

Technological Influences in Home Literacy Environments and Reading Proficiency

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Abstract: *Researchers have discovered that the home literacy environment (HLE) and the age at which a kid acquires a second language (L2) have a significant influence on the development of language in monolingual children. The purpose of this research was to evaluate the influence that HLE and the age at which children acquire a second language have on the development of children's vocabulary and reading skills in Chinese-English bilinguals. A total of fifty-nine youngsters who were multilingual in Chinese and English took part in the research. While this was going on, one of the parents filled out the questionnaire on the child's history of language development. Reading and vocabulary exercises were performed by the children in both Chinese and English translations. Reading and conversational interactions between parents and children were expected to have a favorable correlation with the development of vocabulary and reading skills in both languages. This hypothesis was based on the consideration of both within-language and cross-language impacts. In order to evaluate the hypotheses, we used partial correlations, which allowed us to adjust for testing age. We discovered that the relationship between the amount of time spent reading in English with a kid and the child's overall reading growth in English was positive. Furthermore, the increase in the amount of time that parents spent conversing with their children in Chinese led to an improvement in the child's vocabulary in Chinese, whereas the child's vocabulary in English became worse. Additionally, if a child's parents engaged in conversations with them in English, the child's vocabulary and reading ability in English improved, but the child's Chinese vocabulary deteriorated significantly. Specifically with regard to vocabulary, the findings demonstrated that the use of one language in the family environment had a beneficial impact on that language, while having a detrimental impact on another language.*

Keywords: Parental Involvement, Storytelling

I. INTRODUCTION

Home literacy environments have a significant impact on the development of language and reading skills. According to Peters et al. (2009), the home literacy environment (HLE) is comprised of the home literacy resources and experiences. These include the kid's exposure to storybook reading, chances for verbal engagement with the child; activities that the parent engages in to teach literacy, and the parent's own literacy habits.

Multilingualism is on the rise in the United States. When compared to the rate of 17.9% in the year 2000, the Community Survey 3-Year Estimates for the years 2006–2008 revealed that 19.6% of the population aged 5 and over speak a language other than English at home. Shin and Bruno (2003) found that this percentage had drastically decreased. Although there are several studies that demonstrate how the HLE affects the language development of monolingual children, the findings of these studies cannot be properly extended to children who speak more than one language or who speak more than one language. For instance, it is generally acknowledged that reading to children at home may be beneficial to the development of their language skills (for instance, Farrant&Zubrick, 2011). However, for parents whose first language is not English, the question arises as to whether they should read books to their children in English or in their native language. As a result of the fact that HLE is essential for the development of children's language skills, parents of children who are bilingual or multilingual need more specific instructions for the kind of HLE that is most effective for their children. In this research, we examined the HLE of children who were

bilingual in English and Chinese by focusing on three aspects: the activities of reading books together with their parents, the activities of having conversations with their parents, and the age at which they began learning their second language. After that, we used the children's reading comprehension and vocabulary knowledge in both English and Chinese in order to investigate the influence that HLE had on the language development of the bilingual youngsters.

Parent-child Book Reading Activities

In what ways might activities that include reading books together with a parent have an effect on the development of a child's vocabulary and the acquisition of reading skills in children who are bilingual in Chinese and English? According to Vygotsky (1978), the most optimal environment for the development of children's language is when parents read books to their children. In this environment, children get help for language development that is contextual as well as social, and it is adapted to fulfill the needs that are unique to them.

Additionally, when parents read aloud to their children, they provide them the opportunity to get familiar with terminology that they have not encountered in their day-to-day lives. In addition to this, it provides a suitable environment for parents to label visuals and use vocabulary that is more complicated. Therefore, it is especially helpful in supporting children in the learning of new vocabulary words and more complex language structure (for example, DeTemple& Snow, 2003). This is because it is beneficial to the development of language skills.

The reading of books by parents to their children has been shown to have a positive link with the development of children's vocabulary, as shown by a number of studies (for instance, Farrant and Zubrick, 2011). These investigations were carried out on individuals who only speak English as their first language. According to Bus, van Ijzendoorn, and Pellergrini (1995), the results of a meta-analysis indicated that children's emergent literacy and reading performance were favorably influenced by parent-child reading together. This was evidenced by the fact that the children's reading performance improved. Researchers came at this realization as a result of their investigation.

In contrast, there has been a very little amount of study carried out on Chinese individuals who speak just one language. The common practice of parents reading books to their children in Hong Kong was found to be beneficial to the development of the children's Chinese vocabulary, according to the findings of an experiment that was carried out in Hong Kong (Chow & Chang, 2003). However, the experiment did not improve the children's ability to read in Chinese. Additionally, Chow, McBride-Change, and Cheung (2009) found that reading in English on a regular basis led to a significant increase in the English word reading ability of monolingual Chinese children. This was the case even when the children were only able to access English. On the other hand, contrary to the substantial body of research data that discusses the impact of parent-child reading on the development of children's vocabulary in their native language (for example, Hood et al., 2008), reading activities in English as a second language did not result in a significant improvement in the Chinese vocabulary. This is because the Chinese vocabulary was not significantly improved.

