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**The Significance of Siblings on Language Development in Bilingual
Spanish-English Children**

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**The Significance of Siblings on Language Development in Bilingual
Spanish-English Children**

by

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Dedication

To my family, thank you for your unconditional love and encouragement throughout my life and during my academic journey. You have always inspired me to become a better person and reach for my goals. To my friends, thank you for your laughter and reassurance these last two years. Your support and patience have been an unsurpassed source of motivation.

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Abstract

The Significance of Siblings on Language Development in Bilingual Spanish-English Children

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Abstract

The purpose of this study was to investigate if there was a relationship between birth order and language proficiency in English and Spanish bilingual children. This study used data from a preexisting dataset. Participants included 49 Spanish-English bilingual children (age 4;6-7;0), who had at least one sibling. Participants were recruited from school districts in Texas, California, and Pennsylvania during the original study. The investigator examined relationships among birth order, number of children, and language measures. Semantic and morphosyntactic language abilities were measured through the participant's performance on the corresponding subtests of the *Bilingual English Spanish Assessment (BESA)* (Peña, Gutiérrez-Clellen, Iglesias, Goldstein & Bedore, 2014) and through English productivity measures collected from language samples. These measures included: total number of words (TNW), number of different words (NDW), and mean length of utterances in words (MLUw).

Significant correlations were found between birth order and number of children and English measures of semantics. The findings in this current study suggest that earlier born siblings and fewer siblings in the family were related to higher English semantics scores. In addition, these variables were also linked to higher levels of English proficiency as determined by their performance in TNW and NDW.

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INTRODUCTION

Across languages, social context plays a major role in supporting child language development. Language experience in the home accounts for the majority of early exposures children encounter during the language acquisition period and is significantly associated with overall language development (Scheele, Leseman, & Mayo, 2010). These social experiences include the interactions children have with various sources of language, such as interactions with parents, through watching television and with their siblings at home. Furthermore, research reveals that conversational settings and conversational partners affect the quality of vocabulary that children use (Hoff, 2010). Although researchers have studied the effect of siblings and language development in monolingual children, there is limited research regarding siblings and bilingual language development (Duursma, Romero-Contreras, Szuber, Proctor, Snow, August, & Calderon, 2007, Hoff, 2006, Hoff, 2010). The purpose of this study is to investigate whether there is a relationship between bilingual children's birth order or number of children in a family and their level of language proficiency in two languages.

In the United States, one in five children live in households in which a language other than English is spoken (Federal Interagency Forum on Child and Family Statistics, 2011). Because English language learners (ELLs), or children who speak a minority language in the United States are at heightened risk of academic difficulties (National Center for Education Statistics [NCES], 2006) it is important to better understand their language learning environment. With the increase of children entering public schools from these households, the need to understand which factors create variability during bilingual language development is warranted (Bridges & Hoff, 2014).

Among ELLs, in the United States, Latino children are the largest minority group and are the most likely to experience academic delays (Simon-Cereijido, Gutiérrez-Clellen, & Sweet, 2012, Lugo-Neris, Jackson, & Goldstein, 2010). The current study will examine if siblings are a useful source of language exposure in bilingual English-Spanish children.

Bilingual language acquisition depends on the amount and nature of language exposure to both languages (Hoff, 2013). Pearson, Fernandez, Lewedeg & Oller (1997) revealed a significant relationship between the quantity of exposure in a given language and the amount of vocabulary learned for bilingual children. However, not all bilingual children may have sufficient language exposure to each of their languages. This may explain why many children from language minority homes may not reach the same levels of language proficiency as their monolingual peers in early school age (Hoff, 2013).

Currently, the factors that influence bilingual development during preschool age are not understood very well. The number of existing studies in early bilingual development is relatively small (Hoff, Core, Place, Rumiche, Señor, & Parra, 2012). Therefore, it is important to investigate what the early factors are that contribute to language development in order to promote and facilitate skills prior to school entry.

