age from 17 to 30 months. Vocabulary size was used as a measure of lexical development and was assessed by the MacArthur Bates Communicative Development Inventory, administered in both Spanish and English. Number of Different Words (NDW) and Mean Length of Utterance in Words (MLUw) were measures of both lexicon and grammar and were assessed through spontaneous language sampling. Results indicated that the relationship between vocabulary size and grammatical complexity was significantly stronger within-languages than across-languages. The researchers concluded that these results support the view that grammatical learning is tied to lexical growth, particularly within a language rather than across the languages of bilinguals.

Marinova-Todd, S., Zhao, J., & Bernhardt, M. (2010). Phonological awareness skills in the two languages of Mandarin-English DLL children. *Clinical Linguistics & Phonetics*, 24, 387-400.

The purpose of the study was to compare the phonological (speech sound) awareness of Mandarin-English bilingual children as well as Mandarin and English monolingual children. Participants included 62 Mandarin English bilinguals, 61 Mandarin Monolinguals, and 21 English monolinguals ranging in age from 5 to 6 years. Receptive vocabulary was assessed using the PPVT-III in Mandarin and/or English. Phonological or speech sound awareness in Mandarin was assessed using tasks developed by researchers that included measures of syllable awareness, sound identification, rhyme detection and tone discrimination. Phonological awareness in English was assessed using the Elision, Blending and Sound Matching subtests of the CTOPP. Results indicated that bilinguals performed better than English monolinguals on English phonological awareness tests. Bilinguals also performed better than Mandarin monolinguals on the majority of the phonological awareness tests. Findings suggest that the phonological systems of the languages of bilinguals may positively influence each other, and learning two phonological systems may provide advantages for bilinguals compared to monolinguals on speech sound awareness tasks.

Mishina-Mori, S. (2005). Autonomous and interdependent development of two language systems in Japanese/English simultaneous bilinguals: Evidence from question formation. *First Language, 25*, 291-315.

The purpose of the study was to examine cross-language influences between the two languages of Japanese-English bilinguals with focus on yes/no (e.g., “Is the sky blue?”) and Wh-questions (e.g., “What is your name?”). The researchers also compared the development of the bilinguals to pre-existing monolingual data. Specifically, they examined children’s development of questions and children’s Mean Length of Utterance (MLU). The study included two Japanese-English bilingual children with an initial age range of 23 to 26 months. Over the period of one year, 11 to 14 spontaneous speech samples were recorded. Samples were coded for yes/no questions, Wh-questions, and MLU. For Wh-questions, the influence of English forms on Japanese forms was observed occasionally for one participant. For yes/no questions, no cross-language influences occurred. Developmental paths of all measures resembled pre-existing monolingual data. The findings suggested that the languages of bilinguals may be two systems that occasionally overlap and influence each other.

Morita, E. (2003). Children’s use of address and reference terms: Language socialization in a Japanese-English bilingual environment. *Multilingua, 22*, 367-395.

The purpose of the study was to evaluate the use of personal reference systems (reference to self) in spontaneous conversations of Japanese-English bilinguals. Participants included 2 Japanese-English bilinguals with an initial age range of 4 years 7 months to 5 years. Pragmatic interactions (interactions that show rule-governed “use” of language) were assessed by using over 19 hours of observation data in a period of 12 weeks. Results indicated that bilinguals experienced difficulty finding a correct personal reference term in Japanese. Use of English as a strategy in the place of Japanese was observed when children experienced difficulty finding the correct Japanese term. Adult input appeared helpful in assisting children in finding correct Japanese reference terms. The results suggested that the two languages of bilinguals can provide backup or alternative systems during specific pragmatic tasks and that adults can also assist in correcting native language errors when children encounter difficulty.

Mushi, S. L. P. (2002). Acquisition of multiple languages among children of immigrant families: Parents’ role in the home-school language pendulum. *Early Child Development and Care, 172*, 517-30.

The purpose of the study was to examine the attitudes and language practices of parents and teachers with young immigrant children speaking a variety of languages in addition to English. Families were included who spoke Spanish, Kiswahili, Japanese, Korean, Polish, Chinese, Arabic, Farsi, Serbo-Croatian, Turkish, Somali and Amharic. Participants

included 42 immigrant families with children ranging in age from 18 months to 5 years. Parents’ attitudes regarding their native language and English were assessed using a questionnaire. Parent-child linguistic interactions were assessed using audio recordings of English communication and an observation checklist. Results indicated that 37 out of 42 participants reported they valued their native language as much as English. 92.25% of parents indicated they wanted their children to speak English well but 61.91% felt their children had the ability. Analysis of parent-child interaction measures indicated that the more parents engaged in joint activity with their children, the more children engaged in linguistic behavior. Parents reported that little coordination occurred between home and school linguistic experiences. School support was available for immigrant children to learn English but parents indicated low levels of responsiveness to this support. The results indicated that home and school communication, in the area of language support, may have been lacking. Parents also appeared to highly value their native language although they may not have felt that their children could receive the support necessary to excel in their native languages.

Páez, M. M., Tabors, P. O., & Lopez, L. M. (2007). Dual language and literacy development of Spanish-speaking preschool children. *Journal of Applied Developmental Psychology, 28*, 85-102.

The purpose of the study was to study the early literacy skills and language development of Spanish-English bilingual children and to compare their development with that of Spanish-speaking monolingual children. Participants included 319 Spanish-English bilingual children in the United States and 144 Spanish monolingual children in Puerto Rico. Children were studied over time from approximately 4 years 4 months to 4 years 10 months. Language was assessed in both languages based on phonological awareness, vocabulary and language recall, and literacy skills were assessed in both languages based on letter and word recognition and writing and spelling. The study used rhyme recognition, rhyme production, speech sound recognition, sentence segmenting and syllable segmenting to assess phonological awareness. Vocabulary was assessed using the picture vocabulary subtest of the Woodcock Language Proficiency Battery-Revised (WLPB-R) in both Spanish and English, and language recall was assessed using the WLPB-R Memory for Sentences subtest. Letter and word recognition for both languages were assessed using the WLPB-R letter word identification subtest and writing and spelling were assessed using the Dictation subtest. Children were assessed at the entrance to pre-kindergarten and as they exited pre-kindergarten. Results indicated that, by the end of the pre-kindergarten, bilingual children lagged behind monolingual test norms in both oral language and early literacy measures. Bilingual children performed better on early literacy tasks compared to oral language tasks in both languages. The monolingual Spanish speakers scored better than bilingual children in Spanish oral skills but lower in phonological awareness. Substantial gains in bilingual English abilities throughout schooling were not observed. The researchers concluded that most emergent literacy skills were stronger in English than Spanish in preschool. This finding indicates

that the bilingual children may have had fewer opportunities to practice early literacy skills in their home language of Spanish compared to English, their school language. The researchers also suggested, based on the monolingual Spanish data, that learning only one language may have been an advantage for Spanish monolinguals at this stage of literacy and language development.

Paradis, J., & Navarro, S. (2003). Subject realization and cross-linguistic interference in the bilingual acquisition of Spanish and English: What is the role of the input? *Journal of Child Language, 30*, 371-393.

The purpose of the study was to examine cross language relationships in “subject” use by Spanish-English bilinguals. Specifically, the researchers examined whether the frequency of occurrence of overt subjects (e.g., “John closed the door”) in one language influences languages where overt subjects are optional (e.g., “close the door”). Subjects are more often overtly stated in mainstream dialect English compared to Spanish. The study also examined the influence of language exposure (i.e., parent’s use of overt subjects) to children’s use of subjects. One Spanish-English bilingual child and two Spanish monolingual children, ranging in age from 18 to 19 months, participated in the study along with their caregivers. Child and parent use of overt subjects was collected using spontaneous language sampling which occurred once a month over a period ranging from 4 to 10 months. The Spanish-English bilingual child produced overt subjects more frequently than the Spanish monolingual children. The child’s parents also were found to produce overt subjects in Spanish more than the study’s monolingual Spanish-speaking parents. The researchers concluded that cross-language effects appeared to occur.

Patterson, J. L. (2002). Relationships of expressive vocabulary to frequency of reading and television experience among bilingual toddlers. *Applied Psycholinguistics, 23*, 493-508.

The purpose of the study was to examine the relationship between expressive vocabulary of bilingual toddlers and (a) child-caregiver reading and (b) television watching. Participants were 64 Spanish-English bilingual children ranging in age from 21 to 27 months. Caregivers reported on children’s English and Spanish vocabulary through completion of the Spanish-English Vocabulary Checklist. Caregivers also estimated the amount of television exposure and book reading which occurred in the home. Frequency of book reading was found to be positively related to expressive vocabulary, whereas no significant relationship was found between expressive vocabulary and television watching. The researchers discussed child-caregiver reading as an important context for vocabulary development for bilingual children and suggested that the lack of a relationship between television watching and vocabulary development may be due to the passivity of television watching.

Peña, E., Bedore, L. M., & Zlatic-Giunta, R. (2002). Category-generation performance of bilingual children: The influence of condition, category, and language. *Journal of Speech, Language & Hearing Research, 45*, 938-947.

The purpose of the study was to explore potential effects of age on strategies used to categorize in bilingual children. Strategies used include taxonomic (e.g., word relationship categories not based on one specific event such as “clothes”) and slot-filler strategies (event relationship categorization based on perceptual experiences generated from life experiences, “cereal” to categorize “things I have for breakfast”). Participants included 44 Spanish-English bilingual children evenly distributed over two groups: older than 5 years 9 months and younger than 5 years 9 months. Children’s categorization strategies were assessed using a category generation task developed by the researchers. Younger children equally used taxonomic and slot-filler strategies whereas older children more frequently used taxonomic strategies. The researchers concluded that experience may have had an effect on categorization strategies.

Perry, N. J., Kay, S. M., & Brown, A. (2008). Continuity and change in home literacy practices of Hispanic families with preschool children. *Early Child Development and Care, 178*, 99-113.

