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The effect of summer vacation on bilingual preschoolers' language development

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Abstract

The purpose of the investigation was to examine the developmental trajectories of bilingual preschoolers' comprehension of Spanish and English and to determine whether a lengthy summer vacation impacted children's development during the preschool years. Participants included 83 bilingual children who were followed over a 2-year period during which time children attended a federally funded preschool programme for children from low-income homes living in the US. Children were divided into two groups based on whether their scores on receptive language measures increased or decreased during their first year of Head Start. Results revealed that children whose scores increased experienced positive growth in their language comprehension in Spanish and English over the 2-year period, whereas children whose scores decreased during the first year continued to experience a negative developmental trajectory in their second year. Additionally, it was found that a lengthy summer vacation had a differential effect on children's development. Summer vacation had a negative effect on the developmental trajectories of children who experienced gains in their comprehension of English and Spanish and a positive impact on children whose scores declined during the school year. Clinical implications suggest that children may require differential support during the school year and summer vacation depending upon their developmental trajectories during the first year in preschool.

Keywords

Bilingual ; language development ; preschoolers ; Latino ; Hispanic ; summer ; Head Start ; school calendar

Introduction

According to the US Census bureau, the Latino population is growing faster than any other population in the US, and constitutes the youngest population, with 16% of all children under the age of 18 being Hispanic. Of these children, 25% live in homes in which Spanish

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is the predominant language and an additional 17% come from homes in which Spanish and English are used equally (Llagas & Snyder, 2003). As a result, attention in the US has become more focused on the language-learning and educational needs of bilingual children. Nonetheless, the developmental trajectories of bilingual children's language abilities in Spanish and English are not well understood. Given that language serves as the foundation for later reading and writing abilities (Catts, Fey, Zhang, & Tomblin, 1999; Joanisse, Manis, Keating & Seidenberg, 2000; Tomblin, Zhang, Buckwalter, & Catts, 2000; Scarborough, 2001; Storch & Whitehurst, 2002; Lindsey, Manis, & Bailey, 2003; Manis, Lindsey, & Bailey, 2004; Hammer, Lawrence, & Miccio, 2007), more information is needed on how bilingual children's language development occurs over time. Such information will provide valuable information to clinicians working with bilingual children in educational settings. This investigation begins to address this need by examining the developmental trajectories of bilingual preschoolers who attended Head Start, a federally supported preschool programme for children from low-income families, for 2 years. A factor considered in this investigation was the timing of children's exposure to English in relation to school entry. It is argued that the development of children who were exposed to English before they began school may have different developmental trajectories than children who were not exposed to English until they started attending school (Oller & Eilers, 2002; Butler & Hakuta, 2004; Genesee, 2004). In addition, the effect of summer on children's developmental trajectories was investigated. As will be discussed, summer vacation has been shown to have detrimental effects on the learning of children from low-income homes who are monolingual speakers of English as compared to children from middle-income homes. Findings from these investigations of summer effects on children's learning motivated this study on the language development of Spanish-English bilingual preschool children living in the US.

Bilingual children's language development

Investigations of bilingual children's language development have traditionally classified children as being either sequential or simultaneous learners of two languages (McLaughlin, 1984; Genesee, Paradis, & Crago, 2004). Although consensus has not been reached as to the age at which children are considered sequential learners, it is generally thought that differences in children's acquisition of two languages depend upon whether the second language is introduced before or after children establish a foundation in one language (Genesee et al., 2004). Specifically, it is asserted that if a second language is introduced after the first is established, children can use their knowledge of language to assist them in acquiring the second language (Cummins, 1979; 2001; Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Goldenberg, Rezaei, & Fletcher, 2005). More recently, researchers have argued that the introduction of a second language in relation to school entry is a key variable that needs to be considered when studying bilingual children's language development (Oller & Eilers, 2002; Butler & Hakuta, 2004; Genesee, 2004). This is because findings from studies that focus on children's development in the home may not inform one's understanding of the development of children who experience a change in input due to external factors, such as entrance into school. School settings may have influences that are not present in non-school settings, but which impact children's maintenance of their native language and acquisition of a second language.

Support for this assertion has been provided by Oller and Eilers' (2002) cross-sectional study that compared the language development of kindergarteners, second graders and fifth graders who were exposed to English before and after school entry. Spanish–English bilingual children who lived in the US were divided into two groups: (a) children from families that spoke Spanish and English in the home before school entry and (b) children from families that only communicated in Spanish prior to school entry. Results revealed that children who were exposed to both languages at home prior to entrance into school scored higher on English receptive and expressive vocabulary measures than children who were not exposed to English until they entered school. The differences decreased between the second-grade groups and were not apparent between the fifth-grade groups. With regard to children's Spanish vocabulary abilities, children from homes in which Spanish was the only language spoken outperformed children from bilingual homes at all grade levels.