BIRTH ORDER INFLUENCE ON LANGUAGE DEVELOPMENT

The extant literature suggests that older siblings and younger siblings have different language experiences with the type of input they receive (Hoff, 2006, Duursma et al., 2007). Specifically, researchers have revealed that the linguistic environment of later-born children is both qualitatively and quantitatively different than that from first-born children (Oshima-Takane & Robbins, 2003). Some researchers suggest that first-

born children are likely to receive more one-on-one child directed speech, or “motherese”, from the mother than the child who is born later (Pearson et al., 1997). Another factor that may explain the variability in language development among siblings includes the amount of interactions that children have with adults. Hoff (2006) reported that first born-children are temporarily the only children in the family, which increases opportunities to interact with adults, as well as, more interactions with child-directed speech. Furthermore, the presence of older siblings in triadic interactions reduces the amount of mothers’ utterances to later-born children (Oshima-Takane & Robbins, 2003). This finding has been suggested to limit the amount of language learning opportunities that younger children may encounter (Wellen, 1985). However, other researchers have proposed some benefits of older siblings on language development in younger children. For example, Oshima-Takane and Robbins (2003) suggested that later-born children are exposed to more diverse and richer language models, which increases overall language learning opportunities.

The result of differing qualitative and quantitative linguistic environments is differences in language acquisition. Previous researchers have studied the effects of birth order on composition of vocabulary. For example, first-born children tend to show a referential type of vocabulary acquisition (i.e. naming or labeling objects or events), while later-born children are more likely to use expressive language (i.e. personal-social words) (Oshima-Takane & Robbins, 2003). Hoff (2006) suggests that this difference could contribute to an early advantage in developing vocabulary and syntax for first-born children. On the other hand, later born children may become more skilled in acquiring pragmatic language skills. In addition to differing interaction styles, siblings also play an active role in shifting the home language.

In an ethnographic report, Obied (2009) studied how siblings influence home language environments in four bilingual Portuguese-English families living in Portugal. The author noted that the younger siblings in her study demonstrated a preference in using the dominant language of the country, Portuguese. In addition, she discovered that younger siblings caused language shifts in the home. These shifts involved changing language dynamics in the household. For example, the younger sibling in the first family studied caused the one-parent one-language household (i.e. one parent spoke English, one parent spoke Portuguese) to shift towards a mainly Portuguese-dominant household by preferring to speak in the culturally dominant language.

Moreover, Obied (2009) indicated that older siblings can be a different and valuable source of exposure to the dominant language in some low socioeconomic, immigrant households. This is because older siblings tend to bring the dominant language (e.g. the language used at school and in the community) to the home. Additionally, older siblings may take on the role of language mediators in the home and can help scaffold language. The author suggested that shared sibling support should be encouraged and supported by the parent through home literacy practices.

In a study by Bridges and Hoff (2014), older siblings, who attended school, used English more often when talking to their younger siblings than did other family members. Subsequently, toddlers with older siblings were more advanced in English language when matched with toddlers without siblings. According to Hoff (2013), children who have several examples of English from different conversational partners have more advanced English language skills. This finding is consistent with a previous finding by Duursma et al. (2007) who revealed that the language preferred in sibling interactions had a larger effect on English proficiency than the language used by parents. In the United States, the dominant community language is most often the same language used in peer-to-peer

interactions (Bridges & Hoff, 2014). Thus, younger siblings in the United States are more likely to engage in this dominant language with siblings.

The existing literature suggests that vocabulary development is more sensitive to the linguistic environment than syntactic development (Hoff, 2006, Bridges & Hoff, 2014). Although the authors discovered a positive correlation between older siblings and grammatical development, the correlation between vocabulary development was stronger than its correlation with grammatical development (Bridges & Hoff, 2014). The current study will investigate both grammatical and vocabulary development in bilingual children with siblings.

SOCIOECONOMIC STATUS ON LANGUAGE DEVELOPMENT

Proximal and distal factors have been closely related to language development in both monolingual and bilingual children. Proximal factors include interactive maternal styles, such as the types of questions mothers asked their children during shared book reading, whereas, distal factors involve familial language use and socioeconomic status (Quiroz, Snow, & Zhao, 2007). Socioeconomic status (SES), usually defined by maternal education level, occupational prestige, and income, is found to be associated with language development (Hoff, 2006). In Duursma et al. (2007), the authors confirmed that the relationship between familial SES and the frequency in which parents talk to their children is closely related to vocabulary acquisition in monolingual English children in the United States. Hoff (2006) suggested that families with low SES might provide fewer language experiences compared to high SES families. Previous research has also confirmed differences in home literacy practices and access to printed materials (i.e. children's books) in different social classes (Duursma et al., 2007). Other research has reported that children from higher SES homes outperform children that come from lower

SES homes on standardized language tests (Hoff, 2012). The current study will examine children from middle to low SES, with the majority of children coming from low SES households.