The purpose of the study was to examine the integration of school-based literacy practices of Latino families who immigrated to the United States. Participants included 13 Latino families whose primary language was Spanish. Children ranged in age from 2 years 7 months to 4 years 9 months. Parents reflected on what they learned from engaging in literacy activities during the study. Results indicated that Latino parents used school-related literacy activities when they believed the activities would enhance academic success. During literacy activities, parents reported pleasant interactions with their children, scaffolded their children’s learning through demonstrations and repetitions, used literacy activities to communicate moral messages and emphasized proficiency in both languages. Results indicated that Latino parents, when provided with guidance, implemented literacy activities that supported both languages in the home.

Reyes, I. (2006). Exploring connections between emergent bi-literacy and bilingualism. *Journal of Early Childhood Literacy, 6*, 267-292.

The purpose of the study was to assess the home language and literacy practices of Spanish-English bilinguals and their overall emergent bi-literacy (e.g., literacy in both languages). Participants included 3 Spanish-English bilinguals with a mean age of 4 years. Bi-literacy was assessed using observations and field notes, analysis of writing samples, conversations with the children, their parents and teachers, and video recordings of children’s interactions with different family members, peers and teachers. Data were collected over a period of 3 years. Results indicated that the children learned and developed their own concepts about language, literacy, and comparisons of their two languages. Bilingual children

were supported by active participation and observations of print and writing when they were expected to write in one or the other language. Results suggested that bilinguals used pre-existing knowledge about their languages to determine contexts for language use as well as literacy application.

Reyes, I., & Azuara, P. (2008). Emergent biliteracy in young Mexican immigrant children. *Reading Research Quarterly, 43*, 374-398.

The purpose of the study was to examine the relationship between bi-literacy in Spanish-English bilinguals and their bi-literacy environments. Participants included 12 Spanish-English bilinguals ranging in age from 4 years to 5 years. Emergent literacy was assessed using a book handling and environmentally based print awareness task developed by the researchers. Children's language abilities were assessed through the State Arizona Language Assessment Test and the Peabody Picture Vocabulary Test-R and the Test de vocabulário em ingles. Bi-literacy environments, which included context and specific language developing environments, were assessed through child interviews and home observations. Children were assessed twice a month for over a year. Results indicated that children developed literacy and metalinguistic awareness (awareness of the use of language including "code switching") in both languages. Children also developed theories regarding similarities and differences between their two languages. Families demonstrated a wide range of literacy practices in the home, using Spanish and English in a variety of ways. Children and adults reported acquiring knowledge about literacy in both languages. Children typically acted as "experts" in English and adults often acted as "experts" in Spanish when engaging in literacy activities.

Rinaldi, C., & Pérez, M. (2008). Preschool matters: Predicting reading difficulties for Spanish-speaking bilingual students in first grade. *Learning Disabilities: A Contemporary Journal, 6*, 71-86.

The purpose of the study was to evaluate relationships among bilingual students' Spanish and English reading skills as well as their phonological awareness and oral language abilities. Participants included 234 Spanish-English bilinguals, with a mean age of 4 years and approximately 6 months. Phonological awareness in Spanish and English were assessed using tasks developed by the researchers, which examined rhyme recognition and production, speech sound recognition at the beginning of words, segmenting of sentences and syllable segmenting. Letter and word recognition in both languages were assessed using the Letter-Word Identification subtest of the Woodcock Language Proficiency Battery-Revised (WLPB-R) in Spanish and English. Expressive vocabulary was assessed using the Picture Vocabulary subtest of the WLPB-R in both Spanish and English. Children's language recall and overall spoken language were assessed by the Memory for Sentences subtest of the WLPB-R. Assessments were conducted at the end of pre-kindergarten, end of kindergarten, end of the first grade school year. Results indicated that oral language abilities in English and Spanish in preschool predicted word reading

ability in first grade. The distribution of letter identification scores was comparable to pre-established monolingual distributions. Scores on Vocabulary and Memory for Sentences subtests were below average in both languages compared to monolingual norms. Students performed better on English language measures compared to Spanish measures. Oral language abilities in early years were better predictors of success in first-grade reading than phonological awareness.

Schnitzer, M. L., & Krasinski, E. (2003). Idiosyncratic variation in the application of phonological processes in early bilingual acquisition. *Language Sciences, 25*, 1-14.

The purpose of the study was to examine the early lexical acquisition, as demonstrated by speech sound simplifications, of Spanish-English bilinguals. Participants included 2 Spanish-English bilingual children studied from the age of 1 year 1 month and 3 years 9 months to 1 year 6 months and 4 years 6 months. Phonological (or speech sound) processes refer to simplifications of adult forms demonstrated as a process of normal speech sound development. Phonological processes were evaluated using caregiver diary documents of Spanish and English words as well as video recordings of children speaking in Spanish and English. Results indicated that the children showed preference toward using full forms of speech sounds and showed little use of the phonological process of reduction. Regardless of bilingualism, typically developing children still sought to use adult speech sound forms.

Sheng, L., McGregor, K. K., & Marian, V. (2006). Lexical-semantic organization in bilingual children: Evidence from a repeated word association task. *Journal of Speech, Language, and Hearing Research, 49*, 572-587.

The purpose of the study was to examine lexical and semantic organization in Mandarin Chinese-English bilinguals and to compare results with pre-existing English monolingual data. Participants included 12 Mandarin Chinese-English bilinguals and 12 English monolingual children ranging in age from 5 to 8 years old. Lexical-semantic organization was assessed using the Repeated Word Association test in Mandarin and/or English, the Peabody Picture Vocabulary Test-III in Mandarin and/or English and the Matrices portion of the Kaufman Brief Intelligence Test-2 in Mandarin and/or English. Word association performance was comparable between both languages. Bilinguals and monolingual children also demonstrated similar patterns of responses to stimuli. However, when comparing bilinguals and monolingual children, a bilingual advantage occurred during the first lexical-semantic elicitation and for tasks that tested verb knowledge. Researchers concluded that lexical and semantic development in the two languages of bilinguals parallel each other. They also suggested that bilingualism may have enhanced lexical and semantic organization.

Shin, S. J. (2002). Birth order and the language experience of bilingual children. *TESOL Quarterly*, 36, 103-13.

The purpose of the study was to examine the effect of birth order on Korean in Korean-English bilinguals and overall trends in English and Korean knowledge and use. Participants included 204 Korean-English bilinguals ranging in age from 4 to 18 years. Bilinguals were divided into groups depending on whether they were the first, second or third born generation living in the United States. Extent of bilingualism in the home as well as maintenance of language was evaluated at one time point by administration of a parent questionnaire developed by researchers. The study found that, as children entered school, bilinguals spoke more English and less Korean with their parents. Before schooling fewer third-born children than second-born children spoke Korean with their parents. First-born bilinguals spoke more Korean with their parents than second or third-born children. First-born children were also the most proficient in both languages. Regardless of birth order, most children spoke English to themselves when playing alone. The researchers concluded that English-predominated school environments may have encouraged increased use of English in all children and that earlier generations appeared to have been more encouraged to maintain their native language.

Silva-Corvalan, C., & Montanari, S. (2008). The acquisition of “ser,” “estar” (and “be”) by a Spanish-English bilingual child: The early stages. *Bilingualism: Language and Cognition*, 11, 341-360.

The purpose of the study was to examine the relationship between a bilingual child’s use of specific grammatical forms (i.e., “ser,” “estar” and “to be”) and exposure to these forms. One Spanish-English bilingual child was followed from 18 months of age to 35 months of age. Researchers collected diary notes completed by parents and recorded spontaneous speech samples every two to four days per week. The child’s speech from both diary entries and audio-recordings was coded for uses of “ser” and “estar” in Spanish and “be” in English as well as “Mean Length of Utterance” in words. Diary notes also indicated amount of exposure to these grammatical forms. The child’s use of “ser,” “estar” and “be” was found to be related to their exposure to these forms; the child’s use of the verb forms was similar to adult use. The child’s use of *estar* was delayed, which may be attributable to the influence of the English language.

Tabors, P. O., Pérez, M., & López, L. M. (2003). Dual language abilities of bilingual four-year olds: Initial findings from the early childhood study of language and literacy development of Spanish-speaking children. *NABE Journal of Research and Practice*, 1, 71-93.

The purpose of the study was to evaluate the language and early literacy skills of Spanish-English bilinguals who predominantly spoke Spanish in the home and to compare these skills to those of Spanish monolingual children. Participants included 496 Spanish-English bilingual children who attended an English pre-kindergarten program and 152

Spanish-speaking monolingual children living in Puerto Rico. Participants’ mean age was 4 years. Phonological awareness was assessed using a researcher-developed task. Letter-word knowledge, early spelling and writing abilities, expressive vocabulary and expressive language abilities were assessed through subtests of the Woodcock Language Proficiency Battery-Revised (WLPB-R). Results indicated that the bilingual children performed significantly better than the monolingual Spanish children in early spelling/writing. The monolingual Spanish children performed significantly better than bilinguals on Spanish oral language tasks but scored one standard deviation below the test mean. As bilingual children’s Spanish vocabulary decreased, English vocabulary increased. Overall, the results indicated that early literacy skills and children’s oral language skills were positively related across both languages.

Vagh, S. B., Pan, B. A., & Mancilla-Martinez, J. (2009). Measuring growth in bilingual and monolingual children’s English productive vocabulary development: The utility of combining parent and teacher report. *Child Development*, 80, 1545-1563.

The purpose of the study was to compare growth in English expressive and receptive vocabulary of similar groups of bilingual and monolingual children, and differences in reporting between teacher and parent reporters. The study examined 29 English monolingual children and 56 Spanish monolingual, English-Spanish bilingual children who were grouped together as “bilingual” and their caregivers and teachers. Children entered the study at 24 to 36 months. Parents and teachers both completed the MacArthur-Bates Communicative Development Inventory and its Spanish equivalent, as a measure of children’s expressive and receptive vocabulary, at the beginning of the study and every three months. At 30 and 36 months, children were also directly assessed by researchers on the Picture Vocabulary subtest of the Woodcock Language Proficiency Battery-Revised (WLPB-R) and the Peabody Picture Vocabulary Test-III (PPVT-III) in order to serve as a comparison measure for teacher and parent report MacArthur Bates tests. Vocabulary growth over time was assessed by comparing differences in test scores at each assessment point. Bilingual children were found to have smaller English vocabularies overall (receptive and expressive) and less English vocabulary growth than their monolingual children. Vocabulary estimates by caregivers were more strongly related to the researcher-administered standardized assessments of vocabulary (WLPB-R and PPVT-III) than vocabulary estimates by teachers. Parents also reported more vocabulary growth than teachers. The researchers concluded that teachers may observe children in more restricted contexts than parents. They also stressed the reliability of parental report, supporting the use of the MacArthur Bates tests as valid measures of vocabulary.