Building on the work of Oller and Eilers (2002), Hammer, Lawrence, and Miccio (2008) examined whether differences existed between the developmental trajectories of bilingual children who were exposed to Spanish and English before birth (i.e. Home English Communication, HEC group) and those who were not exposed to English until entry into Head Start (i.e. School English Communication, SEC group). Specifically, children's comprehension of English and Spanish was assessed in the fall and spring of the children's 2 years in Head Start, during which time instruction was provided primarily in English. The following hypotheses were tested: (1) differences would be found between the two groups' language abilities when the children entered Head Start, with children who were exposed to both languages at home having higher English skills and children who were exposed to only Spanish would have higher Spanish abilities; (2) children in both groups would experience similar gains in their English language development; and (3) children who were not exposed to English at home before school entry (SEC) would experience more positive growth in their Spanish language development in comparison to children who were exposed to both languages (HEC).

The results confirmed the first and second hypotheses. Children with exposure to two languages in the home had higher English language comprehension at the beginning of Head Start than children who were not exposed to English until Head Start entry. Similarly, children who were exposed to only Spanish in the home demonstrated higher Spanish abilities than children who experienced both languages in the home. With regard to the second hypothesis, children in both groups experienced similar gains in English language comprehension, as measured by standard scores, over the 2 year period. The third hypothesis was not supported. No difference was observed in the rate of growth of children's comprehension of Spanish.

Summer vacation effects

Although research on children's development during the summer vacation months has focused on elementary school children's reading abilities, the findings of this body of work suggest that the effects of summer vacation warrant attention when studying the language development of bilingual children from low-income populations who have attended educational programmes. Specifically, a meta-analysis of 39 studies conducted by Cooper,

Nye, Charlton, Lindsay, and Greathouse (1996) concluded that children from homes of middle socioeconomic status (SES) displayed significantly greater absolute gains in overall reading abilities over the summer months whereas children from low-SES homes demonstrated declines in their scores, with the gap between low-SES and middle-SES children being 3 months, on average. In specific areas of reading, the reading comprehension abilities of middle-SES children declined but their reading recognition scores increased. The scores of low-SES children decreased significantly in both areas. Neither gender nor race impacted the effect of summer vacation on children's abilities.

Similar conclusions have been reached by two recent investigations. The first is a study of first- through fourth-grade students who attended schools in Baltimore, MD (Alexander, Entwisle, & Olson, 2001), and the second involves a secondary analysis of data from the Early Childhood Longitudinal Study–kindergarten cohort (ECLS-K) (McCoach, O'Connell, Reis, & Levitt, 2006). Both studies found that children from low-SES homes began school with reading abilities that lagged behind their middle-SES peers; however, low-SES children made gains during the school year that were comparable to those of middle-SES children. During the summer break, low-SES children either experienced a small decline or no growth in their reading abilities whereas middle-SES children's scores increased significantly.

No studies were located that had a primary goal of investigating the effects of summer on preschool and/or bilingual children's language learning. Hammer et al. (2008) touched on this issue in an investigation that examined whether children's growth in Spanish and English receptive language during children's 2 years in Head Start predicted children's Spanish and English early reading outcomes at the end of kindergarten. This study involved the same groups of bilingual preschoolers as discussed in Hammer et al. (2008). The investigation did not detect any differential effect of summer vacation.

It must be pointed out, however, that wide variations in scores were observed in the two participating groups of children and on both languages measures. This was not surprising, as not all characteristics of bilingual children's language learning experiences were captured when dividing children into two groups based on the timing of exposure to English. Bilingual children constitute a heterogeneous group, because they come from different social and economic circumstances and have histories that vary with regard to exposure to and use of each language (Bialystok, 2001; Genesee & Cenoz, 2001). In Hammer et al.'s (2008) investigation, inspection of individual trajectories revealed that individual children's Spanish and English abilities (as measured by standardized test scores) varied. Some children's scores increased during the first year in Head Start; whereas other children's scores declined. This was observed in both the HEC and SEC groups on all measures.

A primary aim of this investigation, which extended the results of Hammer et al. (2008), was to expand one's understanding of the developmental trajectories of bilingual language development of children in poverty. Because of the observed differences in the children's developmental trajectories noted above, children were separated into two groups based on whether their standard scores increased or decreased during their first year in Head Start. This approach was based on the assumption that children who exhibited positive trajectories during the first year of Head Start were qualitatively different from those whose scores

declined during the same period. A second aim was to increase one's understanding of how a lengthy summer vacation affects bilingual children's language development. Based on the research on the reading abilities of low-income children previously reviewed, it was hypothesized that summer vacation, which lasted 4 months, would have: (a) a detrimental effect on children's abilities in English, since children attended programmes which provided instruction in English, and (b) a positive impact on children's abilities in Spanish, because children spent more time in their homes and neighbourhoods and their exposure to Spanish would increase.