Consequently, lack of resources or rich literacy experiences will most likely result in an less sophisticated lexical system in bilingual children. From what is known about language development in monolingual children, vocabulary is a strong predictor for literacy and later academic success (Hoff, 2013, Duursma et al., 2007). Additionally, Duursma et al. (2007) reported that poor, minority, urban, and non-English speaking immigrant children in general had more difficulty in learning to read than the average student. Researchers have concluded that the poor performance of Latinos is widely acknowledged; however, they have yet to fully explain the reasons. Since minority languages and low SES variables occur together, it is essential to research factors that may facilitate language development especially for English language learners (ELLs).

In order to become successful both academically and socially, children from linguistic minority families must learn the language of the society. Duursma et al. (2007) reported that the language used in sibling interactions had a much larger effect on English proficiency than the language preferred by the parents. Therefore, using this notion we can explore the effects that siblings have on language development and how we can maximize these benefits to facilitate academic success in ELLs.

In Quiroz et al. (2007), Spanish vocabulary scores were positively influenced by home literacy factors and the use of Spanish in the home. Children in families that used more Spanish tended to have higher Spanish vocabulary scores while more familial experience in English was negatively tied to lower Spanish scores. English vocabulary scores were positively related to the amount of English used when speaking to mothers,

fathers, and older siblings. In addition, the amount of English that older siblings used with the participants was positively related to English language scores.

Hoff (2012) reported that children who hear English from several sources have more advanced language skills than children who have fewer sources of English exposure. Furthermore, Oshima-Takane and Robbins (2003) revealed that later-born children are exposed to more varied and richer English language models. They concluded that the more older siblings in the family, the more varied the types of language learning opportunities are for children born later. This is imperative for children who may be at risk for language delay due to lack of language exposure.

THE CURRENT STUDY

The main focus of this study is to determine if birth order and/or number of children in a family are related to language development. Measures of vocabulary and grammar are related to the amount of input in the corresponding language (Shintani, 2012). Therefore, measures of semantic and morphosyntax were investigated to determine children's language abilities. Semantic, or word meaning, abilities were chosen to study vocabulary skills, while morphosyntax abilities were chosen to study grammatical development. Given the previous research (Oshima-Takane & Robbins, 2003, Bridges & Hoff, 2014, Hoff, 2006), it was hypothesized that children with more siblings would have higher levels across measures of language ability in both English and Spanish.

The purpose of this study is to investigate if a relationship between bilingual children's birth order and their level of English and Spanish morphosyntactic and semantic abilities. The specific research questions asked in this study were:

1. What is the relationship between birth order and language development in bilingual Spanish-English children as measured by semantic and morphosyntactic performance?
2. Is birth order associated with semantic and morphosyntactic performance in Spanish and/or English?
3. Is the number of siblings associated with semantic and morphosyntactic performance in Spanish and/or English?

METHOD

This study incorporated a secondary data analysis from the development and validation data study for the development of the *Bilingual English Spanish Assessment (BESA)* (Peña, Gutiérrez-Clellen, Iglesias, Goldstein, & Bedore, 2014). The data set for the current study utilized scores from the semantic and morphosyntax subtests from the preliminary version of the *BESA*, measures from language samples, language surveys, and parent interviews. This study analyzed these data to investigate the possible relationship between birth order and language proficiency in bilingual children.

PARTICIPANTS

The current study focuses on a total of 49 bilingual children (25 females, 24 males) between the ages of 4;6- 7;0. From the first phase of the *BESA* norming study, 49 of 800 children were selected on the basis of: (1) having a completed parent questionnaire data regarding siblings in the household, (2) having at least one sibling in the family, and (3) testing in both English and Spanish on measures of morphosyntax and/or semantics.

Participants were recruited from elementary schools in Texas, California, and Pennsylvania. Bilingual status was determined by the information collected from language surveys administered during parent interviews. Children were considered bilingual if their output levels reached at least 20% in both English and Spanish. Information regarding household family members and basic demographic information was also obtained through parent interviews. Table 1 shows an overall description of the participants.

Parents were interviewed using the preliminary language surveys developed for the *BESA*. The surveys elicited information regarding language use in both English and

Spanish. Parents were asked to list family members living in their households, the relationship to the child, and number of years living in the United States. This information yielded information about the number of siblings and birth order for each participant.