Yaden, D. B., & Tardibuono, J. M. (2004). The emergent writing development of urban Latino preschoolers: Developmental perspectives and instructional environments for second-language learners. *Reading & Writing Quarterly, 20*, 29-61.

The purpose of the study was to examine the emergent writing development of urban Spanish-speaking preschoolers in the U.S. Participants included 47 children who averaged 4 years of age. Children's written language development was assessed using writing tasks developed by the researchers. Children were assessed at three time points during the second half of one school year. Children's understanding of the forms and functions of written language became more intricate and advanced over time. Children who were classified as low SES began at a lower level than the test norms for monolingual Spanish speakers, which are based on children of higher (middle) SES. The results indicated that the developmental patterns observed in this study replicated previous monolingual and bilingual research, which demonstrated growth of emergent writing skills over time with adequate support.

Yavas, M. S., & Core, C. W. (2001). Phonemic awareness of coda consonants and sonority in bilingual children. *Clinical Linguistics & Phonetics, 15*, 35-39.

The purpose of the study was to assess the development of specific English speech sounds (e.g., "s" consonant clusters such as "st" in "street") in Haitian Creole-English bilingual children in comparison to monolingual English-speaking expectations. Participants included 40 Haitian Creole-English bilingual children ranging in age from 3 years 1 month to 4 years 11 months. Speech sounds were assessed using a picture-naming task developed by the researchers. Results indicated that s-cluster speech sound production in the bilingual children followed the same patterns as English monolingual children. The researchers concluded that developmental speech sound trajectories in monolinguals and bilingual children may follow similar patterns.

Other International Articles

Bader, Y., & Minnis, D. D. (2000). Morphological and syntactic code-switching in the speech of an Arabic-English bilingual child. *Multilingua, 19*, 383-403.

The purpose of the study was to investigate morphological and syntactic code switching of a bilingual child and to compare the strategies and domains used in code switching with data from previous research. The study included one Arabic-English bilingual who was 3 years 8 months at the beginning of the study. The child was followed for 7 months or to 4 years 3 months of age. The child's morphological and syntactic code switching was documented during observations of the child in naturalistic settings. The results violated Poplack's Free Morpheme Constraint, which states that the stem of a word and its affix (bound morpheme as in "walked") cannot be interchanged ("switched") until the stem has been integrated into the language of the affix. Some of the ob-

served code-switching behaviors were similar to behaviors demonstrated by other groups of bilinguals (e.g., French-English, Spanish-English, etc.), whereas some code-switching behaviors appeared specific to the Arabic-English language combination. Results suggested that some syntactic and morphological aspects of bilingual children's two languages may be unique to the languages spoken by the children.

Bernardini, P., & Schlyter, S. (2004). Growing syntactic structure and code-mixing in the weaker language: The ivy hypothesis. *Bilingualism: Language and Cognition, 7*, 49-69.

The purpose of the study was to examine the "Ivy hypothesis" in bilinguals whose ability in one language is considerably stronger than ability in a second language. The Ivy Hypothesis refers to the use of sentential structures from the stronger language in sentences of the weaker language, as a method of compensation, also known as "code mixing". Participants included 5 Swedish-French/Italian bilinguals with unequal ability in their two languages. Participating infants ranged in age from 22 months to 38 months at the beginning of the study. All data were obtained from pre-existing research databases and were collected longitudinally over a 2 year period. Based on recordings of verbal interactions and language diaries, language was coded as "expected" (based on linguistic rules of the language spoken) or "unexpected". Results confirmed that each participant demonstrated a dominant language, as evidenced by higher MLU in that language. The dominant language showed higher rates of development that mirrored the development of reported in studies on monolinguals. The weaker language showed the same rate of development but was delayed compared to findings on monolinguals. The results confirmed that "code switching" occurred such that bilinguals used syntactic elements from the stronger language to compensate for gaps in the weaker language. The researchers concluded that the study findings supported the "Ivy Hypothesis."

Bialystok, E., Shenfield, T., & Codd, J. (2000). Languages, scripts, and the environment: Factors in developing concepts of print. *Developmental Psychology, 36*, 66-76.

The purpose of the study was to examine early conceptions of print in Hebrew-English bilingual children, to compare bilingual children's abilities to those monolingual children, and to investigate potential influences of the environment. The study included two groups of Hebrew-English bilinguals and monolinguals living in Canada and Israel. All participants ranged in age from 4 to 5 years. The Canadian sample included 31 monolingual English speakers and 30 English-Hebrew bilinguals, and the Israeli sample included 35 Hebrew-English bilinguals and 35 Hebrew monolinguals. Children's concepts of print were assessed using language tasks developed by researchers and their vocabulary abilities were assessed through the Peabody Picture Vocabulary Test in the applicable languages. Results indicated that bilinguals from both environments outperformed monolinguals in print concept tasks. The form of the written language (i.e., alphabetic versus character-based) influenced bilingual children's print concept abilities.

Bosch, L., & Sebastián-Gallés, N. (2001). Evidence of early language discrimination abilities in Infants from bilingual environments. *Infancy*, 2, 29-49.

The purpose of the study was to examine language discrimination abilities in bilingual and monolingual infants. Three experiments were conducted that assessed children's language discrimination abilities. The mean age of all participants was 4 months. Experiment 1 included 14 Spanish monolinguals and 14 Catalan monolinguals. Experiment 2 included 14 Catalan monolinguals. Experiment 3 included 28 Catalan-Spanish bilinguals, with half being Spanish dominant and half being Catalan dominant. Catalan and Spanish were described as languages that are rhythmically similar, presenting a potential challenge for language learners when discriminating between the two language systems. Results indicated that bilingual infants discriminated successfully between the two languages at the age of 4 months. Both groups of bilingual infants did not significantly differ from monolingual infants. The results indicated that bilinguals are able to discriminate between their two languages, which are phonologically similar, early in life.

Bosch, L., & Sebastian-Galles, N. (2003). Simultaneous bilingualism and the perception of a language-specific vowel contrast in the first year of life. *Language and Speech*, 46, 217-243.

The purpose of the study was to examine the development of speech sound discrimination in Spanish-Catalan bilinguals and monolingual children. The study combined data derived from 3 experimental procedures. Participants in Experiment 1 included 12 Catalan-Spanish bilinguals, 12 Catalan monolinguals and 12 Spanish monolinguals with a mean age of 4 months. Experiment 2 included 12 Catalan-Spanish bilinguals, 12 Catalan monolinguals and 12 Spanish monolinguals with a mean age of 8 months. Experiment 3 included 12 Catalan-Spanish bilinguals with a mean age of 12 months. Speech sound discrimination was assessed by a differentiation task designed by the researchers. Results indicated that bilingual infants successfully discriminated between sounds at 4 months of age, similar to Spanish monolinguals, but bilinguals appeared to lose the ability to differentiate Catalan-only sounds at 8 months of age, whereas Catalan monolinguals did not. At 12 months, bilingual infants appeared to re-gain their ability to differentiate Catalan-only sounds. Findings point to a different phonetic developmental pattern for bilinguals and monolinguals.

Burns, T. C., Yoshida, K. A., Hill, K., & Werker, J. F. (2007). The development of phonetic representation in bilingual and monolingual infants. *Applied Psycholinguistics*, 28, 455-474.

The purpose of the study was to compare the speech sound discrimination abilities (Voice Onset Time or VOT) of bilingual and monolingual infants. VOT refers to a quality of stop consonants when the production consonant ends and vibrations in the larynx begin during production of the vowel (e.g., the time between “t” and “ee” in the word “tee”). Three experi-

ments were conducted. Experiment 1 included 9 English-French bilinguals, with a mean age of 7 months, and 10 English monolinguals, with a mean age of 6 months. Experiment 2 involved 12 French-English bilinguals, who averaged 14 months, and 8 English monolinguals, who averaged 15 months. Experiment 3 included 18 French-English bilinguals, with a mean age of 11 months and 14 English monolinguals with a mean age of 10 months. Infants' abilities to discriminate between French-characteristic Voice Onset Time and English VOT were assessed using a discrimination task developed by the researchers. Results indicated that bilingual infants developed the ability to discriminate between French and English VOT between 10 and 12 months, consistent with the abilities of the monolingual infants. Monolingual infants did not discriminate between the two languages' VOT when they became older, whereas bilinguals maintained the ability. Findings suggested that infants have a capacity to process multiple languages, and that exposure to two languages from birth is not detrimental to children's phonetic development.

Cantone, K. F., & Muller, N. (2008). ‘Un nase or una nase’? What gender marking within switched DPs reveals about the architecture of the bilingual language faculty. *Lingua*, 118, 810-826.

The purpose of the study was to examine gender marking in the two languages of Italian-German bilingual children and to investigate cross-language influences. Participants included 4 Italian-German bilinguals, with an initial age of 20 months. The marking of gender in noun phrases was studied through the elicitation of language samples in both languages every 2 weeks over a 4-year period. Production of determiners (e.g., “the” in English, often gender marked in other languages such as “un” or “una”) and nouns were coded. Results indicated that code switching occurred in bilinguals' two languages. The researchers concluded the code switching was the result of interactions between the two lexicons of bilinguals.

Chang-Smith, M. (2010). Developmental pathways for first language acquisition of Mandarin nominal expressions: Comparing monolingual with simultaneous Mandarin-English bilingual children. *International Journal of Bilingualism*, 14, 11-35.