Method

Participants

Eighty-three bilingual children attending Head Start[1] classrooms located in urban centres in Central Pennsylvania participated in this study. Participating children had a mother who spoke a Puerto Rican dialect of Spanish, qualified financially for Head Start services for 2 years, passed a hearing screening, scored in the typical range on the *Denver II* (Frankenburg, Dodds, Archer, Bresnick, Maschka, Edelman, & Shapiro, 1990) and had no parent or teacher concerns about their development.

The children were placed into one of two groups based on maternal report of when the children were first exposed to and expected to communicate in English on a regular basis. Specifically, during a home visit conducted in the language of the mothers' choosing, mothers were asked to report the ages at which children were spoken to and expected to communicate in Spanish and English. Children with exposure to the two languages from birth were considered to have Home English Communication (HEC, n=52). Children who were talked to and communicated with others in Spanish from birth but who were not expected to communicate in English until they began attending Head Start were considered to experience School English Communication (SEC, n=31). It is recognized that children in the SEC group may have had some English exposure prior to Head Start; however, the children were not expected to communicate in English on a regular basis until entrance into Head Start (Kohnert, Bates, & Hernández, 1999; Hammer, Miccio, & Rodríguez, 2004).

Demographic information about the children and their mothers is provided in Table I. These data were collected from the mothers during home visits conducted by trained bilingual home visitors. Mothers reported the number of years they attended school, their work status (i.e. employed, not employed), their ages, their children's birth dates, their birthplace (i.e. US Mainland or Puerto Rico), and the birthplace of their children. As can be seen, children in both groups were 3 years 9 months of age, on average, at the beginning of the investigation. Thirty-three of the children were males and 50 were females. A larger percentage of children and mothers in the HEC group than those in the SEC group were born on the US mainland. The mothers in both groups averaged an eleventh grade education and approximately half of the mothers worked outside the home. No differences were found between the two groups with regard to maternal education or employment (p>.05).

[1]Head Start is a federally-funded, preschool programme in the US that serves children and families of low socioeconomic status.

During their 2 years in Head Start, children attended English immersion classrooms. Many of the children who *only* spoke Spanish when entering their first year in Head Start were placed in classrooms in which a teacher or a classroom assistant spoke Spanish. It should be noted, however, that only three of the 20 teachers and half of the classroom assistants were bilingual. Additionally, the teachers were required to meet the needs of the monolingual White and African American children who were enrolled in their classrooms. Therefore, English was the language of instruction in all classrooms.

Systematic observations of language usage in the classroom were beyond the scope of this investigation; however, informal observations of the classrooms revealed that usage of Spanish occurred infrequently. Spanish was not used during large or small group instruction. Spanish-speaking teachers and assistants rarely spoke Spanish to children, and, when they did, Spanish was used on an individual basis with children who did not understand English and was used in restricted situations (e.g. repeating a direction in Spanish that the child did not understand and could not follow by watching others in the classroom). Individualized usage of Spanish decreased quickly as the children's length in the programme increased. Promotion of children's English language abilities was the goal of the Head Start programme.

The school year began in the middle of September and continued through to the middle of May. This resulted in a 4-month period in which the children had a summer vacation from Head Start.

Procedures

Children's receptive language abilities were assessed in the fall and spring of the children's 2 years in Head Start. Trained data collectors whose native language was either Spanish or English tested children in the respective languages.

Specifically, children's understanding of English was evaluated through the receptive language subtest of the *Test of Early Language Development -3* (*TELD-3*; Hresko, Reid, & Hammill, 1999). The *TELD-3* is a standardized instrument designed for use with children aged 2–7 years. The receptive language subtest contains 37 items. The *Preschool Language Scale-3* (*PLS-3*; Zimmerman, Steiner, & Pond, 1992) was used to assess the children's understanding of Spanish. The *PLS-3* can be used to evaluate the language abilities of children from birth through to age 6, and the auditory comprehension subtest contains 48 items. Both the *TELD-3* and *PLS-3* assessed children's receptive vocabulary, comprehension of concepts, and understanding of grammatical structures. The internal inconsistency coefficients for the *TELD-3* and *PLS-3* ranged from .90–.95 and .75–.88, respectively. Both tests were normed on monolingual populations. They were used with this population because no standardized tests developed for bilingual children existed when the data were collected.

Data analysis

Growth curves have been applied to bilingual children's language development (Hammer et al. 2007; 2008), because of their utility in explicating change (Kshirsagar & Smith, 1995;

Cudeck, 1996; Heo, Faith, Mott, Gorman, Redden, & Allison, 2004). Growth curve utility is derived from their flexibility.

A frequently used moderator of change (e.g. Duncan & Duncan, 1994) is group membership. Group membership may arise from a number of sources. For example, a naturally occurring grouping is socioeconomic status (e.g. Sayer & Willett, 1998). On the other hand, groups may arise artificially as in assignment to treatment condition (e.g. Slater, Kelly, Edwards, Thurman, Plested, Keefe, Lawrence, & Henry, 2005). In the literature, bilingual children may be grouped by their exposure to language; e.g. HEC and SEC. In this investigation, children were grouped by the type of growth in language comprehension that they experienced during their first year in Head Start.