Table 1. Description of participants

Participants	
<i>N</i>	49
Age	4;6- 7;0
Sex	25 Females 24 Males
Child Educational level	Pk-1 st
Geographical distribution	Austin, TX (<i>N</i> =37) San Diego, CA (<i>N</i> =9) Philadelphia, PA (<i>N</i> =3)

DATA COLLECTION

Interviews were conducted by phone or in person. Bilingual interviewers interviewed parents in the language that they were most comfortable speaking. Parents were interviewed during the original study in order to attain basic demographic information, information about household family members, and information about the children's current language use (Gutiérrez-Clellen & Kreiter, 2003). Information about parent's highest level of education, number of family members in the household, family members' education level, and the number of years family members have lived in the United States was collected during this time. Language surveys were administered to parents in order to report children's language input and output on an hour-by-hour basis

on a typical weekday and weekend day (Gutiérrez-Clellen & Kreiter, 2003). The number of hours of exposure to each language was computed and converted into percentages.

Trained bilingual research assistants collected data at the participants' schools. All testing occurred during regular school hours. Each participant was administered a preliminary version of the *Bilingual English Spanish Assessment (BESA)* (Peña, Gutiérrez-Clellen et al., 2014). The *BESA* is a standardized assessment of language development of bilingual Spanish-English children. The assessment contains semantic, pragmatic, phonology, and morphosyntax test items in English and Spanish, and was normed on a variety of Latino children (i.e. 16 dialects of Spanish). Examiners administered the *BESA* each participant individually. Participants were tested in the target language (i.e. English or Spanish) for that day. The order of language selection was counterbalanced across data collection. All responses were recorded for later scoring and then entered into a spreadsheet. Reliability was accounted for by the use of second raters. Second raters reviewed responses, transcriptions, and item scores (Peña et al., 2014, Gutiérrez-Clellen et al., 2006). Disagreements about scores were resolved by consensus by a third judge.

The primary variables used in this study involved morphosyntax and semantic language performance. During semantic testing, responses were accepted in either language (Peña, Bedore, and Kester, 2014). However, during morphosyntax testing, participants could only receive credit for responding in the target language. Total raw scores for each subtest were collected and then analyzed.

Language samples were also collected in English and Spanish to further examine participants' language abilities during the norming phase. Participants were asked to retell narratives using wordless picture books. The narratives were transcribed using the Systematic Analysis of Language Transcripts (SALT) software (Miller & Iglesias, 2008).

Total number of words (TNW), number of different words (NDW), and mean length of utterances in words (MLUw) was generated automatically using the SALT productivity measures. These data were entered into the database for each child. The present study used English TNW, NDW, and MLUw to further determine English productivity measures.

ANALYSES

The investigator analyzed subject demographics and language scores (e.g., English and Spanish morphosyntax and semantic scores; English TNW, NDW, and MLUw) and their associations with language exposure, birth order, number of children in the family. The examiner was interested in exploring if birth order and number of children in the family was associated with language productivity in grammar, semantics, and vocabulary. All analyses were conducted using SPSS software version 21 (SPSS Inc., Chicago, Illinois, USA).

RESULTS

The primary purpose of this investigation was to determine if birth order or number of siblings is associated with bilingual language development. First, we report the means and standard deviations for language measures in Spanish and English and for productivity measures derived from language samples. Next, correlations with birth order and number of siblings is reported.

Table 2 describes the mean and standard deviations of the morphosyntax and semantics scores from the *BESA* in English and Spanish. Overall, it appeared that children as a group scored similarly across languages for each measure. Children scored higher ($M= 35.05$) in English morphosyntax compared to Spanish morphosyntax ($M=30.727$). On the semantics subtest, children scored similarly ($M=17.27$) in Spanish and English ($M=15.24$). Table 2 also describes the mean and standard deviation of productivity measures derived from language samples. These variables included total number of word (TNW), number of different words (NDW), and mean length of utterance in words (MLU_w) in English.

Table 2. Mean scores and SD for morphosyntax, semantics, and English productivity

	<i>Mean</i>	<i>Standard Deviation</i>	<i>N</i>
Morphosyntax			
English	35.05	13.72	40
Spanish	30.727	13.43	44
Semantics			
English	15.24	5.09	46
Spanish	17.27	4.84	49
English Productivity			
TNW	450.23	183.171	30
NDW	138.6	31.3	25
MLU _w	5.3	1.7	25

The primary analyses conducted in this investigation were bivariate correlations, or Pearson's r . Pearson's r was calculated between birth order and number of siblings and the following variables: English morphosyntax scores, Spanish morphosyntax scores, English semantic scores, Spanish semantic scores, TNW, NDW, and MLUw in English.