The purpose of the study was to test the “Autonomous Development Hypothesis” by comparing the nominal expressions by Mandarin-English bilinguals and monolingual children. The “Autonomous Development Hypothesis” proposed that the two language systems of bilinguals develop independently. “Nominal expressions” in Mandarin can either have a non-specific or specific referent and follows patterns that differ from English use. The study involved one Mandarin Chinese-English bilingual child, with an initial age of 10 months who was followed until 3 years, 2 months of age, and one Mandarin monolingual child who was followed from 20 months to 26 months of age. Nominal expressions were assessed using a written record of daily utterances and home video recordings taken by his parents. The bilingual child's development of Mandarin nominal expressions was

similar to the monolingual child. No occurrence of transfer between English and Mandarin syntax was evident. Findings support the “Autonomous Development Hypothesis.”

Comeau, L., Genesee, F., & Mendelson, M. (2007). Bilingual children’s repairs of breakdowns in communication. *Journal of Child Language, 34*, 159-174.

The purpose of the study was to investigate repair strategies used by bilingual children when interacting with conversation partners who spoke a different dominant language. Participants included 26 French-English bilingual children and their caregivers. Children were grouped by age: 2-year-old bilinguals with a mean age of 31 months ($n = 10$) and 3-year-old bilinguals with a mean age of 36 months ($n = 16$). Breakdowns and repair strategies during conversation were assessed through spontaneous language sampling. Children’s receptive vocabulary was assessed using the Peabody Picture Vocabulary Test-Revised, with responses recorded in French and/or English. Results indicated that most 2-year-olds and all 3-year-olds repaired language breakdowns by matching the language of the adult with whom they were interacting. Additionally, participants did not change languages when the source of the breakdown was something other than the incorrect language choice. This indicated that bilingual children have a cursory understanding of the sources of communicative breakdowns. The researchers concluded that children as young as two years of age can differentiate different types of communication breakdowns.

David, A., & Wei, L. (2008). Individual differences in the lexical development of French-English bilingual children. *International Journal of Bilingual Education and Bilingualism, 11*, 598-618.

The purpose of the study was to examine the relationship between extra-linguistic influences, such as gender, parental input, and birth order on children’s lexical development (as measured by vocabulary size) in French-English bilingual children. Participants included 13 French-English bilinguals with an age range of 12 to 36 months. Vocabulary was assessed using the MacArthur Communicative Development Inventories in English and French and naturalistic language sampling. Over 40 hours of naturalistic language samples were collected. Samples were also coded for use of each language (“switches”) and parental input. Specifically, parental input was determined based on the languages spoken, mean length of utterance and lexical diversity. Exposure to each language was also measured by parental estimate of language exposure during the previous month. Bilingual lexical development paralleled pre-existing data on monolingual children. Girls were found to have larger vocabularies than boys. Vocabulary size was significantly related to relative parental language input and changes in vocabulary size over time were related to changes in parental input. Parental mean length of utterance and lexical diversity was positively related to children’s lexical size.

Dolitsky, M. (2000). Code switching in a child’s monologues. *Journal of Pragmatics, 32*, 1387-1403.

The purpose of the study was to examine the qualities of code switching in a bilingual child, which included “borrowing” from the other language, “non-borrowing,” and “change.” The participant was a French-English bilingual child who was dominant in French. The study began when the child was 17 months and continued until he was six years old. Results indicated that the child maintained the three focused-on forms during spontaneous speech. When the child was “borrowing” from another language, the child did not hesitate when talking alone but hesitated when talking to other speakers. “Monologues” were produced predominantly in his dominant language. Code switching included elements from the stronger language to bolster the weaker language. The researchers concluded that code switching is affected by social context as well as language dominance.

Foroodi-Nejad, F., & Paradis, J. (2009). Crosslinguistic transfer in the acquisition of compound words in Persian-English bilinguals. *Bilingualism: Language and Cognition, 12*, 411-427.

The purpose of the study was to examine the validity of “Structural Overlap Hypothesis” and “Dominance hypothesis” in the cross-linguistic transfer occurring in the languages of bilingual children. Structural Overlap hypothesis referred to occasions when the languages of the DLLs shared structural features, resulting in cross-linguistic transfer. Dominance hypothesis referred to occasions when the dominant language of bilinguals infiltrates the weaker language as a method of compensation. Participants included 16 Persian-English bilinguals who were dominant in either Persian or English, 19 Persian monolinguals and 17 English monolinguals. Participants ranged in age from 3 years 2 months to 5 years 10 months. Vocabulary size was assessed using the Peabody Picture Vocabulary Test, and children’s production of compound words was assessed using a task developed by researchers. Results provided partial support for Structural Overlap and Dominance hypotheses. Cross-linguistic influence occurred in the presence of structural overlap as well as when language dominance occurred with bilinguals. However, bi-directional cross-linguistic influence occurred where both languages influenced each other. Also, Persian-dominant bilinguals and English-dominant bilinguals showed different tendencies for word order depending on the word order attributes of their dominant language.

Gu, C. C. (2010). Cross linguistic influence in two directions: The acquisition of dative constructions in Cantonese-English bilingual children. *International Journal of Bilingualism, 14*, 87-103.

The purpose of the study was to examine bi-directional cross-linguistic transfer of bilingual children’s acquisition of dative constructions, which is a vulnerable domain in language development (i.e., domain which is also difficult for monolingual children). Participants included 5 Chinese-English bilinguals, 9 English monolinguals and 8 Chinese monolinguals, with an initial age range of 15 to 24 months. The

researchers followed the children for approximately 21 months. Language acquisition was measured by examining dative construction, a specific sentence construction with different uses in English and Chinese. Weekly or biweekly recordings of children's speech were recorded over 17 to 40 sessions. The results revealed that cross-linguistic influences occurred from Chinese to English and English to Chinese. Language dominance and input ambiguity explained some transfer effects. Cross-linguistic influence was most likely to take place at vulnerable domains in language acquisition. The results suggested that the language systems of bilinguals influence each other, particularly when one language is stronger or when multiple language devices are needed.

Children were observed to use French to compensate for weaknesses in English. The rate of code switching increased as the children's proficiency in both languages developed. The older participant demonstrated less language mixing than the younger child, which appeared to be related to the stronger grammatical development of the older child. In addition, the older child code-switched more frequently depending on the language of their conversation partner. The researchers concluded that language mixing was used to compensate for deficits, while code-switching, similar to existing research on code switching in adult and older bilinguals, demonstrates sensitivity to the communication needs to the conversation partner.

Holowka, S., Brosseau-Lapre, F., & Petitto, L. A. (2002). Semantic and conceptual knowledge underlying bilingual babies' first signs and words. *Language Learning, 52*, 205-262.

The purpose of the study was to examine the distribution of vocabulary across semantic categories as well as the distribution of cross-language equivalents in bilinguals and to compare vocabulary growth and semantic distribution to pre-existing data on monolingual children. Participants included 6 French-English ($n = 3$) and French-Sign Language ($n = 3$) bilinguals with an initial age of 7 to 12 months. Language samples were elicited from the children to determine the semantic categories produced, children's total vocabulary and cross-language vocabulary equivalents that were produced. In addition, vocabulary also was assessed through the MacArthur Communicative Development Inventories. Data were collected an average of seven times over one year. Results indicated that bilinguals' lexicons were distributed across semantic categories, similar to data on monolingual children. Bilingual infants produced cross-language equivalents consistently throughout the entire study. Overall, bilinguals' development did not differ from monolinguals. The researchers concluded that bilingual infants achieved milestones for both languages on a similar timetable, which is comparable to monolingual infants.

Jisa, H. (2000). Language mixing in the weak language: Evidence from two children. *Journal of Pragmatics, 32*, 1363-1386.

The purpose of the study was to examine the frequency and type of language and code mixing of two bilingual children. Code switching refers to the use of language depending on context including conversation partner. Language mixing refers to the use of language elements from one language when speaking the other language. Participants included 2 French-English bilingual children described as French-dominant with initial ages of 27 and 42 months. Language mixing in bilinguals was assessed through language samples collected every two weeks over 2-month period. The results showed that bilinguals used French morphology (i.e., their dominant language) when speaking English, demonstrating French domi-

Juan-Garau, M., & Pérez-Vidal, C. (2000). Subject realization in the syntactic development of a bilingual child. *Bilingualism: Language and Cognition, 3*, 173-191.

The purpose of the study was to examine the relationship between the use of subjects and syntactic development in a bilingual child and to evaluate any potential cross-language differences. The study included one 15-month-old Catalan-English bilingual child who was followed until 4 years, 2 months of age. Narrative language samples were elicited and parental diaries were collected. Explicit product of subjects was analyzed, and syntactic development was measured by calculating mean length of utterance. The bilingual child demonstrated differences in the production of subjects and differences in syntactic abilities in the two languages. The results suggested separate or autonomous language development in bilinguals.

Juan-Garau, M., & Pérez-Vidal, C. (2001). Mixing and pragmatic parental strategies in early bilingual acquisition. *Journal of Child Language, 28*, 59-86.

The purpose of the study was to investigate the relationship between degree of bilingualism (language dominance) and parental input for one Catalan-English bilingual child. The study examined one Catalan-English bilingual child with an initial age of 15 months who was studied until 4 years, 2 months and their mother. English was the child's non-dominant language. The child's usage of Catalan and English and mean length of utterance in words were assessed through language sampling. Parental usage of the two languages was also determined. Results indicated that parents' choices of language input had a direct impact on the child's degree of bilingualism. The mother promoted a bilingual context for the child, while the father spoke only in English. The child experienced a sharp increase in English language use, with less language mixing. In conclusion, parental language usage can impact the dominant language used by a bilingual child in different contexts.

Junker, D. A., & Stockman, I. J. (2002). Expressive vocabulary of German-English bilingual toddlers. *American Journal of Speech-Language Pathology*, 11, 381-394.

The purpose of the study was to compare the vocabulary size of bilingual and monolingual children and to examine the existence of overlapping vocabulary words in the lexicons of German-English bilingual children. Participants included 10 German-English bilinguals, 10 German monolinguals and 10 English monolinguals with a mean age of 24 months. Children's vocabularies were assessed using the Language Development Survey in German and/or English. Results indicated that bilinguals' vocabulary sizes were comparable to monolinguals' vocabulary sizes. Also, 43% of bilinguals' vocabularies consisted of words where a synonym existed in the other language for the same item. The results were consistent with extant literature which suggested that simultaneous acquisition of two languages is not a detriment to young children's language development.