The modelling for this paper was conducted using linear mixed models. As discussed in two articles by Hammer et al. (2007; 2008), Markov Chain Monte Carlo (MCMC) methods were used to determine the distribution of the parameter estimates and compute confidence intervals around those estimates. In the tables in the results section, the lower, middle, and upper points for the 95% confidence interval are reported. If the confidence interval does not contain zero, the parameter estimate is significant.

The time metric used to construct the growth curves was measurement occasion. Measurement occasions were recorded as ordinal data. The time metric was centred at the first measurement occasion, because we wanted the intercept to represent the child's initial score and the slope to represent the child's linear rate-of-change over the period in Head Start. All models were estimated using the R-software, version 2.4.1 (R Core Development Team, 2006).

Growth curve models were constructed for each of the standardized outcome measures (*TELD-3, PLS-3*) to examine children's developmental patterns. In reporting the results, the model with the largest likelihood was selected as being the model, of those considered, to approximate the data generation process. Standard scores were examined because these measures evaluate child relative progress. A flat slope (or zero rate of change) over measurement occasions indicates normal progression. That is, the standardized scores of monolingual children with typical development stay relatively constant over the course of their development. A significant deviation from this indicates a higher or lower rate of development (or rate of change) as compared to the normative samples of the standardized tests. By dividing the bilingual children in this sample based on whether the children displayed positive or negative trajectories, we were able to investigate the developmental trajectories of children whose scores progressed at a faster rate and slower rate than the normative sample.

Results

Children's English receptive language

Descriptive information—To illustrate the heterogeneity that existed within the HEC and SEC groups, descriptive information for the children's observed standard scores on the receptive language subtest of the *TELD-3* is provided in Table II. There is a monotonic

increase in the mean score over time for children in the HEC and SEC groups. Still, at each measurement occasion, the mean score for the children in the HEC group is higher than the mean score for the children in the SEC group. The score dispersion, as evaluated using the standard deviation, is larger for children in the HEC group at each time point. The implication is that children in the HEC group begin at higher average standard scores compared to children in the SEC group; but, within the HEC group, individual children progressed at different rates. Because the dispersion of scores is smaller among the children in the SEC group, there is less heterogeneity in their developmental trajectories than in the HEC group.

The heterogeneity of development becomes more apparent when the individual trajectory plots are examined (see Figure 1). It is clear that some children have very positive developmental trajectories in their first year, whereas others experience negative trajectories. The developmental progressions of these groups are described in the following sections.

Children who experienced gains in Year 1—Twenty-nine children showed positive developmental trajectories between the fall and spring of their first year in Head Start. Of the 29 children, 15 children were in HEC group and 14 were in the SEC group. As seen in Table III, the observed median values for the standard scores in this group increased by 11 standard score points during the children's first year in Head Start. The median values are of particular interest, because if the distribution of scores was skewed to any degree, the mean might not represent the centre of the distribution; whereas the median score would.

The observed increase in scores during the first year was followed by a decline that was equivalent to the observed gain between the spring of children's first Head Start year and the fall of the children's second Head Start year. This period included 4 months of summer vacation during which time children were not attending a preschool programme. However, when these children returned to school their scores once again increased. The children's scores increased once again during the second year in Head Start. Overall, the children's standard scores increased a total of 10 points from the fall of their first year of Head Start to the spring of their second. Likewise, the dispersion increased during the school years but decreased between spring of the first year of Head Start and fall of the second. It appears as though this group of children became more homogeneous, but less skilled in English over the summer.

Table IV displays the results of the random slope model fit to the *TELD-3* for the group whose scores increased during the first year in Head Start. The estimates show that children in the HEC group had higher baseline scores than children in the SEC group (β=91.41, p<.05). The linear rate-of-change was positive for both groups over the 2 years (β=3.70, p<.05), and a summer vacation caused standard scores for children in both the HEC and SEC groups to decline (β=−5.27, p<.05).

Growth of children whose scores declined in Year 1—The group of children that experienced a decline in their English comprehension during year 1 of HS consisted of thirty-six children, 20 from the HEC group and 16 from the SEC group. As can be seen in Table V, the children's median standard scores on the *TELD-3* remained stable during the

first year of Head Start. The median values for the fall and spring of Year 1 do not display this decline, because the median value is a rounded estimate. The fact that rounding gives the perception of stability is indicative of just how small the decline in scores was. The true value, before rounding, demonstrated a decline. Therefore, individual children who had scores that declined, however slightly, were included in this group. Contrary to the behaviour of the previously described group, the scores of the children in the group increased between the spring of their first year in Head Start and fall of their second Head Start year, but once again declined during the second year. In general, the children experienced a net increase of 4.5 points over their 2 Head Start years. Contrary to the group whose scores gained, the dispersion of scores of the group whose scores declined increased over the summer.