The impacts of reading to children in a second language have been the subject of a number of studies that have been conducted. One study (Patterson, 2002) found that there are language-specific correlations between parental estimations of the frequency of parent-child reading and the quantity of vocabulary that Spanish children have in both English and Spanish. These correlations were shown to exist between the two variables. According to Collins (2005), the development of English vocabulary skills among Portuguese toddlers may be fostered by the learning of new vocabulary abilities via the reading of English storybooks. This might be useful to the development of English vocabulary skills.

When it comes to monolingual English children, previous research has demonstrated that there is a positive correlation between the frequency of book reading activities between parents and children and the children's vocabulary growth and reading acquisition. For instance, Farrant and Zubrick (2011) and Bus, van Ijzendoorn, and Pellergrini (1995) are two examples of studies that have demonstrated this favourable correlation. On the other hand, there have only been a handful of studies undertaken on the effects of activities such as reading books to children by their parents for children who are bilingual in Chinese and English.

Parent-Child Conversational Activities

One of the most crucial questions to ask is whether or not there is a connection between the language that parents use in their homes and the growth of their children's vocabulary as well as their ability to read.

When it comes to children who are only able to communicate in English, there is a plethora of data that suggests that the communication that occurs between parents and children is connected to the development of children's vocabulary. In the course of the many research that have been carried out on the topic of the role that parental communication input has in the development of a child's vocabulary, the relevance of the amount of input has been brought to light. According to research that was carried out by Huttenlocher and colleagues in 1991, the amount of linguistic input that is provided by parents has been proven to have a positive link with the rate at which newborn newborns acquire vocabulary. Furthermore, Hart and Risley (1995) discovered that there was a substantial and positive association between the amount of the children's vocabulary at each age and the number of words that were said to them by their caretakers. This correlation was shown to be positive even if it was significant.

A study that was carried out on the language input for Spanish-English bilingual children came to the conclusion that there is a substantial correlation between the amount of vocabulary acquisition in a given language and the quantity of input in that language (Pearson et al., 1997). This was the result reached by the researchers. This was the conclusion that the researchers studying bilinguals came upon after their investigation. Further study that looked at bilinguals who spoke Spanish and Catalan found that the pattern of brain activity in bilinguals is altered by the language usage, even if both languages are learnt at a young age. This was revealed by looking at bilinguals who spoke both languages.

According to the results of prior study (for instance, Huttenlocher et al., 1991), the vocabulary of a child in a given language improves in proportion to the amount of time that parents spend conversing with their child in that language. This is the case no matter what language the child is speaking. There have been a few research carried out on Chinese-English multilingual communities in the United States; however, the scope of these studies is restricted. The relationship between the acquisition of reading skills and the transmission of language is another area in which there is a dearth of relevant information.

Age of L2Acquisition

How does the age of language acquisition (AoA) affect the amount to which children develop their vocabulary and learn to read? What are the methods in which this occurs?

The accumulation of behavioral data is making it more apparent that the age at which words are learned is a crucial element in the development of language. This is getting more and more obvious as time goes on. Within the context of this specific piece of literature, the term "age of second language (L2) acquisition" was used to refer to the age at which a child who is bilingual began receiving considerable, systematic, and sustained exposure to his or her second language for the first time. It is not very typical for some bilingual children to not be exposed to the dominant language in a systematic fashion throughout their first couple of years of life in the United States of America. This is because the dominant language is the language that is most often used.

According to the results of a study that reviewed the findings of more than 140 behavioral and computational research on AoA (Juhasz, 2005), words that are learnt earlier in infancy are processed more quickly or properly than words that are learned later in life. This was the conclusion reached by the researchers. Furthermore, a considerable body of research has shown that linguistic abilities are sensitive to the age at which one is introduced to words and phrases. This is something that has been well studied. According to Birdsong (1999), persons who acquire a language later, especially after late infancy or puberty, do not obtain the same level of proficiency as early learners. This is the case in general. It is particularly important to keep this in mind while learning a language after puberty.

The age at which a person is exposed to a second language has been proven to have a significant impact on the process of learning a second language, according to results from previous studies. Johnson and Newport (1989) did a research in which they investigated the development of English grammar among a group of forty-six native Korean or Chinese speakers who had arrived in the United States between the ages of three and forty-nine with the intention of determining how English grammar was developed among these individuals. As they progressed through puberty, they found that the performance on the test was linearly related to the age at which the individual was born.