Kalia, V. (2007). Assessing the role of book reading practices in Indian bilingual children's English language and literacy development. *Early Childhood Education Journal*, 35, 149-153.

The purpose of the study was to evaluate parent book reading practices and the effect of these practices on bilingual children's English language, English narrative skills and overall English literacy development. Participants included 24 children who spoke English and a variety of Indian based languages and their parents. Children ranged in age from 3 years 4 months to 4 years 1 month. Parents provided information on home reading practices through a questionnaire. Children's receptive vocabulary was assessed using the Peabody Picture Vocabulary Test III. Children's narrative abilities and use of syntax were assessed using a measure developed by researchers. Phonological awareness was assessed using The Preschool Comprehensive Test of Phonological and Print Processing. Print concepts were assessed using Clay's (1997) Concepts about Print Test. All tests assessed children's abilities in English. Results indicated that Indian parents' book reading practices in English were associated with the bilingual children's oral language, narrative and literacy development in their second language. The findings complemented research on monolingual children that demonstrate that storybook reading contributes to children's language development.

Kehoe, M. (2002). Developing vowel systems as a window to bilingual phonology. *International Journal of Bilingualism*, 6, 315-34.

The purpose of the study was to examine the development of the vowel systems of German-Spanish bilingual infants and to compare bilinguals' development to that of monolinguals' development. Participants included 3 German-Spanish bilinguals, 3 German monolinguals and 2 Spanish monolinguals. At the beginning of the study, children ranged in age from 12 to 15 months. Language

samples were elicited from the children every two weeks for approximately two years. Analyses of children's vowel productions were conducted. Results indicated that bilingual children's acquisition of vowels in their second language was delayed compared to their monolingual infants. Bilingual children's first language vowel development, however, was similar to monolinguals. The researchers concluded that both languages should be considered when making conclusions about the vowel systems of bilinguals.

Kehoe, M. M., Lleó, C., & Rakow, M. (2004). Voice onset time in bilingual German-Spanish children. *Bilingualism: Language and Cognition*, 7, 71-88.

The primary purpose of the study was to examine the voice onset time (VOT) of bilingual children, while the secondary purpose was to compare VOT of bilingual children to monolingual children. Participants included 4 German-Spanish bilinguals, ages 12 to 15 months. Three German monolinguals, ages 29 to 30 months, served as the monolingual control group. Additionally, literature findings were used to compare German-Spanish bilingual children's results to Spanish monolingual children. Language samples were collected every two weeks for approximately 12 months, and VOT was measured. Consistent with literature on Spanish monolinguals, German monolinguals acquired voicing contrast by approximately two years of age. There was no such consistent pattern of VOT for bilingual children. Transfer of voicing features occurred from the dominant language to the weaker language, but influences of the weaker language to the dominant language were not observed. The results indicated that dominant languages of bilinguals have significant influences on weaker languages and that individual variability may occur in language dominance as it pertains to speech sounds.

Kenner, C. (2000). Bilingual literacy in a monolingual school system? English and Gujarati in south London. *Language, Culture and Curriculum*, 13, 13-30.

The purpose of the study was to examine the relationship between a bilingual child's first language and English literacy knowledge in a classroom context. The study examined one Gujarati-English bilingual child who was 4 years of age at the beginning of the study. Home literacy materials and practices were assessed through a parental interview. The child's literacy ability was qualitatively assessed using data collected during classroom observation, audio-recordings in the classroom, writing samples, and an activity developed by the researcher. Data were collected over 4 years, and all data were collected during the school year. Results indicated that the child actively combined Gujarati and English as resources for literacy learning. The child wrote text that synthesized home and school experiences. With regard to spoken language usage, the child was dominant in Gujarati at the beginning of the study, but was English dominant at the end. The author concluded that the child's development in both languages was restricted by limited opportunities to use Gujarati in school.

Keshavarz, M. H. (2001). Halliday's communicative-functional model revisited: A case study. *Communication Disorders Quarterly*, 22, 187-196.

The purpose of the study was to examine the pragmatic language development (i.e., the social use of language) of a bilingual child. The study involved a 9-month-old Persian-English bilingual child. Data on the child's pragmatic abilities were collected through parental diary records, audio-recordings, and a researcher-developed instrument that assessed the child's social language comprehension and production abilities. Results indicated that the pragmatic abilities of the bilingual child mirrored the pragmatic abilities of a monolingual child studied by Halliday, in a previous study.

Keshavarz, M. H. (2007). Morphological development in the speech of a Persian-English bilingual child. *Journal of Psycholinguistic Research*, 36, 255-272.

The purpose of the study was to examine the development of functional categories ("inflections") produced by a Persian-English bilingual child. The study examined a 16-month-old, Persian-English bilingual child. Functional categories were assessed through the analysis of diary records completed by the child's parent and audio recordings. Data were collected over a period of seven months. Results indicated that the child showed early use of functional categories in both languages that appeared to be independent. The results suggested that bilingual children have two independent language systems.

Keshavarz, M. H., & Ingram, D. (2002). The early phonological development of a Farsi-English bilingual child. *International Journal of Bilingualism*, 6, 255-69.

The purpose of the study was to examine the phonological (speech sound) development of both languages of a Farsi-English bilingual child. The study examined the phonological or speech sound inventory of an 8-month-old child who was learning Farsi and English bilingual. Data on the child's speech sound inventories and vocabulary were collected over a 12-month period through diary records, audio recordings and a researcher-developed instrument. Results indicated that the child showed two distinct phonological systems with cross-language interaction occurring across both languages. The researchers concluded that bilingual children's language exposure and their language dominance may influence their phonological development.

Khattab, G. (2002). /l/ production in English-Arabic bilingual speakers. *International Journal of Bilingualism*, 6, 335-53.

The purpose of the study was to examine the /l/ production of English-Arabic bilingual children to (a) determine whether bilinguals used one or two phonetic systems and (b) compare speech production of bilinguals in each language to that of monolingual children. Participants included nine children and their parents, for a total of 23 participants. Three Arabic-English bilingual children participated who were 5, 7, and 10 years of age, respectively. Monolingual children

(Arabic and English) of the same ages also participated. Children's /l/ productions were assessed through phonological transcription and analysis of spontaneous play-based speech samples. The results revealed that bilinguals have separate phonetic systems for each language and have similar speech production in the respective language to monolingual children. The findings suggested that bilinguals have sociolinguistic competence beginning at a young age.

Kovács, Á. M., & Mehler, J. (2009). Flexible learning of multiple speech structures in bilingual infants. *Science*, 325, 611-612.

The purpose of the study was to examine and compare the speech sound systems of bilingual and monolingual infants. The study included data from two experiments. Experiment 1 included 22 bilingual children who spoke Italian in addition to one of a variety of other languages, and 22 monolinguals who spoke Italian. The children averaged 12 months of age. This experiment used an eye-tracking task to assess the children's ability to learn two speech sound patterns. Specifically, infants heard trisyllabic words that conformed to an ABA or AAB pattern. Immediately following, a picture of a toy would be displayed on a screen. If the speech item conformed to an AAB or ABA pattern, the picture was respectively on the right or left side of the screen. Experiment 2 included 20 monolinguals, with a mean age of 12 months. This experiment used the same eye-tracking task, but controlled for voice of the presenter to rule out the influence of speaker on study results. Results from both experiments indicated monolingual infants had significantly more correct responses than incorrect responses for the AAB speech items. No statistical difference was observed for the ABA speech items. Bilingual children had significantly more correct responses than incorrect responses for both patterns. The results suggested that learning two languages may be an advantage in learning speech sound systems.

Kupich, T. (2007). Determiners in bilingual German-Italian children: What they tell us about the relation between language influence and language dominance. *Bilingualism: Language and Cognition*, 10, 57-78.

The purpose of the study was to determine whether language external factors (e.g., language dominance) and/or internal factors (e.g., grammatical aspects of a language) predict cross-linguistic influences in bilingual children. Participants included 3 German monolinguals, 4 Italian monolinguals and 4 German-Italian bilinguals, with initial ages of 16 to 24 months. Cross-linguistic influence was examined by investigating determiner (i.e., a word that modifies a noun: the, that, some) omission, which is developed over time. Data were derived from the CHILDES database, collected over a 12-month period (8 to 29 sessions for monolinguals and 14 to 30 sessions for bilinguals). As compared to German monolingual children, Italian monolingual children produce determiners at an earlier age and less frequently omit determiners. The results revealed increases in the bilingual children's noun and verb vocabularies, mean length of utterance, and determiner omissions over time. In addi-

tion, it was found that bilingual children's two languages may influence each other when there is structural overlap in the grammatical structures being acquired. However, these cross-language influences may be influenced by language dominance and internal characteristics of the languages.

Leseman, P. P. M. (2000). Bilingual vocabulary development of Turkish preschoolers in the Netherlands.

Journal of Multilingual and Multicultural Development, 21, 93-112.

The purpose of the study was to assess the Dutch vocabulary (i.e., second language, L2) of Turkish immigrant preschoolers and compare preschoolers' vocabulary to Dutch monolingual children, while considering cognitive status and SES. Participants included 31 Turkish immigrant preschoolers and 77 Dutch monolinguals, ranging in age from three to four years. Dutch families were classified on their SES (31 low SES and 46 high SES). Children's receptive and expressive vocabularies were assessed using a measure developed by the researchers. Data were collected at three assessment points conducted over a time period of 18 months. Turkish children's L2 vocabulary development accelerated when children entered school, but Turkish children still did not perform as well as monolinguals. Turkish children's Turkish language vocabularies (i.e. first language, L1) did not grow at the same rate as their L2 vocabularies nor did their L1 language development benefit from cognitively challenging L2 classroom environments.

Lin, L., & Johnson, C. J. (2010). Phonological patterns in Mandarin-English bilingual children. *Clinical Linguistics & Phonetics, 24*, 369-386.

The purpose of the study was to compare the phonetic (speech sound) inventory and phonological processes used by bilingual children to monolingual children. Participants included 24 Mandarin Chinese-English bilinguals and 23 Mandarin monolinguals, with a mean age of five years. Phonetic inventories and phonological processes were assessed using the Goldman Fristoe Test of Articulation-2 for English and Hua's Mandarin Articulation test. The results revealed that children's Mandarin phonological abilities influenced their English phonological abilities. Children had a high percentage of consonants and vowels correct in Mandarin and English. At age 5, bilingual children's phonological systems resembled the systems of those of monolingual children.