Table VI shows the results of a random intercept model fit to *TELD-3* standard scores for the children in the group with declining scores. Similar to the group of children whose scores increased, children in the HEC group had higher *TELD-3* standard scores at intercept than children in the SEC group (β=77.52, p<.05). The linear rate-of-change was positive over the 2 years for both bilingual groups (β=4.12, p<.05). In contrast to the results for the children whose scores increased, the effect of summer was to increase the children's standard scores on the *TELD-3* for both bilingual groups (β=4.73, p<.05).

Children's Spanish auditory comprehension

Descriptive information—Table VII displays the average *PLS-3* standard score and standard deviation at each measurement occasion for both the HEC and SEC groups. The data imply that children's receptive knowledge of Spanish increased, but they were learning at different rates. Children in the SEC group had higher standard scores at each occasion and smaller standard deviations. Thus, it appears that the SEC group is more homogeneous on this outcome measure than the HEC group. For both bilingual groups the means increased over the first three measurement occasions and decreased at the last one.

Figure 2 shows the individual trajectories for the children's *PLS-3* standard scores. As in the previous figure, the trajectories were heterogeneous with some showing decline during year 1 while others increased.

Children whose scores gained—Table VIII shows the descriptive statistics for the 30 children whose *PLS-3* standard scores increased during their first year in Head Start. Within the group of children who showed a gain in standard scores over the first year of HS, 14 were in the HEC group and 16 were in the SEC group. *PLS-3* scores increased by at least 11 standard score points during each year in Head Start, but declined between the spring of the first year and the fall of the second year. At the end of the children's 2 years in Head Start, the children's standard scores had increased by 4 points. In addition, the dispersion decreased during the 2 years but increased during the period that included the summer months, meaning that children's development became more varied over the summer.

A random intercept, linear model was fit to the scores in this group. The 95% confidence intervals for the growth curve parameter estimates are displayed in Table IX. As can be seen, there was no discernable difference between the two bilingual groups' *PLS-3* standard

scores at baseline (β=5.97, *p*>.05), and the linear rate-of-change (β=1.10, *p*>.05) was not different than zero, indicating that growth in children's Spanish language comprehension did not occur over the 2 years. A drop in children's *PLS-3* standard scores (β=−6.15, *p*<.05) occurred between the end of the first year and the beginning of the second year of school. This decrease was not affected by the children's bilingual group.

Children whose scores declined—Of the children whose scores declined on the *PLS-3* (*n*=33) during the first year, 20 were in the HEC group and 13 were in the SEC group (see Table X). The children's scores declined by 5 points during their first year of Head Start and 10 points during their second year. In contrast to the children whose scores increased during the first year of Head Start, the scores of this group of children increased by 12 points over the summer vacation, which is a very large increase. Overall, the children experienced a net increase of 2.5 points over the 2-year period. The score dispersion was stable except for the fall of the second year. For that measurement, the standard deviation was 39% larger than it had been the previous spring. This implies that the children's Spanish abilities increased at much different rates during the summer.

Table XI displays the parameter estimates for the growth curve fit to those whose *PLS-3* standard scores declined during the first year of Head Start. The results revealed that children in the SEC group had a significantly higher intercept compared to the children in the HEC group (β7.41, *p*<.05). Although the linear rate-of-change was zero for this group (β0.24, *p*>.05), there was a significant increase in the children's *PLS-3* standard scores over the summer (β10.5, *p*=<.05).

Discussion

The body of research on Spanish–English bilingual children living in the US shows that it is difficult to generally describe children's developmental trajectories given that heterogeneity exists in children's backgrounds, in particular with regard to their exposure to and usage of Spanish and English in various settings. The work of Oller and Eilers (2002) and Hammer et al. (2007; 2008) indicates that the timing of children's exposure to school entry (i.e. exposure to English before and after entrance into school) serves as a key variable that can be used by researchers and practitioners for understanding where children's abilities in Spanish and English may be when they start an educational programme. This investigation confirms these findings; however, it also shows that within these two groups, there are children whose standard scores increase and children whose scores decrease during the school year, and that being exposed to English before or after school entry does not explain which children will gain or lose abilities during their preschool years. Additionally, this investigation found that a 4-month long summer vacation had a differential effect on children's abilities between academic years depending upon whether the children's scores increased or decreased when receiving instruction in English during the school year.

When children's scores increased during the school year in either English or Spanish, a similar pattern was observed. Children's scores increased during their first year in Head Start, declined significantly during the time that included a 4-month summer vacation, and then recovered, for a net increase in their abilities by the end of their second year of Head

Start. With regard to their English comprehension, children demonstrated an overall gain of two-thirds of a standard deviation on the standardized test (which has a mean of 100 and a standard deviation of 15 points). This put bilingual children's English language comprehension within the typical range for monolingual English-speaking children. Thus, children made significant gains in their English language abilities when they were in school, periods of time where they received instruction in English.