MORPHOSYNTAX

Bivariate correlate analyses were conducted to determine if the relationship between birth order, number of children, and morphosyntactic abilities. Table 3 summarizes these results. Correlations among birth order and morphosyntax scores ranged from -0.046 to -0.129. Correlations among number of children and morphosyntax scores ranged from -0.123 to -0.221. No significant correlations were found between birth order and number of children and morphosyntax scores across languages.

Table 3. Correlations between morphosyntax and birth order and number of children

	<i>Birth Order</i>	<i>Number of Children</i>
Morphosyntax		
English	-0.129	-0.221
Spanish	-0.046	-0.123

Note: * = $p < .05$; ** = $p < .01$; *** = $p < .001$

SEMANTICS

Bivariate correlation analyses were conducted to determine the relationship between birth order, number of children, and semantic abilities. Table 4 summarizes these results. Correlations between birth order and semantic scores ranged from -0.047 to -0.396. Correlations between number of children and semantic scores ranged from -0.131 and -0.337. No significant correlations were found between birth order or number of

children among Spanish semantic scores. However, significant correlations were found between birth order and English semantics, with a correlation of -0.396 at $p < .01$. Additionally, number of children and English semantics were also significantly correlated at -0.337 at $p < .01$. The results from these analyses suggest that earlier birth orders, as well as fewer children in the family are associated with higher English semantic scores. No relationships were found between Spanish semantics and birth order or number of children in the family.

Table 4. Correlations between semantic scores and birth order and number of children

	<i>Birth Order</i>	<i>Number of Children</i>
Semantics		
English	-0.396^{**}	-0.337^{**}
Spanish	-0.047	-0.131

Note: * = $p < .05$; ** = $p < .01$; *** = $p < .001$

PRODUCTIVITY MEASURES

To further examine the relationship between the effects of siblings on English productivity, bivariate correlation analyses were also conducted between birth order, number of children, TNW, NDW, and MLUw. Table 5 summarizes these results. No significant correlations were found between birth order and TNW, NDW, or MLUw. Number of children was significantly correlated with TNW at -0.443 at $p < .05$ and with NDW at -0.433 at $p < .05$. However, the correlation between number of children ($r = -0.201$) and MLUw was not significant. Results from this analysis suggest that earlier birth order and fewer children in a family are also associated with higher TNW and NDW in English.

Table 5. Correlations between productivity measures and birth order and number of children

	<i>Birth Order</i>	<i>Number of Children</i>
English Productivity Measures		
TNW	-0.325	-0.443*
NDW	-0.276	-0.433*
MLU _w	-0.071	-0.201

Note: * = $p < .05$; ** = $p < .01$; *** = $p < .001$

DISCUSSION

The main goal in the study was to determine if a relationship between birth order and language development in bilingual Spanish-English children exists. Specifically, the questions asked in this study investigated if birth order or number of siblings in a family were positively associated with English semantics and morphosyntax, Spanish semantics and morphosyntax, or expressive English measures.

Data from a previous study was analyzed to establish descriptive statistics and correlation coefficients. Children's morphosyntactic and semantic skills were derived from their respective subtests of the *Bilingual English Spanish Assessment (BESA)* (Peña, Gutiérrez-Clellen et al., 2014) in both English and Spanish. In addition, English productivity measures were examined to determine a relationship between English output and birth order and number of children. These measures included total number of words (TNW), number of different words (NDW), and mean length of utterance in words (MLUw) from language samples in English. Correlational analyses were conducted between birth order and number of children in a family and morphosyntax and semantic scores in English and Spanish. Additionally, correlational analyses were also conducted between birth order and number of child and English productivity measures.

FINDINGS

Overall, significant correlations were not found between birth order or number of children with neither Spanish measures or English morphosyntactic abilities. However, significant correlations were found between birth order and English semantic scores ($r=-.396$) and number of children and English semantic scores ($r=-.337$). These results suggest that earlier born children and having fewer siblings are related to more advanced English vocabulary skills. Additionally, it was discovered that number of siblings

correlated to TNW ($r = -.443$) and NDW ($r = -.433$) in English. Similarly, these results suggest that fewer siblings are also related to higher English productivity. Notably, TNW had slightly higher relations with number of siblings than NDW did. In summary, the findings in this study converge with the hypotheses that earlier born children have an advantage in developing vocabulary and grammar skills (Oshima-Takane & Robbins, 2003, Hoff, 2006).