Loizou, M., & Stuart, M. (2003). Phonological awareness in monolingual and bilingual English and Greek five-year-olds. *Journal of Research in Reading, 26*, 3-18.

The purpose of the study was to examine the phonological awareness of bilingual children in comparison to monolingual children. Children were recruited from predominantly English and predominantly Greek environments. Participants included 16 English-Greek bilinguals and 16 English monolinguals living in London, and 18 Greek-English bilingual and 18 Greek monolinguals living in Cyprus. Participants averaged 5 years 8 months of age. Verbal and

non-verbal IQs were assessed to control for cognitive status. IQs were assessed using the cognitive perceptual model (nonverbal test), the similarities, and vocabulary subtests of the Wechsler Preschool and Primary Scale of Intelligence-Revised. Phonological awareness was assessed in Greek and/or English using a task developed by the researchers. Results indicated that English-Greek bilinguals (London) outperformed monolinguals in phonological awareness, but Greek-English bilinguals (Cyprus) did not. Researchers concluded that the phonological advantage occurred when bilinguals were exposed to a second language that is phonologically simpler than the first language. Also, because English-Greek bilinguals (London) showed an advantage, advantages may exist when children are explicitly instructed in an alphabetically based language.

Mattock, K., Polka, L., Rvachew, S., & Krehm, M. (2010).

The first steps in word learning are easier when the shoes fit: Comparing monolingual and bilingual infants. *Developmental Science, 13*, 229-243.

The purpose of the study was to examine the word learning ability of bilingual infants and to compare the abilities of bilingual and monolingual infants. The study examined data collected from three experiments. Participants in experiment 1 included 16 English-French bilinguals, 16 French monolinguals and 16 English monolinguals. Experiment 2 included 16 French monolinguals and 16 English monolinguals, and Experiment 3 included 16 French monolinguals. Participants averaged 17 months of age. Word learning was assessed the "The Switch task" in both languages. During this procedure, spoken nonsense words were paired with familiar pictures (switch trials) and spoken actual words were paired with their correct pictures (same trials). Infant gaze time was measured during the switch and same trials. Words were also presented using two different accents. The results showed that bilingual infants were able to learn a word-object pairing when the word was presented with two different accents whereas the monolingual infants were not able to learn the words under these conditions. Monolingual infants, however, were able to learn a word-object pairing with the same number of exposures as bilinguals if speaker accent was of a dialectally familiar accent. Results indicated that both monolingual and bilingual infants develop language-specific speech processing skills.

Messer, M. H., Leseman, P. P. M., Boom, J., & Mayo, A. Y. (2010). Phonotactic probability effect in nonword recall and its relationship with vocabulary in monolingual and bilingual preschoolers. *Journal of Experimental Child Psychology, 105*, 306-323.

The purpose of the study was to compare the relationship between non-word recall and vocabulary in bilingual and monolingual children. Participants included 60 Turkish-Dutch bilingual children who were Turkish dominant with a mean age of 4 years 4 months, and 67 Dutch monolinguals with a mean age of 4 years 3 months. Children's non-word recall was assessed using the Automated Working Memory Assessment (AWMA) in both languages. All non-words were

similar to real words in Dutch and Turkish. However, they were classified as either high phonotactic probability (containing highly frequently biphones) or low phonotactic probability (containing infrequently used biphones). Vocabulary was assessed using the Test for Bilingualism, which accepted responses from either language. Turkish-Dutch children showed a greater phonotactic probability effect in Turkish compared to Dutch children, whereas Dutch children showed a greater effect in Dutch. Phonotactic knowledge was an important predictor of vocabulary in both languages, after controlling for short-term memory and nonverbal IQ.

Muller, N., & Hulk, A. (2001). Cross-linguistic influence in bilingual language acquisition: Italian and French as recipient languages. *Bilingualism: Language and Cognition*, 4, 1-53.

The purpose of the study was to conduct a secondary data analysis to compare object omissions in bilingual children and monolingual children. The studies included participants who spoke one or two of the following languages: German, French and Dutch. For the romance languages, bilingual children resemble monolingual children in the type of object omissions but differ in the extent to which object omissions occur. For bilingual children, cross-linguistic syntactic influences occurred that could not be explained by language dominance or by children's inability to differentiate between their two languages. Shared grammatical characteristics between the two languages also influenced cross language influences. Bilingual children were not able to map universal language strategies as quickly as monolingual children onto language specific rules. The researchers concluded that bilingual children's cross-linguistic mapping of universal principles onto language-specific principles is affected by a wide range of syntactic principles that could lead to slower processing. However, the researchers also concluded that bilinguals could experience quicker development in other grammatical areas because of greater exposure grammatical possibilities.

Nicoladis, E. (2006). Cross-linguistic transfer in adjective-noun strings by preschool bilingual children. *Bilingualism: Language and Cognition*, 9, 15-32.

The purpose of the study was (a) to determine if structural overlap or ambiguity explained cross-linguistic transfer in bilingual children's adjective-noun strings and (b) to compare bilinguals' adjective-noun strings to those of monolingual children. Participants included 35 French-English bilinguals ranging in age from 2 years 11 months to 5 years 3 months. Monolingual participants included 10 French monolinguals ranging in age from 3 years 3 months to 5 years, and 35 English monolinguals ranging in age from 3 years 3 months to 5 years 7 months. Language dominance was assessed using the Peabody Picture Vocabulary Test in English and/or French, and adjective-noun strings were assessed using a task developed by the researchers. Results indicated that bilinguals differentiated between their two languages during the preschool years. Bilinguals had a higher level of adjective placement accuracy in comparison to monolingual children. Cross-linguistic transfer was reported in speech production but not in comprehension. Structural overlap was predictive

of linguistic transfer of adjective-noun string patterns, but structural overlap did not completely explain this transfer. The researchers concluded that cross-linguistic transfer occurred at the phonological, as well as the syntactic level.

Nicoladis, E., Palmer, A., & Marentette, P. (2007). The role of type and token frequency in using past tense morphemes correctly. *Developmental Science*, 10, 237-254.

The purpose of the study was to examine past tense morphology in bilingual children in comparison to monolingual children. Participants included 10 French-English bilinguals with a mean age of 5 years 1 month, 10 French monolinguals with a mean age of 6 years 4 months, and 10 English monolinguals with a mean age of 5 years 5 months. Morphology was examined through a story retell task conducted in French and/or English. Accuracy of regular verb and irregular verb production and rate of errors were coded. Bilinguals' production of past tense was less accurate than monolinguals. This may be due to differences in frequency of exposure. Accuracy of production of regular and irregular past tense verbs was related to the frequency of occurrence in the respective languages.

Paradis, J. (2001). Do bilingual two-year-olds have separate phonological systems? *International Journal of Bilingualism*, 5, 19-38.

The purpose of the study was to determine if bilingual children have differentiated phonological (speech sound) systems. Participants included 17 French-English bilinguals, 18 French monolinguals, and 18 English monolinguals with a mean age of 30 months. Phonological systems were examined by focusing on syllable omissions. Data were collected at one time point for each language. Results indicated that bilingual children showed separate but interacting (non-autonomous) phonological systems.

Paradis, J., & Nicoladis, E. (2007). The influence of dominance and sociolinguistic context on bilingual preschoolers' language choice. *International Journal of Bilingual Education and Bilingualism*, 10, 277-297.

The purpose of the study was to examine the effects of language dominance, sensitivity to social context, and age on the code mixing of bilingual preschoolers. Participants included 8 French-English bilinguals ranging in age from 3 years 6 months to 4 years 11 months. Language dominance and code mixing/switching as well as social context were analyzed through the collection of spontaneous language samples. Mean Length of Utterance in Words (MLUw) was recorded as an indicator of language development as well as language dominance, because MLUw tends to be greater in the dominant language. Data were collected during 2 one-hour sessions that occurred less than two weeks apart. Results indicated that code mixing was more common in older bilingual preschoolers than younger bilingual children. Borrowing of structural patterns from the other language was more common overall than completely switching languages. Older bilinguals displayed code switches that were con-

sistent with the social context of their bilingual communities. For all participants, language dominance and context influenced language choice, with a greater influence of dominance on language choice occurring in younger participants. Dominance also played a role in bilinguals' ability to separate languages by context. English dominant children used English in French contexts but French dominant children did not use English significantly in French context. The researchers theorized that this occurred because the French dominant children did not need to use English as much in French contexts. The researchers also theorized that bilingual children's familiarity with their conversation partner may have influenced language use.

Paradis, J., Nicoladis, E., & Genesee, F. (2000). Early emergence of structural constraints on code mixing: Evidence from French-English bilingual children. *Bilingualism: Language and Cognition*, 3, 245-261.

The purpose of the study was to examine the development of code switching in bilingual children. In particular, the researchers were interested in determining if children's code switching shifted from non-adult-like to an adult-like system. Code switching refers to the use of one language or another depending on context. Participants included 15 French-English bilinguals who ranged in age from 21 to 25 months. Children's utterances were analyzed for language violations as delineated in the Matrix-Language Frame model, which proposes a set of integrated constraints (rules) that affect code switching. This model is in contrast to other models that propose individual constraints that are applied to specific configurations. In addition, morpheme order and other assigned characteristics of adult code switching were evaluated. The results showed that children followed the constraints that are proposed in the Matrix-Language Frame model most of the time. Bilingual children's code switching generally adhered to adult-like constraints on code switching.

Qi, R. (2010). Pronoun acquisition in a Mandarin-English bilingual child. *International Journal of Bilingualism*, 14, 37-64.

The purpose of the study was to examine personal pronoun development in a Mandarin Chinese-English bilingual child. A 19-month-old Mandarin Chinese-English bilingual child participated in the study. Eighty-two, 20 to 30 minute language samples were collected until the child reached 4 years, 6 months of age. Usage of personal pronouns was analyzed, and mean length of utterance in words was determined as a measure of overall language development. Results indicated that the bilingual child did not have difficulty with the speech role functions of personal pronouns. Also, the child used different but complementary strategies when learning pronouns in his two languages. In addition, it was found that the bilingual child had two separate language systems that developed at different rates and followed different routes.