With regard to Spanish, a smaller net increase in scores was observed over the 2-year period in Head Start. Children's standard scores in Spanish increased less than one-third of a standard deviation on the standardized test over 2 years, which meant that children exited with Spanish abilities that were more than 1 1/3 standard deviations below those of the monolingual normative sample. Although this increase over the school years is positive, it is difficult to explain, given that approximately half of this group came from homes in which they were exposed to Spanish and English from birth and half were spoken to in Spanish from birth and were not expected to communicate in English until they entered Head Start. It may be that the children's parents were concerned about their children's lack of exposure to Spanish during the school year and made an effort to support their children's Spanish abilities when their children attended Head Start. Because children naturally experienced more exposure to Spanish in their homes and neighbourhoods during summer vacation, parents may not have consciously focused on their children's Spanish comprehension during the summer, and declines in Spanish comprehension occurred. During the following school year, parents may have noticed their children's lack of advances in Spanish. This realization in combination with their concern about limited exposure to Spanish in the English-speaking school environment may have prompted parents to focus on their children's Spanish abilities once again.

One may hypothesize that the children's teachers or classroom assistants may have made efforts to improve children's Spanish language abilities during the school year. Recall, however, that only a few of the teachers and half of the assistants were bilingual and that English was the language of instruction. Promotion of children's Spanish language abilities was not a goal of the Head Start programme; rather, the goal was increasing children's proficiency in English.

The opposite developmental patterns were seen for children whose scores in Spanish and English decreased during the first year in Head Start. In Spanish, children's comprehension decreased by one third of a standard deviation, increased more than one standard deviation over the summer and then decreased by nearly a standard deviation during their second year in Head Start. As a result, a statistically significant increase in children's Spanish comprehension did not occur over the 2 year period. In fact, children ended Head Start with scores more than two standard deviations below the monolingual normative sample. This does not mean children were not learning Spanish, as children needed to pass more items on the test in order to maintain a standard score; however, children were not gaining on the population on which the test was normed. The reason for the dramatic increase in the children's scores over the summer may have been due to family members' efforts to increase the children's knowledge of Spanish over the summer. Parents may not have focused on Spanish during the school year, because they did not notice the decline or they noticed the

decline but assumed this was due to the exposure to English. Parents may have thought that emphasizing Spanish at home during the school year would negatively impact the children's English abilities, and, therefore, parents may have avoided drawing attention to Spanish during the school year.

In English, the children's scores diminished slightly during the first year (as reflected in the group's median scores), increased one standard deviation during the summer, and then decreased one half of a standard deviation by the end of the second year in Head Start. As a result, children made advances in their English abilities, but began and ended Head Start more than one standard deviation behind their monolingual peers. The gain group's comprehension of English, on the other hand, benefited greatly from 2 years in Head Start. It should be noted, however, that the gain group began Head Start with scores that were nearly one standard deviation above the group that declined. Therefore, it appears that children who began preschool with more knowledge of English were able to build on those abilities during the Head Start years, but children who entered Head Start with more limited proficiency in English did not receive the benefit that children with more advanced abilities experienced.

The reasons for the differential experiences of bilingual children attending Head Start are not completely clear. It appears that the children in the gain group received input from the language learning environment during the school year that was of a sufficient level of complexity to foster growth in their language abilities. Because children in the group that declined began school with limited abilities in English, the language experiences of the classroom, which appear to have been targeted at children with proficiency in English, may have been too advanced and complex for the less proficient children. As a result, they did not make gains that were comparable to the children whose abilities increased greatly over the 2 preschool years. Given that the children whose scores declined during the school year increased over the summer months, it may be that the summer environment outside of school was more supportive of their English language development. When at home and in their neighbourhoods, the children most likely interacted in smaller groups and in a less stressful language environment. Additionally, they may have been exposed to language that was less academic and more contextualized than the language they encountered in school. Also, parents and family members may have had concerns about the children's English language and may have focused on supporting and maintaining children's English comprehension. Therefore, the experiences during the summer may have matched the children's needs better than their school experiences. On the other hand, the less academic and more contextualized language of the summer environment had the opposite effect on the children whose scores gained during the school year. As a result, their abilities declined during the summer months.