Previous researchers (Bridges & Hoff, 2014) reported that older siblings serve as a significant source of language exposure to bilingually developing children. However, the findings in the present study did not reveal any significant associations between birth order or number of siblings across Spanish measures. Additionally, no significant correlations were discovered between birth order or number of siblings in English morphosyntactic abilities. Therefore, more research is needed to determine the significance of birth order in bilingual Spanish-English children.

CLINICAL IMPLICATIONS

Speech language pathologists (SLPs) working with children at risk for language delay or impairment may need to consider what types of language experiences the child encounters and how to enhance these experiences. One of these ways is consider the number of children in the family and the child's birth order. Given the information from this study, it may be useful to understand if the child is coming from a family where language must be divided between many children or between fewer. This information can be attained through language questionnaires. In addition, information regarding sibling status can be useful to implement home program exercises that parents can incorporate with their older children, who may be more proficient in the dominant language (Obied, 2009).

Nonetheless, early exposure and multiple sources to quality language experience can be beneficial to children in low SES, bilingual households. However, more evidence is needed to determine the effectiveness of using siblings as language mediators in bilingual households (Obied, 2009).

LIMITATIONS

One of the primary limitations of this study was the sample size. A larger sample size may have yielded stronger correlations between variables. In addition, it would have been beneficial to ask more specific questions about siblings. The questionnaires used in this study did not emphasize siblings since the original intention was to attain basic demographic information. Parents were interviewed about family members currently living in the household, number of years family members have been living in the United States, and highest level of education. Future research should alter the types of questions used to gather initial information from participants and their siblings. Specifically, it would be beneficial to gather information regarding siblings' current language status and preference of language. In addition, use of a control group would have been beneficial to compare between monolingual children with siblings or children without siblings.

It should be noted that the findings in this study may only be relevant to countries where only one language is considered the culturally dominant, while other languages are minority. This study may be different where the second language is spoken may be different than the culturally dominant language or in countries where two languages are considered dominant. The children used in this sample were children from the United States who were bilingual in Spanish and English, and the dominant language in their community was English.

Research should continue to study bilingualism in children by testing in both languages. Semantic knowledge is distributed across both languages in a bilingual (Peña et al. 2014). Therefore, testing in both languages should continue to be used in order to understand a bilingual individual's full capabilities. Previous research shows that single-language scores are lower when compared to scores from both languages. Using both languages can help account for bilingual children who may have varying experiences in each language. In addition, testing in both languages in morphosyntax helps account for the information bilingual children may know in one or the other language.

CONCLUSION

In conclusion, the present study's results revealed that earlier born children and fewer siblings were related to more advanced English skills. These results were inconsistent with previous research—that older siblings positively influence younger sibling's language development. Therefore, it is imperative to continue exploring factors that affect bilingual language proficiency to better understand what factors positively contribute to bilingual language development. Furthermore, a better understanding of bilingual development is crucial for assisting language minority children who are at risk for academic difficulties.

Overall, it is important to determine how valuable siblings can be on language proficiency, especially if the culturally dominant language differs. Some older siblings can bridge the language differences between the home and larger environments to facilitate language development in younger children (Bridges & Hoff, 2014).

REFERENCES

- Bialystok, E., Luk, G., Peets, K. F., & Yang, S.(2010). Receptive vocabulary differences in monolingual and bilingual children. *Bilingualism: Language and Cognition*, 13, 525–531.
- Bridges, K., and Hoff, E. (2014). Older sibling influences on the language environment and language development of toddlers in bilingual homes. *Applied Psycholinguistics*, 35, 225-241.
- Duursma, E., August, D., Calderon, M., Proctor, P., Romero-Contreras, S., Snow, C., and Szuber, A. (2007). The role of home literacy and language environment on bilinguals' English and Spanish vocabulary development. *Applied Psycholinguistics*, 28, 171-190.
- Federal Interagency Forum on Child and Family Statistics. (2011). *American's children: Key national indicators of well-being, 2011*. Retrieved from <http://childstats.gov/americaschildren/index.asp>
- Gutiérrez-Clellen ,V. F. & Kreiter, J. (2003) Understanding child bilingual acquisition using parent and teacher reports. *Applied Psycholinguistics*, 24, 267-288.
- Gutiérrez-Clellen, V. F., Restrepo M.A. & Simon-Cerejido, G. (2006). Evaluating the discriminant accuracy of a grammatical measure with Spanish-speaking children. *Journal of Speech, Language, and Hearing Research*, 49, 1209-1223.
- Gutiérrez-Clellen, V.F., Simon-Cerejido, G. (2007). The discriminant accuracy of a grammatical measure with Latino English-speaking children. *Journal of Speech, Language, and Hearing Research*, 50, 968-981.
- Gutiérrez-Clellen, V. F., & Simon-Cerejido, G. (2009). Using language sampling in