Ramon-Casas, M., Swingle, D., Sebastián-Gallés, N., & Bosch, L. (2009). Vowel categorization during word recognition in bilingual toddlers. *Cognitive Psychology*, 59, 96-121.

The purpose of the study was to compare the vowel representations of bilingual and monolingual. The study involved 24 Catalan monolinguals (range: 18-27 months; mean: 22 months), 24 Spanish monolinguals (range: 17-24 months; mean: 21 months) and 24 Catalan-Spanish bilinguals (range: 18-26 months; mean: 22 months). Children's vowel representations were assessed by examining the mispronunciation sensitivity of participants through a task developed by Swingle and Aslin. Results indicated that bilingual toddlers showed less sensitivity to mispronunciations than monolingual toddlers. Older bilingual toddlers showed mispronunciation sensitivity only for their dominant language. The researchers concluded that some bilingual children may have phonetic categories that do not distinguish between two phonetically overlapping vowels.

Rohde, A., & Tiefenthal, C. (2000). Aspects of lexical acquisition: Fast mapping in early L2 lexical acquisition. *Studia Linguistica*, 54, 167-174.

The purpose of the study was to examine fast mapping (i.e., learning a new word through only one or a small number of exposures) and lexical acquisition in children learning a second language. Participants included 27 German children learning English in a bilingual environment ranging in age from 3 to 6 years. Acquisition of new lexical items was assessed using a task developed by the researchers in both German (L1) and English (L2). Results indicated that children learning a second language were faster at learning new German or L1 words than new English or L2 words. The researchers concluded that fast mapping was influenced by language dominance.

Saiegh-Haddad, E., Kogan, N., & Walters, J. (2010). Universal and language-specific constraints on phonemic awareness: Evidence from Russian-Hebrew bilingual children. *Reading and Writing*, 23, 359-384.

The purpose of the study was to examine linguistic factors that affected bilingual children's phonemic (speech sound) awareness. Participants included 20 Russian-Hebrew bilinguals whose mean age was 4 years 6 months (younger) or 5 years 8 months (older). Children phonemic and print awareness were assessed in both languages using tasks developed by the researchers. Results indicated that universal constraints, which included word length and stress, rather than language-specific constraints significantly affected phonemic awareness scores in both languages. The researchers concluded that limits might exist in the transfer of phonemic awareness from one language. This may be due to differences between the two languages.

Scheele, A. F., Leseman, P. P. M., & Mayo, A. Y. (2010). The home language environment of monolingual and bilingual children and their language proficiency. *Applied Psycholinguistics, 31*, 117-140.

The purpose of the study was to investigate the relationships between home language input and vocabulary in bilingual children. Participants were 162 children with a mean age of 39 months. The sample included 46 Moroccan-Dutch bilinguals, 55 Turkish-Dutch bilinguals and 58 Dutch monolinguals. Language exposure at home was assessed using the early childhood version of the Home Observation Scheme and a parent questionnaire. Receptive vocabulary was assessed using the receptive vocabulary test of the Diagnostic Test of Bilingualism. The results indicated that the amount of language input bilingual children received was divided relatively evenly between the two languages, although individual differences were observed among children. As a result, bilinguals received less input in each language compared to monolingual participants. The researchers concluded that differences in the amount of input bilingual children received led to differences in children's language proficiency in their two languages.

Schelleter, C. (2002). The effect of form similarity on bilingual children's lexical development. *Bilingualism: Language and Cognition, 5*, 93-107.

The purpose of the study was to examine bilingual children's production of cross-language noun equivalents (i.e., production of nouns in both languages) and to compare children's production of cross-language noun equivalents to those of adults. The participants included 1 23-month German-English bilingual toddler, 16 German-English bilingual children ranging in age from eight to nine years, and 12 German-English bilingual adults. Children's use of nouns across both languages was assessed through spontaneous language sampling. In addition, children's and adults' cross-language equivalents were assessed through a picture naming task and a translation task developed by the researchers. The results showed that the bilingual toddlers' vocabulary was more likely to contain cross-language equivalents in cases where the two words were similar in phonological (speech sound) form. The use of cross-language equivalents was also affected by phonological similarity in the vocabularies of the older children and adults. The results indicated that bilingual children's cross-language productions were similar to that of bilingual adults.

Sebastián-Gallés, N., & Bosch, L. (2002). Building phonotactic knowledge in bilinguals: Role of early exposure. *Journal of Experimental Psychology: Human Perception and Performance, 28*, 974-989.

The purpose of the study was to examine and compare phonotactic sensitivity (i.e., the sensitivity to allowable combinations of speech sounds in a language) in bilingual children compared to monolingual children and adults. The study included four experiments. Participants in experiments 1 included 24 Spanish monolinguals and 24 Catalan mono-

linguals, and experiment 2 included 48 Catalan-Spanish bilingual children. Children in both experiments averaged 10 months of age. Experiment 3 involved 56 Catalan-Spanish bilingual adults, and experiment 4 included 24 Catalan-Spanish bilingual adults and 24 Catalan or Spanish monolingual adults. Experiments 1 and 2 evaluated children's sensitivity to phonotactic patterns by a task developed by the researchers. Experiments 3 and 4 evaluated adults' perceptions of phonotactic patterns using a modified task developed by the researchers. Results indicated that, by 10 months of age, Catalan dominant Catalan-Spanish bilingual children showed sensitivity to phonotactic elements in their dominant language only. Spanish monolingual infants and Spanish dominant Catalan-Spanish bilingual children, however, did not show phonotactic sensitivity to either language. By 10 months, all bilingual children evidenced effects of language dominance. Spanish dominant Adult Spanish-Catalan bilinguals showed phonotactic knowledge of Catalan but this phonotactic knowledge did not mirror the phonotactic knowledge of Catalan dominant Catalan-Spanish bilingual adults. The researchers concluded that the dominant language spoken to children may influence bilingual children's phonological development.

Sebastián-Gallés, N., & Bosch, L. (2009). Developmental shift in the discrimination of vowel contrasts in bilingual infants: Is the distributional account all there is to it? *Developmental Science, 12*, 874-887.

The purpose of the study was to examine the ability of bilingual infants to distinguish between language-specific vowel contrasts. Four experiments were conducted. Participants in experiment 1 included 24 Spanish-Catalan bilinguals and 24 Catalan or Spanish monolinguals who ranged in age from 4 to 9 months. Participants in experiment 2 included 12 additional Catalan-Spanish bilinguals whose mean age was 12 months. Participants in experiment 3 included 24 Catalan-Spanish bilinguals with a mean age of 8 months. Participants in experiment 4 included 48 Catalan-Spanish bilinguals and Catalan or Spanish monolinguals who were divided either 4- or 8-months of age. Participants' abilities to perceive vowel contrasts in Catalan and Spanish were assessed using a task developed by the researchers. Results supported the finding of earlier bilingual studies that phonetic category judgment in bilingual infants follows a "u-shaped curve" for vowels that were similar in each language; that is, bilingual infants initially have the ability to discriminate sounds then lose their ability and then regain it. For vowels with greater contrasts between the two languages, all infants could discriminate the sounds. Language dominance, the type of vowel contrast tested (more similar or higher contrast), and the presentation methodology significantly affected all infant's abilities to contrast between vowels in two languages. The authors concluded that these variables should be considered when making judgments about bilinguals' abilities to contrast between vowels in their two languages.

Sen, R., & Blatchford, P. (2001). Reading in a second language: Factors associated with progress in young children. *Educational Psychology, 21*, 189-202.

The purpose of the study was to examine home and school factors that may be related to achievement in Indian children who were learning to read in English. Participants included 149 Indian children with a mean age of 5 years 3 months who were enrolled in nursery school. Home factors that were considered included English exposure, which determined through a parent questionnaire, and the home environment measured by the Kupuscwamy Socio-Economic Status Scale – Urban version. Children’s literacy skills were evaluated at the end of nursery school and 17 months later. Language and literacy skills in English, including listening skills, receptive language proficiency, reading and writing, were assessed using researcher-designed tasks. In addition, the Neale Analysis of Reading Ability and the word reading subtest of the British Ability Scale were administered. Ratings were given by the children’s teachers on school factors and early literacy ability using The Infant Rating Scale, Level 1. Researchers controlled for children’s cognitive skills. Results indicated that there was a positive association between income and reading achievement at the end of nursery school and 17 months later. Also, a positive relationship was observed between word recognition at the end of the nursery school year and early reading 17 months later. Despite high scores in word recognition, bilingual children performed lower than monolingual expectations on the reading comprehension task.

Serratrice, L. (2002). Overt subjects in English: Evidence for the marking of person in an English-Italian bilingual child. *Journal of Child Language, 29*, 327-355.

The purpose of the study was to examine the development of the use of subjects and subject-verb agreement in a bilingual child. The study followed an Italian-English bilingual toddler from 22 months to 37 months. The child’s productions of subjects (e.g., “Johnny” in “Johnny jumps”) and subject-verb agreement (e.g., Johnny jumps as opposed to Johnny jump) were coded from 45-minute naturalistic language samples, using CHAT, a language sample analysis procedure. Results indicated that the child produced subjects in English with both finite (e.g. “I go”) and nonfinite verb forms (e.g., “to go”). The child also produced finite forms without subjects in Italian. The author concluded that the child’s language development, as measured by subject-verb agreement, is language-specific, arguing for separate systems of language development.

Serratrice, L., Sorace, A., & Paoli, S. (2004). Crosslinguistic influence at the syntax-pragmatics interface: Subjects and objects in English-Italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition, 7*(3), 183-205.

The purpose of the study was to examine cross-linguistic influences on production of subjects and objects in an Italian-English bilingual child. The researchers studied the develop-

ment of an Italian-English bilingual child with an initial age of 22 months as well as 7 Italian monolinguals, ranging in age from 19 to 26 months, and 5 English monolinguals ranging in age from 22 to 29 months. Productions of subjects and objects were assessed using data from the CHILDES database in Italian and English. The bilingual child’s subject use differed from the monolingual children; in Italian, the young bilingual child used overt subjects, while monolinguals used a null subject. The bilingual child’s use of objects did not vary cross-linguistically. The researchers concluded that cross-linguistic influence may occur in bilingual child’s dominant language depending on discourse pragmatics.