Furthermore, there is evidence that shows that even if infants acquire a second language within a period of time that is regarded to be early enough, the children's linguistic skills are still impaired. This is the case even if the children learn the language at an early age. In a study that utilized functional magnetic resonance imaging (fMRI) to investigate Spanish-Catalan bilinguals, the researchers discovered that AoA has an impact on the pattern of brain activity in

bilingual individuals. This is the case even if both languages are learned at a young age and with a level of proficiency that is comparable (Perani et al, 2003). An additional research found that the age at which Spanish-English bilinguals were first exposed to their second language is an excellent predictor of whether or not they would be successful in reading in the future. This was shown to be the case. According to Kovelman, Baker, and Petitto (2008), it is realistic to predict that bilinguals who are introduced to the second language at an early age would perform on a range of reading tasks at the same level as their monolingual counterparts. This is because bilinguals are more likely to be exposed to the second language.

Previous studies, such as the one that was carried out by Perani et al. in 2003, have shown that there is a positive correlation between the AoA and the children's increase in vocabulary as well as their learning of reading skills. On the other hand, there has not been a substantial amount of study carried out on the development of reading and language skills among Chinese-English bilinguals. Furthermore, children who learnt a second language at a young age were not included in the study that was carried out in the past.

Taking everything into perspective, a great number of previous studies have focused on different aspects of the affects that HLE has on the development of vocabulary and the acquisition of reading skills in children who are monolingual in English. On the other hand, there have been a relatively limited number of studies that have focused on children who are bilingual in Chinese and English. There is a rapid increase in the number of individuals in the United States who are able to communicate in both Chinese and English. Chinese is a language that is quite different from other alphabetic languages. As a result of this, the parents of children who are bilingual in Chinese and English are looking for clarification about the process of creating HLE specifically for their children.

The Present Study

The current study aimed to evaluate the potential influence that HLE (parent-child book reading activities and conversational activities) and the age of L2 acquisition may have on the development of vocabulary and reading acquisition in Chinese and English among Chinese-English bilingual children. Specifically, the research evaluated the potential influence that HLE may have on the development of vocabulary and reading acquisition in Chinese and English. As a consequence of the effects that occur inside a language, one of our presumptions was that the greater the number of parents and children who speak a given language, the more skilled that language would be (for instance, more Chinese would be better Chinese). As a result of the phenomena that is known as cross-linguistic effects, which is often referred to as positive transfer, we also hypothesised that the experience of learning one language may be advantageous to the process of learning another language. For the goal of providing answers to these questions, we carried out study on 59 young people who were fluent in both Chinese and English. Through the use of the bilingual environment questionnaire, we were able to ascertain the HLE in addition to the age at which the second language was learned. After that, we assessed the students' reading comprehension in both English and Chinese, as well as their vocabulary knowledge in both languages. To test the hypotheses, we used the Pearson Partial Correlation test (with testing age being accounted for). This allowed us to determine whether or not the hypotheses were correct.

II. METHOD

Participants

Every single one of the participants was a young person who was fluent in both Chinese and English. The sample consisted of 59 people in total, with 18 men and 41 females being included in the number of participants involved. When the examination was carried out, the ages of the individuals who took part ranged from 5.98 to 12.75 years old (the mean was 8.65 years old, and the standard deviation was 1.78 years). Furthermore, 94.9% of the participants were born in countries where English is the major language, but just 5.10 percent of them were born in China, regardless of the country in which they may have been born. Furthermore, 93.20 percent of the children had gotten official education in Chinese, while only 6.80 percent of the children had not obtained formal training in Chinese. This indicates that the majority of the children had received Chinese education.

One of the parents of at least one of the participants was able to speak Mandarin well, and none of the participants had a history of any neurological language impairments that were known to exist. A mean of 0.11 and a standard deviation of 0.795 The parents said that their children had been exposed to Chinese culture between the ages of 0 and 6 months

when they were still in their infant stages. Despite the fact that the average age at which children started attending English childcare was 27.33 months (with a standard deviation of 14.02 and a range of 0 to 48), six out of every 57 children did not attend a childcare facility. They were between the ages of four and seven when they began attending school for the first time; the bulk of them started school when they were five years old, and just six out of 57 children attended elementary school at home.

III. RESULTS

Descriptive

Frequency of book reading activities On a scale ranging from one to five, the frequency of book reading activities that took place at home was assessed. One meant never, and five meant constantly. The frequency with which parents reported reading Chinese to their children varied from 0 to 5 (mean = 3.02, standard deviation = 0.99), and the frequency with which they read English to their children likewise ranged from 0 to 5 (mean = 3.53, standard deviation = 1.09). The majority of parents read to their children in both of their own languages. Furthermore, we did not discover any association between the frequency of activities involving reading English books and activities involving reading Chinese books, with $r(56) = .10$ and $p = .46$ to indicate this. Furthermore, it is seen that parents tend to read English books to their children more often than they do Chinese novels, as shown by the statistical analysis ($t(59) = 24.88$, $p < .01$).