Conclusions and clinical implications

The findings of this investigation demonstrate that the timing of exposure in relation to school entry provides clinicians with valuable information about the Spanish and English language comprehension of bilingual preschoolers who are from low-income homes when they begin preschool in the US and that, regardless of whether children were exposed to

English before or after school entry, there are children whose abilities increase or decrease during the school year. The investigation also demonstrated that an extended summer vacation had an effect on the receptive language of bilingual preschoolers who are from low-income backgrounds, but the effect differed depending on children's performance across the school year. These findings are contrary to the conclusions reached on the reading abilities of elementary school age children who are from low-income homes. Research in this area has consistently documented that the reading abilities of children from low-income homes do not increase over summer vacation (Cooper et al., 1996; Alexander et al., 2001; McCoach et al., 2006). The investigations reviewed, however, did not examine the abilities of subgroups of children who followed differing developmental trajectories. Clearly, additional studies are needed that investigate the effects of an extended summer vacation on bilingual children at various points in their educational careers and that examine potential effects in a variety of educational contexts. Recall that the children who participated in this study attended a preschool programme in which English was the language of instruction. The results may have been different if the children had attended dual language classrooms or classrooms that provided instruction in Spanish. Additionally, systematic observations of language usage in the classroom would be beneficial.

This investigation has implications for clinicians working with young bilingual children. A key implication is that monitoring of children's language abilities over the school year is necessary for the early identification of children who are experiencing declines in their language abilities as reflected by standardized tests. Often, children's abilities are assessed at the beginning and end of the school year. More frequent assessments are essential if clinicians are to efficiently identify children whose scores are declining and provide support for those children's language abilities throughout the school year. Timely modifications can be made in the language learning environment to enhance children's language development. For example, some children whose scores decline in English may have stronger abilities in Spanish. Therefore, children may benefit from instruction in Spanish, or in both languages in order to support children's underlying proficiency in language (Cummins, 1979; 2001; Durgunoglu et al., 1993; Goldenberg et al., 2005). By expanding children's language systems, greater gains in English may occur over time. With regard to children whose scores are increased, it appears that significant changes in the children's educational programmes may not be needed; however, changes may need to be made over the summer so that children's abilities do not decline over the summer vacation. Providing parents with activities and suggestions of ways to support children's language development may be beneficial. Future studies are needed that replicate these findings and that investigate interventions developed for children in the two groups. Doing so will illuminate the best courses of action to enhance bilingual children's language development.

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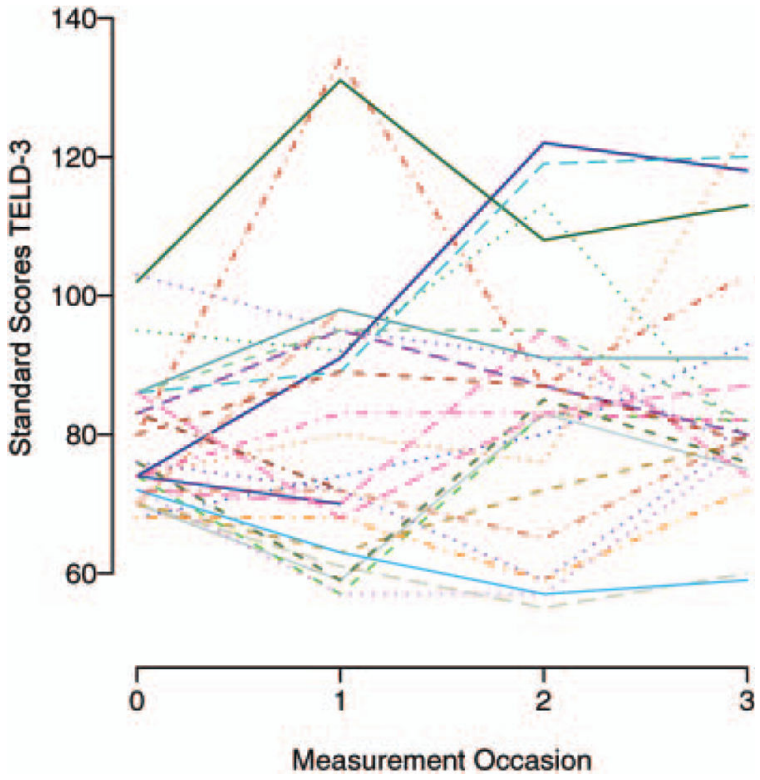

Figure 1.
Individual trajectories of the *TELD-3*.