Sevinç, M., & Lemis Önkol, F. (2009). Language processing skills of 5-6 years old Turkish children attending monolingual and bilingual preschool education. *Procedia - Social and Behavioral Sciences, 1*, 1378-1383.

The purpose of the study was to compare the language processing abilities of bilingual preschool children to those of monolingual children. Participants included 45 Turkish monolinguals and 45 English-Turkish bilinguals ranging in age from 5 to 6 years. Language development was assessed via a language processing scale and a parental questionnaire. Results indicated that monolingual children had higher scores on all measures compared to bilingual participants.

Simon, E. (2010). Child L2 development: A longitudinal case study on voice onset times in word-initial stops. *Journal of Child Language, 37*, 159-173.

The purposes of the study were to: (a) examine whether a native Dutch-speaking child learning English used the same voice systems for English and Dutch languages and (b) investigate the acquisition of English voicing contrast in the speech sounds. The study examined one native Dutch-speaking child with an initial age of 3 years 6 months who was recently exposed to English. The child’s voice onset times were assessed using a repetition task and a picture-naming task developed by the researchers. Data were collected during 11 sessions conducted every two or three weeks over a period of seven months. Results indicated the child used different voice systems for English and Dutch. Further, the child acquired the speech sounds of English and began to adapt Dutch system in the direction of English system. The results pointed to the flexibility of a young child’s native language and to the influence the second language may play in the child’s development.

Sundara, M., Polka, L., & Molnar, M. (2008). Development of coronal stop perception: Bilingual infants keep pace with their monolingual peers. *Cognition, 108*, 232-242.

The purpose of the study was to compare bilingual and monolingual infants’ discrimination of a specific early developing speech sound feature, coronal stops. Coronal stops refer to stop consonants (i.e., sounds that are the shortest in time duration such as “d” or “t”) articulated with the front portion of the tongue. Participants included 96 infants. At each age group (6-8 months; 10-12 months), 16 infants were in

each language group: (a) French-English bilingual; (b) French monolingual; and (c) English monolingual. The infants' ability to discriminate between French and English coronal stops was assessed using a visual habituation procedure developed by Habit 2000. Results indicated that at 6-8 months, infants in all three groups could discriminate coronal stops. At 10-12 months, bilingual infants and monolingual English infants maintained the ability to discriminate coronal stops but monolingual French infants lost the ability to discriminate between these sounds. The results suggested that bilingual infants performed on par with monolingual infants on a task that involved sounds that are similar across languages.

Tagoilelagi-LeotaGlynn, F., McNaughton, S., MacDonald, S., & Farry, S. (2005). Bilingual and Bilitracy development over the transition to school. *International Journal of Bilingual Education & Bilingualism*, 8, 455-479.

The purpose of the study was to examine language and bi-literacy development during Samoan/Tongan children's transition into an English-only school. Participants included 25 Samoan/Tongan children who were learning English, with an initial mean age of 4 years 6 months. Children's narrative ability was assessed using the School Entry Assessment (SEA) and receptive vocabulary was assessed using the Peabody Picture Vocabulary Test. Emergent literacy skills were assessed using Clay's (1993) Observation Survey of Early Literacy Achievement. Data were collected at 3 time points over a one-year period. Results indicated that language and literacy measures in the children's first language either plateaued or declined over time, whereas children experienced a rapid increase in English or second language skills. Overall, English oral language scores were positively correlated with English literacy skills but not native language literacy skills. Also, higher language scores in the children's first language did not correlate with higher literacy scores in that same language. Researchers suggested that transfer effects may be occurring very quickly upon school entry.

Vihman, M. M., Thierry, G., Lum, J., Keren-Portnoy, T., & Martin, P. (2007). Onset of word form recognition in English, Welsh, and English-Welsh bilingual infants. *Applied Psycholinguistics*, 28, 475-493.

The purpose of the study was to examine (a) at what age do infants recognize word forms and (b) determine whether differences exist for children living in a bilingual English-Welsh community, where Welsh is the minority language. Participants included 28 English-Welsh bilinguals, 79 Welsh monolinguals and 128 English monolinguals, who ranged in age from 9 to 12 months. Word familiarity was assessed using behavioral and neurophysiological procedures whereby the infants were exposed to familiar and rare words in their respective language(s). English monolinguals demonstrated a word familiarity effect at 10 or 11 months using the neurophysiological and behavioral procedures respectively. No such effect was found at this age for Welsh infants. Bilingual children demonstrated a familiarity effect in both languages at 11 months of age. Results suggest that word learning is different for children based on home language exposure.

Wei, L., & Lee, S. (2001). L1 development in an L2 environment: The use of Cantonese classifiers and quantifiers by young British-born Chinese in Tyneside. *International Journal of Bilingual Education and Bilingualism*, 4, 359-382.

The purpose of the study was to examine the influence of an English dominant language environment on the Cantonese development of Cantonese Chinese-English bilinguals. Participants included 10 Chinese-English bilinguals ranging in age from 5 to 8 years, 12 Chinese-English bilinguals ranging in age from 9 to 12 years, and 12 bilinguals ranging in age from 13 to 16 years. All children were described as speaking Cantonese Chinese as their native language or "L1". Language development was examined by analyzing morpho-syntactic features in a Cantonese conversational language sample and a Cantonese narrative language sample. Results indicated that, despite positive correlations between age and Cantonese ability, older bilinguals displayed evidence of delayed and stagnated Cantonese development. Children code-switched to English frequently when speaking. The researchers concluded that this suggested either incomplete Cantonese learning and/or English dominant environmental influence.

Weikum, W. M., Vouloumanos, A., Navarra, J., Soto-Faraco, S., Sebastián-Gallés, Núria, & Werker, J. F. (2007). Visual language discrimination in infancy. *Science*, 316 (5828), 1159.

The purpose of the study was to (a) evaluate the ability of bilingual infants to visually discriminate English from French based on facial movements and (b) compare their performance to monolingual infants. Participants were divided into 4 month, 6 month and 8 month age groups to examine age effects. Each age group included 12 French-English bilinguals and 12 English monolinguals. Visual language discrimination was assessed using a visual discrimination task developed by the researchers. Results indicated that monolingual English infants could distinguish French from English visually at early ages, but lost the ability at 8 months. French-English bilinguals were able to distinguish between the two languages at all ages. The results suggested that learning two languages may encourage the maintenance of visual language discrimination abilities.

Yip, V., & Matthews, S. (2000). Syntactic transfer in a Cantonese-English bilingual child. *Bilingualism: Language and Cognition*, 3, 193-208.

The purpose of the study was to examine syntactic transfer between a Cantonese dominant Cantonese-English bilingual child's two languages and to investigate the influence of language input on transfer. Additionally, syntactic transfer of the bilingual child was compared to literature findings on monolingual children. The study involved a Cantonese-English bilingual child who was 17 months of age at the start of the study. Data were collected through language sampling and language diaries over a two year period. The researchers examine the child's production of the following syntactic elements: wh-interrogatives (e.g., why, what, who...etc.), null objects (i.e.,

objects of transitive verbs which may be omitted in languages like Mandarin) and pronominal relatives (i.e., express generic individual level properties). Mean length of utterance in words (MLU-w) was determined based on diary entries and language samples. MLU-w served as an additional measure of language development and was used to confirm language dominance. The results showed that development of the stronger language, Cantonese, was similar to that reported in other studies on monolingual Cantonese-speaking children. Additionally, language dominance was found to play a major factor in language transfer. Unidirectional transfer of syntactic elements was observed from the dominant language to the weaker language. The researchers concluded that the transfer patterns indicated that the language systems of bilinguals are not completely autonomous.

Yip, V., & Matthews, S. (2007). Relative clauses in Cantonese-English bilingual children: Typological challenges and processing motivations. *Studies in Second Language Acquisition, 29*, 277-300.

The purpose of the study was to examine the “Noun Phrase Accessibility Hierarchy” affect on language processing and the development of relative clauses (e.g., “who is chasing the boy” in “The girl who is chasing the boy”) in bilingual children. The “Noun Phrase Accessibility Hierarchy” predicts that subject relatives (“who is chasing the boy”) will be acquired before object relatives (“The boy that the girl chased ran away”). Participants included 3 Cantonese Chinese-English bilingual children with an age range of 15 months to 4 years 6 months. The use of relative clauses was analyzed and mean length of utterance was determined from diary data recorded by parents. In Cantonese, object relatives emerged earlier than or concurrently with subject relatives. In English, object relatives emerged prior to subject relatives. Results challenged the “Noun Phrase Accessibility Hierarchy.”

Zwanziger, E. E., Allen, S., & Genesee, F. (2005). Crosslinguistic influence in bilingual acquisition: Subject omission in learners of Inuktitut and English. *Journal of Child Language, 32*, 893-909.

The purpose of the study was to examine subject omission and cross-language influences in the language development of bilingual children and compare their development of subject omissions to existing data on monolingual children. Subject omission refers to a characteristic of some languages in which explicit expression subjects in sentences may be optional. This characteristic is learned as over the course of development. Participants included 6 Inuktitut-English bilinguals who ranged in age range from 20 to 35 months. Language samples were collected periodically over a one-year period. Subject omissions were coded using CHAT and CLAN procedures. The results indicated that cross-language influences did not occur between languages when examining subject omissions. Bilinguals displayed monolingual-like rates of subject omissions in both languages. The researchers concluded that cross language influences were not evident.

About CECER-DLL

CECER-DLL is a national center that is building capacity for research with dual language learners (DLLs) ages birth through five years. CECER-DLL aims to improve the state of knowledge and measurement in early childhood research on DLLs, identify and advance research on best practices for early care and education programming, and develop and disseminate products to improve research on DLLs. CECER-DLL is a cooperative agreement between the Frank Porter Graham (FPG) Child Development Institute at The University of North Carolina at Chapel Hill and the Office of Planning, Research, & Evaluation (OPRE) in the Administration for Children & Families (ACF), in collaboration with the Office of Head Start and the Office of Child Care.

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