Frequency of conversational activities

We used a scale that ranged from 1 to 5 to determine the frequency of conversational activities between parents and their children. 1 meant never, and 5 meant often. The average number of times that parents spoke Chinese to their children was 4.11 (standard deviation = .92, range = 1 – 5), while the average number of times that parents spoke English to their children was 3.20 (standard deviation = .94, range = 2 – 5). In addition, it was observed that the frequency with which parents talked Chinese to their children was inversely proportional to the amount of English that they spoke to their children, with a correlation coefficient of -0.63 and a p-value of less than .01. Additionally, it was observed that parents talked Chinese at home more often than English, with a t-value of 34.51 and a p-value of less than .01.

Age/context of exposure to Chinese

The parents' testimony states that the participants were exposed to Chinese culture on a systematic basis from infancy. The parents of the children were all recent immigrants from China, at least one of them, therefore all Chinese was a language that children were exposed to from birth.

Age/context of exposure to English

When evaluating a kid's early exposure to English, two indices were taken into account: the age at which the child enrolled in an English-speaking daycare, and the presence of a native English speaker in the child's parent. The child's age of English exposure was determined by their "birth" if at least one of their parents was a monolingual native English speaker. The age at which a child might enroll in an English-speaking daycare was considered to be their first formal exposure to the language, and it varied from birth to 48 months for all other children.

IV. CORRELATIONS

Parent-child reading activities

The degree to which the frequency of parent-child reading activities predicted the bilingual children's vocabulary awareness and reading acquisition was assessed using partial correlations (controlling for testing age).

The frequency of parent-child reading activities in Chinese had no effect on the child's acquisition of Chinese reading skills ($r(56) = .01$, $p = .92$) or Chinese vocabulary growth ($r(56) = -.02$, $p = .89$). Additionally, it had no effect on the child's acquisition of English reading ($r(49) = -.14$, $p = .34$) or English vocabulary growth ($r(56) = -.21$, $p = .12$).

The frequency with which children were read English at home had little effect on the development of their Chinese vocabulary. Chinese reading acquisition $r(56) = -.16$, $p = .24$, and $r(56) = -.17$, $p = .22$. Furthermore, the frequency of English-language reading by parents had no effect on the development of the kids' vocabulary in the language. However, a child's English reading acquisition was better the more parents read to them in the language ($r(49) = .31$, $p < .05$).

Parent-child conversational activities

The degree to which the frequency of parent-child conversational language usage predicted the children's awareness of the Chinese and English languages was examined by partial correlations (controlling for testing age).

The growth of a child's Chinese vocabulary improved with the amount of time parents spent speaking Chinese to them, $r(56) = .45$, $p < .01$; however, the usage of Chinese in everyday conversations did not influence the child's acquisition of Chinese reading skills, $r(56) = .11$, $p = .42$. Furthermore, although there was a tendency showing that the more a parent spoke Chinese to their kid, the poorer the child's English vocabulary growth became ($r(56) = -.26$, $p = .05$), Chinese use at home had no effect on the child's acquisition of English reading skills ($r(49) = .04$, $p = .78$).

The growth of the child's Chinese vocabulary was negatively impacted by the amount of English that parents used at home ($r(56) = -.44$, $p < .01$), while the acquisition of Chinese reading skills was unaffected ($r(56) = -.13$, $p = .33$). Furthermore, we observed a trend showing that the more parents spoke to their kid in English, the better the child's acquisition of English reading ($r(49) = .26$, $p = .07$). The more parents spoke to their child in English, the better the child's growth of English vocabulary ($r(56) = .39$, $p < .01$).

Age of L2 acquisition

To assess how effectively the age of exposure to English predicted the bilingual children's vocabulary awareness and reading acquisition, partial correlation analyses (controlling for testing age) were carried out.

The development of the kid's English vocabulary ($r(50) = -.10$, $p = .53$) and English reading acquisition ($r(44) = .13$, $p = .39$) were unaffected by the age at which the child was bilingually exposed to English. The child's acquisition of Chinese reading skills ($r(50) = -.1$, $p = .50$) and Chinese vocabulary ($r(50) = -.04$, $p = .77$) were unaffected by the English age of exposure.

V. DISCUSSION

In this research, we looked at how young heritage Chinese speakers who were nurtured in an English-speaking environment developed their language and reading skills. Specifically, we investigated the effects of parent-child conversational activities, reading activities, and age of bilingual exposure on the vocabulary development and English and Chinese reading acquisition of bilingual children.

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