- clinical assessments with bilingual children: Challenges and future directions. *Seminars in Speech and Language, 30*, 234–245.
- Hoff, E. (2006). How social contexts support and shape language development. *Developmental Review 26*, 55-88.
- Hoff, E. (2010). Context effects on young children’s language use: The influence of conversational setting and partner. *First Language, 30* (3-4), 461-472.
- Hoff, E. (2013). Interpreting the early language trajectories of children from low-SES and language minority homes: Implications for closing achievement gaps. *Developmental Psychology, 49*, 4-14.
- Hoff, E., Core, C., Place, S., Rumiche, R., Senior, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of Child Language, 22*, 1-27.
- Hoff, E., & Tian, C. (2005). Socioeconomic status and cultural influences on language. *Journal of Communication Disorders, 38*, 271–278.
- Lugo-Neris, M., Jackson, C., & Goldstein, H. (2010). Facilitating vocabulary acquisition of young English language learners. *Language, Speech, and Hearing Services in Schools, 41*, 314-327.
- Miller, J., & Iglesias, A. (2005). Systematic analysis of language transcripts – Salt v9. Language analysis Laboratory Waisman Center. Madison: University of Wisconsin.
- National Center for Education Statistics. (2006). *The condition of education 2006 (NCES Statistical Report 2006-071)*. Washington, DC: US. Department of Education.
- Obied, V. (2009) How do siblings shape the language environment in bilingual families?, *International Journal of Bilingual Education and Bilingualism, 12:6*, 705-720.
- Oshima-Takane, Y., & Robbins, M. (2003). Linguistic environment of secondborn children. *First Language, 23(1)*, 021-040.

- Pearson, B. Z., Fernandez, S. C., Lewedeg, V. & Oller, D. K. (1997). The relation of input factors to lexical learning by bilingual infants. *Applied Psycholinguistics*, 18, 41–58.
- Peña, E, Bedore, L, & Kester, E. (2014). Discriminant accuracy of a semantic measure with Latino English-speaking, Spanish-Speaking, and English-Spanish bilingual children. *Journal of Communication Disorders* 53, 30-41.
- Peña, E.D., Gutiérrez-Clellen, V.F., Igelsias, A., Goldstein, B.A. & Bedore, L.M. (2014). *Bilingual English Spanish Assessment (BESA)*. AR Clinical Publication: San Rafael, CA.
- Quiroz, B., Snow, E., and Zhao, J. (2010). Vocabulary skills of Spanish-English bilinguals: impact of mother-child language interactions and home language and literacy support. *Intervention Journal of Bilingualism*, 14, 379-399.
- Quiroz, B., & Dixon, L. (2012). Mother-child interactions during shared literacy activities: Education in a fractured bilingual environment. *Journal Of Early Childhood Literacy*, 12(2), 139-175.
- Scheele, A., Leseman, P., and Mayo, A. (2009). The home language environment of monolingual and bilingual children and their language proficiency. *Applied Pyscholingustics*, 31, 117-140.
- Shintani, N. (2012). Input-based tasks and the acquisition of vocabulary and grammar: A process-product study. *Language Teaching Research*, 16(2), 253-279.
- Simon-Cereijido, V., Gutiérrez-Clellen, G., & Sweet, M. (2012). Predictors of second language acquisition in Latino children with specific language impairment. *American Journal Speech Language Pathology*, 21(1), 71-77.

SPSS for Windows. (2011). Release 11.0.1 [Computer software]. Chicago, IL: SPSS Inc.

Wellen, C.J. (1985). Effects of older siblings on the language young children hear and produce. *Journal of Speech and Hearing Disorders*, 50, 84-99.