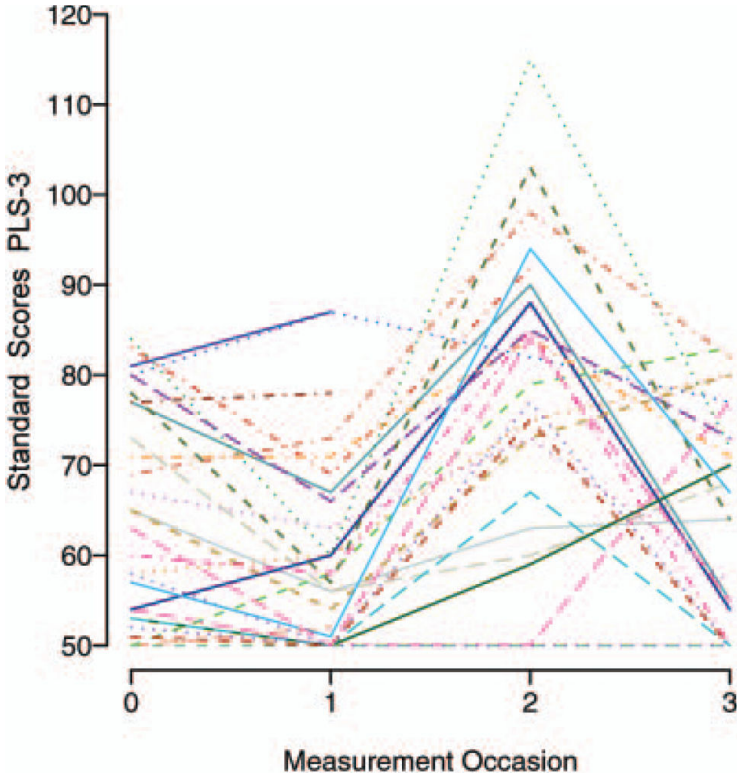

Figure 2.
Individual trajectories of the *PLS-3*.

Table I

Demographic information about the children and mothers.

Characteristic	SEC (*n* = 31) *M* (SD) or %	HEC (*n* = 52) *M* (SD) or %
Children's age (years)	3.9 (.44)	3.9 (.41)
Children's gender (Female)	22	28
Children born in Puerto Rico	32%	6%
Mothers born in Puerto Rico	88%	47%
Maternal education (years)	11.1 (1.9)	11.6 (1.4)
Mothers employed outside the home	40%	60%

Table II

TELD-3 means and standard deviations.

Bilingual group	TELD-3 Fall Year 1	TELD-3 Spring Year 1	TELD-3 Fall Year 2	TELD-3 Spring Year 2
HEC	83.70 (15.00)	86.37 (19.54)	92.19 (17.28)	94.46 (19.61)
SEC	72.89 (9.49)	78.25 (17.02)	80.16 (13.94)	85.13 (13.01)

Table III

Descriptive statistics for the *TELD-3* gain group by measurement occasion.

Time of testing	Mean	Median	SD
Fall Year 1	83.10	80.00	15.30
Spring Year 1	92.79	91.00	20.99
Fall Year 2	81.90	80.00	17.37
Spring Year 2	95.35	90.00	20.60

Table IV

TELD-3 gain group: 95% confidence intervals for intercept growth curve model.

	2.5%	50%	97.5%
Intercept	83.17	91.71	99.95
Rate of change	1.49	3.62	5.79
Bilingual group—SEC	−23.64	−12.56	−1.51
Summer	−8.05	−5.44	−2.79

Table V

Descriptive statistics for the *TELD-3* decline group by measurement occasion.

Time of testing	Mean	Median	SD
Fall Year 1	75.39	74.00	12.53
Spring Year 1	75.78	74.00	13.05
Fall Year 2	91.28	87.00	15.29
Spring Year 2	87.19	79.50	14.62

Table VI

TELD-3 decline group: 95% confidence intervals for random intercept growth curve model.

	2.5%	50%	97.5%
Intercept	72.27	77.73	83.31
Rate of change	2.61	4.16	5.60
Bilingual group—SEC	−15.58	−8.36	−1.28
Summer	2.60	4.47	6.35

Table VII

PLS-3 means and standard deviations.

Bilingual group	PLS-3 Fall Year 1	PLS-3 Spring Year 1	PLS-3 Fall Year 2	PLS-3 Spring Year 2
HEC	67.62 (14.63)	69.16 (18.09)	74.14 (19.93)	69.00 (15.05)
SEC	74.97 (13.69)	79.84 (14.98)	80.68 (15.98)	77.24 (12.74)

Table VIII

Descriptive statistics for the *PLS-3* gain group by measurement occasion.

Time of testing	Mean	Median	SD
Fall Year 1	74.21	76.00	16.17
Spring Year 1	87.39	88.00	13.91
Fall Year 2	68.74	69.00	14.70
Spring Year 2	80.70	80.00	13.68

Table IX

PLS-3 gain group: 95% confidence intervals for random intercept growth curve model.

	2.5%	50%	97.5%
Intercept	69.77	76.13	82.21
Rate of change	−1.19	1.10	3.41
Bilingual group—SEC	−1.01	5.97	13.30
Summer	−9.09	−6.15	−3.28

Table X

Descriptive statistics for the *PLS-3* decline group by measurement occasion.

Time of testing	Mean	Median	SD
Fall Year 1	66.82	65.00	12.15
Spring Year 1	62.82	60.00	12.24
Fall Year 2	86.67	88.00	17.05
Spring Year 2	66.56	67.50	11.59

Table XI

PLS-3 decline group: 95% confidence intervals for random intercept growth curve model.

	2.5%	50%	97.5%
Intercept	56.24	61.93	67.43
Rate of change	−1.63	0.24	2.20
Bilingual group—SEC	1.59	7.41	13.32
Gender—female	−5.39	0.45	6.45
Summer	8.18	10.50	12.98